Food and Agriculture Organization of the United Nations

World Health Organization

Pesticide residues in food

REPORT 2025

Joint FAO/WHO Meeting on Pesticide Residues

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Abbreviations

AChE	acetylcholinesterase
AD	administered dose
ADI	acceptable daily intake
ADME	absorption, distribution, metabolism, excretion
AGF	aspirated grain fractions
ALP	alkaline phosphatase
ALT	alanine transaminase
AR	administered radioactivity
ARfD	acute reference dose
as	as received
AST	aspartate transaminase
AUC	area under the concentration–time curve
BBCH	Biologische Bundesanstalt, Bundessortenamt und Chemische Industrie
BMD	benchmark dose
bw	body weight
CAC	Codex Alimentarius Commission
CAR/PXR	constitutive androstane receptor/pregnane X receptor
CAS	Chemical Abstracts Service
CCPR	Codex Committee on Pesticide Residues
cGAP	critical GAP
ChE	cholinesterase
C_{max}	maximum concentration
DAA	days after application
DAFT	days after first treatment
DALA	days after last application
DAT	days after treatment
DM	dry matter
DNA	deoxyribonucleic acid
DT_{50}	time required for 50 percent dissipation of the initial concentration
dw	dry weight
EFSA	European Food Safety Authority
eq	equivalent(s)
ESI	electrospray ionization
FAO	Food and Agriculture Organization of the United Nations
$GABA_A$	γ-aminobutyric acid, type A
GAP	good agricultural practice
GC-ECD	gas chromatography–electron capture detector
GC-MS	gas chromatography–mass spectrometry
GC-NPD	nitrogen-phosphorus detectors
GD	gestation day
GECDE	global estimate of chronic dietary exposure
GEMS	Global Environment Monitoring System–Food Contamination Monitoring and Assessment Programme
GGTP	γ-glutamyl transpeptidase/transferase
GI	gastrointestinal
GLP	good laboratory practice
HBGV	health-based guidance value
Hb	haemoglobin

HCB	hexachlorobenzene
HPLC	high performance liquid chromatography
HPRT	hypoxanthine–guanine phosphoribosyl transferase
HR	highest residue level in the edible portion of a commodity
HR-P	highest residue level in a processed commodity
Ht	haematocrit
IEDI	International Estimated Daily Intake
IESTI	International Estimate of Short-term Intake
ILV	independent laboratory validation
ISO	International Organization for Standardization
IUPAC	International Union of Pure and Applied Chemistry
JECFA	Joint FAO/WHO Expert Committee on Food Additives
JMPR	Joint FAO/WHO Meeting on Pesticide Residues
LC_{50}	median lethal concentration
LC-MS/MS	liquid chromatography-tandem mass spectrometry
LD_{50}	median lethal dose
LLNA	local lymph node assay
LOAEL	lowest-observed-adverse-effect level
LOD	limit of detection
LOQ	limit of quantification
LP	large portion
mADI	microbiological ADI
mARfD	microbiological ARfD
MOA	mode of action
MRL	maximum residue limit
NIS	sodium/iodide symporter
NOAEC	no-observed-adverse-effect concentration
NOAEL	no-observed-adverse-effect level
NTE	neuropathy target esterase
OECD	Organisation for Economic Co-operation and Development
PBI	plant-back interval
PF	processing factor
PHI	pre-harvest interval
PND	postnatal day
Po	post-harvest
POD	point of departure
ppm	parts per million
PXR	pregnane X receptor
QuEChERS	quick, easy, cheap, effective, rugged and safe
QSAR	quantitative structure–activity relationship
RAC	raw agricultural commodity
RBC	red blood cell
RSD	relative standard deviation
RTI	re-treatment interval
SC	suspension concentrate
SCE	sister chromatid exchange
SD	standard deviation
SDHI	succinate dehydrogenase inhibitor
SPE	solid phase extraction
STMR	supervised trials median residue
STMR-P	supervised trials median residue in a processed commodity
$t_{½}$	half-life

T3	triiodothyronine
T4	thyroxine
THF	tetrahydrofuran
TLC	thin-layer chromatography
T_{max}	time to reach maximum concentration
TPO	thyroid peroxidase
TRR	total radioactive residues
TSH	thyroid stimulating hormone
TTC	threshold of toxicological concern
UDP-GT	uridine diphosphate glucuronosyltransferase
US EPA	United States Environmental Protection Agency
v/v	volume for volume
w/v	weight for volume
w/w	weight for weight
WHO	World Health Organization

Units

°C	degree(s) Celsius
µ	micron(s)
ai	active ingredient
bw	body weight
eq	equivalent(s)
g	gram(s)
h	hour(s)
ha	hectare(s)
hL	hectolitre(s)
kg	kilogram(s)
L	litre(s)
mg	milligram(s)
mol	mole(s)
ppm	part(s) per million

Use of JMPR reports and evaluations by registration authorities

Most of the summaries and evaluations contained in this report are based on unpublished proprietary data provided for use by JMPR in making its assessments. A registration authority should not grant a registration on the basis of an evaluation unless it has first received authorization for such use from the owner of the data provided for the JMPR review or has received the data on which the summaries are based, either from the owner of the data or from a second party that has obtained permission from the owner of the data for this purpose.

1. Introduction

A Joint Meeting of the Food and Agriculture Organization of the United Nations (FAO) Panel of Experts on Pesticide Residues in Food and the Environment and the World Health Organization (WHO) Core Assessment Group on Pesticide Residues (JMPR) was held at WHO, in Geneva, Switzerland from 20 to 22 January 2026. The WHO Core Assessment Group met in preparatory session from 16 to 25 September 2025 in Bangkok, Thailand. FAO Panel Members met in preparatory sessions from 24 November to 3 December 2025 in Rome, Italy.

The meeting was opened by Luz Maria De Regil, Director of the Department of Nutrition and Food Safety, WHO, who welcomed the experts to the meeting and thanked them for their valuable time. Dr De Regil highlighted the importance of the JMPR and its critical contributions to Member States and the Codex Alimentarius, as well as emphasized that this new phase of JMPR's work will be accompanied by strengthened collaboration and communication between the FAO Secretariat and WHO Secretariat, reinforcing the truly joint nature of both the meeting and its work. Finally, Dr De Regil emphasized the importance of communicating transparently to Member States the ongoing efforts, both internally and in collaboration with expert groups, to deliver high-quality scientific advice grounded in the best available evidence.

Luz Maria de Regil invited Yurdi Yasmi, Director of the Plant Production and Protection Division, FAO, to address the meeting, who welcomed and thanked the participants for providing their expertise and for devoting significant time and efforts to the work of JMPR. He highlighted that JMPR plays a critical role in safeguarding global food safety and supporting sustainable agrifood production in context of extraordinary pressure on food security and agriculture resilience in the world. The Plant Production and Protection Division plays a pivotal role in the transformation of agrifood systems and the promotion of sustainable pest and pesticide management with an emphasis on risk reduction. He underscored that increasing scientific complexity, expanding member demands, and recent delays demonstrate the need for stronger governance of JMPR. He stated that FAO is working together with WHO to modernize the JMPR system through clearer processes, better coordination, and a more transparent way of working. The revised standard operating procedures will ensure a better process, clearer mechanisms, and the timely delivery of scientific advice. He further emphasized that continued professionalism, integrity, and dedication of JMPR experts remain the foundation of JMPR's longstanding credibility and global impact.

Guibiao Ye, FAO JMPR Secretariat, welcomed Juliana De Oliveira Mota, new member of the WHO Secretariat. Guibiao Ye thanked WHO for providing JMPR with the opportunity to organize the meeting at WHO headquarters and welcomed all participants.

Prior to the preparatory meetings and meeting, the FAO Secretariat and WHO Secretariat received declarations of conflicts of interest from their respective panels of experts. The JMPR Secretariat informed the meeting that declarations from all experts had been received, and upon review, identified no conflicts of interest that would affect their full participation in JMPR 2025 agenda items.

Additionally, the list of all JMPR 2025 participants with their professional profiles was published on the websites of FAO and WHO two weeks before the meeting. No objections to the selected experts were received from the public; therefore, the groups of experts were cleared for full participation without any identified conflicts of interest.

During the meeting, the FAO Panel of Experts were responsible for reviewing residue and analytical aspects of the pesticides under consideration, including data on their metabolism, fate in the environment and use patterns, and for estimating the maximum levels of residues that might occur as a result of use of the pesticides according to good agricultural practice (GAP). The meeting evaluated 38 pesticides – including seven new compounds and three compounds that were re-evaluated within the periodic review programme of the Codex Committee on Pesticide Residues (CCPR) – for toxicity and/or residues.

Maximum residue levels, supervised trials median residue (STMR) and, where appropriate, highest residue (HR) values were estimated for commodities of plant and animal origin. The maximum residue levels were recommended for use by CCPR; STMR and HR values were used as a basis for estimating dietary intake.

The WHO Core Assessment Group was responsible for reviewing toxicological and related data in order to establish acceptable daily intakes (ADIs) and acute reference doses (ARfDs), where necessary.

The meeting also estimated the dietary exposures (both long-term and acute) of the pesticides reviewed; on this basis, the meeting performed a dietary risk assessment in relation to the relevant ADI, and where necessary, ARfD. Cases in which ADIs or ARfDs may be exceeded were clearly indicated in order to facilitate the decision-making process by CCPR.

The meeting considered a number of current issues related to the risk assessment of chemicals, the evaluation of pesticide residues and the procedures used to recommend maximum residue levels.

2. General considerations

2.1 Updates on upcoming dietary risk assessment activities

The meeting received a range of documents summarizing a number of issues related to the dietary risk assessment methodologies being developed by the JMPR. These documents included the draft report of the 56th Session of the Codex Committee on Pesticide Residues (CCPR56) (FAO and WHO, 2025a) and CCPR56 Conference Room Documents (CRDs) such as those submitted by member countries and observers (FAO and WHO, 2025b).

The meeting was informed by the Joint Secretariat that an ad hoc meeting will be convened to address and develop, to the extent possible before the next JMPR, methodologies that are updated and adequate for the dietary risk assessment of compounds evaluated by the JMPR. The meeting recommends that participants to this meeting include individuals with expertise in dietary exposure assessment, toxicology and pesticide residues. In addition, the present JMPR meeting considered that the participation of individuals both with no active experience in JMPR activities and with such experience would be instrumental for a positive outcome of the proposed meeting.

The meeting was made aware that a draft background document is in progress addressing the issues summarized in the mentioned documents. This background document includes general information about dietary risk assessment methodologies, consideration of the international estimated daily intake (IEDI) and global estimate of chronic dietary exposure (GECDE) methodologies used by the JMPR, validation work that has been conducted to date, and responses to issues and questions raised during previous JMPR meetings. This document may help the Joint Secretariat in developing the terms of reference for the ad hoc meeting and as a background document for this ad hoc meeting.

2.2 Integration of data from new approach methodologies into JMPR's pesticide safety assessments

Background and objective of the discussion

Advances in science are rapidly expanding the application of new approach methodologies (NAMs), including *in vitro*, *in silico*, and other non-animal testing methods. Information from NAMs has been utilized by JMPR in its pesticide safety assessments for many years (e.g. the evaluation of the genotoxicity of metabolites). However, the use of this kind of data remains under development in pesticide evaluation. This issue was the subject of a workshop jointly organized by WHO and Nanyang Technological University Singapore in June 2025, the outcome of which was presented at the current meeting. The meeting discussed the possibility and feasibility of expanding the use of NAMs in the safety evaluation of pesticides.

How does JMPR see the application of NAMs in its safety evaluations?

NAMs encompass a broad and evolving range of methods, making their definition challenging. The acceptance of NAMs by the JMPR depends on the robustness, scientific validity, and fitness-for-purpose of each method. The application of some NAMs is limited by the state of our current mechanistic understanding. Additionally, very few NAMs have validation from the Organisation for Economic Co-operation and Development (OECD). To ensure pesticide evaluations use the best available science, JMPR will assess NAMs on a case-by-case basis, rather than await formal validation.

How can JMPR's safety assessment of pesticides be improved using NAMs?

Currently, some NAMs can be used for decision-making, while others can be used as supplemental information in a weight-of-evidence approach. The 2025 meeting emphasizes that NAMs have the potential to improve both the accuracy and efficiency of dietary risk assessments. NAMs can also contribute to the reduction, refinement and replacement of animals used for toxicological testing. The meeting further encourages submission of NAMs-derived data for further consideration in its safety assessments.

How can the JMPR contribute to the appropriate use of NAMs?

An update of Environmental Health Criteria 240: Principles and Methods for the Risk Assessment of Chemicals in Food[2] (EHC 240) is recognized as necessary, to include guidance on fit for purpose application of NAMs and how they are reported and evaluated. The guidance should cover general principles and should be sufficiently agile to incorporate future developments. Experts from both JMPR and the Joint FAO/WHO Expert Committee on Food Additives (JECFA) should be involved in the update of EHC 240. Building trust and confidence among Member States regarding the use of NAMs in pesticide safety evaluations is essential for broader acceptance. Therefore, transparent and clear communication to and from CCPR is essential.

Encouraging sponsors to submit NAMs data, and providing guidance and feedback, will support the appropriate use of these methods. Future calls for data should continue to encourage the submission of NAMs data.

The meeting recommends that the Secretariats of both JMPR and JECFA set up a working group to update the EHC 240 and that JECFA review the application of NAMs in their assessments.

[2] Principles and methods for the risk assessment of chemicals in food: https://www.who.int/publications/i/item/ 9789241572408

2.3 Non-linear toxicokinetics guidance electronic working group

The meeting recommends that the electronic working group continues its work with the aim of finalizing the guidance for JMPR monographers and reviewers on non-linear toxicokinetics in 2026.

2.4 Plasma and/or blood area under the concentration–time curve (AUC) ratio use for identification of major rat metabolites

An important consideration in JMPR assessments of the toxicological profile of metabolites of pesticides is the extent to which they would have been covered by studies of the parent compound. If the metabolite is a significant biotransformation product (higher than 10 percent of the administered/absorbed dose), it is considered to have been covered by these studies. This assessment is most often performed from the amount excreted in urine, although information from other routes of excretion, including bile, can be useful. Some have suggested that such information can be obtained from blood or plasma data. However, it is the view of JMPR that plasma (or blood) $AUC_{metabolite}$ to AUC_{parent} or $AUC_{total\ radioactivity}$ ratio should not be used as the sole determinant of whether or not a metabolite is a major biotransformation product. AUC is not a direct measure of systemic exposure on a mass balance basis.

2.5 Update on the Guidance Document for WHO Monographers and Reviewers

The meeting discussed the draft Guidance Document for WHO Monographers and Reviewers, as well as provided further comments. The meeting recommends that the draft be revised as soon as possible and made available for a final round of commenting.

2.6 Transition of maximum residue recommendations for meat according to the new Codex Classification for Food Commodities

Upon request of Codex Secretariat during the meeting, advice on the transition of current MRLs for fat soluble compounds in “mammalian meat (other than marine animals)” and “poultry meat” into the new Codex Classifications for the “Group of muscle (mammals other than marine animals)” and the “Group of avian muscle” was sought.

The meeting noted that maximum residue levels for meat, as recommended prior to the procedure for transition as described in General consideration 2.4 of the 2024 JMPR report, were based on residues in fat tissue instead of residues in muscle tissue. It was suggested to apply the following footnote to these MRLs until reconsideration of residues in animal commodities is made by the JMPR:

> The MRL refers to "meat" for which the portion of the commodity to which the MRL applies, and which is analysed, is the whole commodity (without bones). For fat soluble pesticides, a portion of the adhering fat is analysed, and MRLs apply to the fat.

2.7 Maximum residue level recommendations for fat-soluble pesticides for milk and milk fat under the new classification for animal commodities

The meeting noted the conclusions of CCPR 2025 with respect to CCPR agenda item 6.2 CXLs for milk and milk fat,[3] reiterating its request for JMPR to insert the following note alongside the MRL for milk fats in all cases where MRLs were established for both milk fats and milks for fat soluble pesticides:

> For monitoring and regulatory purposes, whole milk is to be analysed, and the result compared to the MRL for whole milk.

To assist CCPR, the meeting agreed to include the footnote for all recommendations for milk fats (FM 0183) in Annex 1 of the JMPR report.

2.8 Publication of the intake calculations for the metabolites assessed with the threshold of toxicological concern (TTC) approach in the report

At CCPR56, some members suggested that making the threshold of toxicological concern (TTC) calculations accessible in the JMPR report would be beneficial. In response to this request, the JMPR Secretariat requested the 2025 JMPR to study the feasibility of including such information in the report for better transparency.

After discussing the feasibility of the request, the 2025 JMPR decided to include a summary table with the residue input values of the metabolites for TTC calculations into the report, including explanatory comments, if needed.

Considering the size limitations of the report and the technical difficulties of including links to electronically available assessments, the meeting decided not to include the output of the TTC calculations in the report. The same dietary intake models (IESTI and IEDI) for the acute and chronic TTC assessments of the metabolites are used for the estimation of dietary intake of parent compound and the metabolites covered by the health-based guidance values (HBGVs) of the parent. By making both the input values and the published intake models available, the meeting concluded that the transparency and reproducibility is sufficiently accommodated.

[3] CXLs refer to Codex MRLs.

2.9 Dietary burden calculation for updates on maximum residue limits (MRLs) for animal commodities

At CCPR56, some members expressed reservations to the advancement of the proposed MRLs for animal commodities for several compounds. They noted that for products of animal origin, an updated dietary burden calculation was needed since the methodology has changed since 2018.

Additionally, these members suggested that making the input values used in the dietary burden calculations accessible in the JMPR report would be beneficial.

It is noted that the 2024 JMPR started including the input values for feed commodities for new uses (FAO and WHO, 2025c). The 2025 JMPR agreed that including a comprehensive input table for dietary burden calculations, as well as including the feed commodities evaluated in previous years, would indeed be more transparent and helpful for future recalculations in case of additional use requests. A summary table with input values will be included in the report.

The 2025 JMPR executed new dietary burden calculations for all compounds evaluated at the 2025 JMPR, including the compounds with recent dietary burdens and compounds with additional uses not related to feeds. The meeting has not been consistent in applying input values for processed feed commodities. Therefore, input values of raw agricultural commodities (RACs) will be used if no data on the processed feed commodities are available.

The meeting concluded that the availability of the summary table and the published OECD feed calculator tool is sufficiently transparent to reproduce the dietary burden calculations.

2.10 Revision of OECD TG 506: stability of pesticide residues in stored commodities

The meeting noted that the latest revision of OECD TG 506[4] on storage stability was published in June 2025 (OECD, 2025). Within the latest revision, several major changes were introduced:

- full alignment for plant commodities with the current Codex Classification of Foods and Animal Feeds;
- reduction and reorganization of commodity grouping into four matrix groups (commodities of high water content, high acid content, high oil content and dry commodities); and
- principles on the minimum data requirements and representative commodities for the extrapolation to other commodities.

[4] OECD TG 506 refers to Test Guideline 506 from the Organisation for Economic Co-operation and Development.

The meeting decided to take these principles into account when assessing the storage stability in frozen plant commodities, beginning at the 2026 JMPR. Data provided by sponsors to the 2026 and following JMPRs should address these principles.

2.11 Screening assessments following lowering of health-based guidance values (HBGVs)

Background

At the 56th CCPR meeting, a request was made of the JMPR to screen CXLs, which are withdrawn during a periodic review; the request specifically relates to cases where the HBGVs have been lowered.

The JMPR was requested to present risk assessments specifically for the CXLs retained under the four-year rule for phosmet. The request was intended to inform CCPR whether the CXLs lead to exceedances of the new lower HBGVs and hence assist CCPR in deciding whether the CXLs should be retained under the four-year rule.

General comments by the meeting

The JMPR appreciates the consideration and comments of the members and the subsequent request from CCPR. The meeting noted that undertaking the screening of all CXLs – which are withdrawn as a result of a periodic review – could require significant resources. The meeting agreed that if such a screening process was requested in full, then this should apply only to compounds for which the HBGVs have been lowered.

The meeting further noted that screening withdrawn CXLs may not be possible where a change in residue definition has occurred. Any such screenings undertaken may be subject to significant uncertainty – in such cases, the screening assessment should not necessarily be used to conclude on the risk to consumers.

The meeting highlights that a lack of data (use patterns, residue trials, and similar) is often a key reason for the withdrawal of CXLs; as such, it is advised that all relevant data is provided to the JMPR in a timely manner. Any CXLs which are economically important to members should be identified in advance of a periodic review, and all efforts should be made to provide relevant and timely information to the JMPR.

Screening of the withdrawn Codex MRLs (CXLs) for phosmet

Table 2.11.1 shows the previous and current ADI and ARfD for phosmet.

Table 2.11.1 Previous and current HBGVs for phosmet

	ADI (mg/kg bw)	ARfD (mg/kg bw)
Previous HBGVs	0.01	0.2
New/current HBGVs[a]	0.006	0.03

Note:

[a] The ADI applies to phosmet-oxon with a 6x potency factor; and the ARfD applies to phosmet-oxon with a 25x potency factor.

The residue definitions were updated following the periodic review of phosmet; the previous and current residue definitions are detailed in the following text.

Previous residue definitions include:

- For compliance with the MRL and for estimation of dietary intake for plant and animal commodities: phosmet.

Current residue definitions include:

- For compliance with the MRL for plant and animal commodities: phosmet.
- For estimation of long-term dietary intake for plant commodities: sum of phosmet plus 6-times 2-(dimethoxyphosphoryl-sulfanylmethyl)isoindole-1,3-dione (phosmet-oxon), expressed as phosmet.
- For estimation of acute dietary intake for plant commodities: sum of phosmet plus 25-times 2-(dimethoxyphosphoryl-sulfanylmethyl)isoindole-1,3-dione (phosmet-oxon), expressed as phosmet.
- For estimation of dietary intake for animal commodities: sum of phosmet and 2-{[(methanesulfonyl)methyl] carbamoyl}benzoic acid (PaAMSO2Me), expressed as phosmet.
- Definition of the residue for phthalic acid long-term dietary intake for plant and animal commodities: phthalic acid.
- Definition of the residue for phthalamic acid long-term dietary intake for plant and animal commodities: phthalamic acid, expressed as folpet.

The following CXLs were withdrawn in the previous meeting: apricots (10 mg/kg); cottonseed (0.05 mg/kg); grapes (10 mg/kg); group of citrus fruit (3 mg/kg); group of pome fruits (10 mg/kg); group of tree nuts (0.2 mg/kg); meat (mammalian) (1 mg/kg); milks (0.02 mg/kg); nectarine (10 mg/kg); peaches (10 mg/kg).

The CXL has been used as the input in the screening for acute intake (Table 2.11.2).

Table 2.11.2 Screening inputs and acute intake estimates for withdrawn Codex MRLs (CXLs) (only those which exceed 100 percent of acute reference dose [ARfD])

Commodity	Input (mg/kg)	Max. IESTI – children (% of ARfD)
Apricots	10	750
Grapes	10	2270
Group of citrus fruit	3	590
Group of pome fruit	10	2310
Nectarine	10	1460
Peaches	10	2240

The meeting concluded that significant exceedances of the new, lower acute HBGV occurred for apricots, grapes, group of citrus fruit, group of pome fruit, nectarine, and peaches.

It is further noted that the screening assessment is subject to a high degree of uncertainty, namely:

- Phosmet-oxon was included in the residue definition for dietary intake for plant commodities.
- Phosmet-oxon is 6x more toxic than parent considering long term exposure, and 25x more toxic than parent considering acute exposure.
- A further two residue definitions for dietary intake were established separately for plant commodities (phthalic acid and pththalamic acid).
- An additional metabolite was included in the residue definition for dietary intake in animal commodities (PaAMSO2Me).
- Insufficient information on the occurrence of the mentioned metabolites is available for the withdrawn CXLs.

The meeting noted that the withdrawn CXLs may present a public health concern. In particular, the CXLs for apricots, grapes, group of citrus fruit, group of pome fruit, nectarine, and peaches exceed the ARfD based on the CXL as the input. The meeting was unable to conclude on the dietary risk of the CXLs for cottonseed, group of tree nuts, meat (mammalian), and milks.

2.12 Draft FAO/WHO JMPR standard operating procedures

Following the 56th Session of the Codex Committee on Pesticide Residues (CCPR56), the JMPR Secretariat has been working to strengthen the governance of JMPR. This includes the drafting of the "Procedures for the Joint FAO/WHO Meeting on Pesticide Residues". The first draft was presented during the meeting and comments and suggestions were provided to the Secretariat.

References

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3. Responses to specific concerns raised by the Codex Committee on Pesticide Residues (CCPR)

3.1 Acetamiprid

The European Union submitted a concern form to the 56th Session of the Codex Committee on Pesticide Residues (CCPR) outlining concerns on acetamiprid, indicating acute risks for consumers in relation to potential developmental neurotoxicity. The European Union further considered that a re-evaluation for toxicology and residues for acetamiprid should be prioritized by JMPR.

The meeting noted that, following a request from CCPR, acetamiprid was on the agenda for a follow-up evaluation in 2017. However, as no toxicological information was provided, the meeting concluded that it was unnecessary to conduct a toxicological evaluation at the time.

The present meeting was unable to fully address the concern because of the short notice. The meeting recommends to CCPR that acetamiprid be prioritized for a periodic re-evaluation.

4. Dietary exposure assessment for pesticide residues in food

4.1 Chemicals not assessed for dietary exposure

There were a number of chemicals on the agenda for the current meeting for which a dietary exposure assessment was not undertaken for the following reasons:

- For four periodic review compounds (clethodim, fenbutatin oxide, hydrogen phosphide and pirimicarb) no toxicological and no residue data were made available to the meeting and the evaluation could not be conducted.
- For one periodic review compound (2-phenylphenol and its sodium salts), no relevant toxicological data were submitted and thus no health-based guidance values (HBGVs) or residue definitions could be derived.
- One periodic review compound (dimethoate) was not scheduled for residue assessment.
- For one new compound (acequinocyl) and one periodic review compound (guazatine), no STMRs and HRs could be derived because of storage stability issues of residues in food commodities.
- For one periodic review compound (malathion) and one new compound (dimpropyridaz), no residue definitions could be derived because not all metabolites could be assessed for toxicology.
- For two new compounds (ipflufenoquin and spidoxamat), the meeting did not have sufficient time to reach a conclusion on the residue definition for animal commodities.
- For three compounds assessed for additional use (clothianidin, indoxacarb and thiamethoxam), no additional STMRs and HRs could be derived because of insufficient data. For fluazinam, further toxicological data were required for a number of metabolites, but this information was not available at the time of the meeting.

The dietary risk assessment for one periodic review compound (permethrin) was not performed, pending the submission of additional residue data.

4.2 Chronic dietary exposure

International estimate of daily intake (IEDI)

At the current meeting, an international estimated daily intake (IEDI) was calculated for each compound for which an acceptable daily intake (ADI) was established. The IEDI was calculated by multiplying the median concentrations of residues by the average daily per capita consumption of treated commodities.

The concentrations were supervised trials median residues (STMRs) and/or supervised trials median residues in a processed commodity (STMR-Ps). The per capita food consumption amounts used were from the 17 Global Environment Monitoring System – Food Contamination Monitoring and Assessment Programme (GEMS/Food) cluster diets. The cluster diets provide estimates of food consumption based on food balance sheet data that include amounts of food available for consumption divided by total population numbers. A detailed description of the method used to derive the cluster diets is included in the Environmental Health Criteria 240 (EHC 240) monograph.[5]

These IEDIs were expressed as a percentage of the maximum ADI for a 55 kg or 60 kg person, depending on the region covered by each cluster diet (Table 4.2.1).[6]

The detailed calculations of the chronic (long-term) dietary exposure assessments via the IEDI are given in Annex 3.

Chronic dietary exposure estimates using national dietary survey data

Food consumption data from national dietary surveys were used as the basis for estimating mean and high chronic dietary exposure to pesticide residues for different age/sex groups.

The global estimate of chronic dietary exposure (GECDE) model, developed by JECFA (veterinary drugs) in 2011,[7] was used by JMPR for estimating mean and high dietary exposures to pesticide residues for subpopulation groups: adult females (as a proxy for women of childbearing age), infants and toddlers, and young children and adolescents, in addition to all male and female adults and older people. The GECDE is a method for estimating dietary exposures when only summary food consumption statistics are available. The summary food consumption statistics are derived from individual food consumption data from representative national surveys. The GECDE-mean uses mean consumption amounts at the population level for each food commodity. In 2023, the meeting presented further validation of the GECDE methodology and agreed to transition from the use of the IEDI to the GECDE-mean. The GECDE-high takes account of consumption of one commodity at a high level (for consumers of that commodity only) plus consumption of the remaining commodities at a population mean level. A high consumption amount for consumers based on the highest reliable percentile is used to ensure that the value is robust based on the number of consumers. The meeting recognizes that an in-depth investigation of toxicological profiles of the different chemicals is needed to align the exposure assessment with them.

[5] See https://iris.who.int/server/api/core/bitstreams/f075c562-07ef-4d53-99db-4b70623a329a/content
[6] The spreadsheet application is available at XIV.5_IEDI_calculation_vs04a_17clusters as a macro enabled spreadsheet (FAO and Minor Use Foundation, 2021). See https://minorusefoundation.org/events/workshop-manual-224-fao
[7] See http://www.fao.org/fileadmin/user_upload/agns/pdf/jecfa/Dietary_Exposure_Assessment_Methodologies_for_Residues_of_Veterinary_Drugs.pdf

Food consumption data suitable for use in the GECDE model are available in the WHO Chronic Individual Food Consumption – summary statistics (CIFOCOss) database, which contains summary statistics of food consumption data derived from national surveys that have two or more daily records per survey participant. For use in chronic dietary exposure assessments, results for each individual are averaged over the number of days of the survey prior to deriving population statistics.

In the GECDE-mean and GECDE-high chronic dietary exposure estimates, the STMRs are assigned to each relevant food with a maximum residue level recommendation for the pesticide. For multi-ingredient foods, a GECDE-input tool developed by the National Institute for Public Health and the Environment (RIVM) was used to disaggregate the food into its component ingredients to allow derivation of an ingredient-weighted STMR. Processing factors are taken into account by use of the STMR-P (if available). In case no STMR-Ps are available, dilution or concentration factors are applied to diluted foods (such as beer, tea infusion and coffee beverages) and dried foods (such as dried fruits, dried vegetables and dried herbs) to enable the STMR to be expressed in the same form as the consumption data. The latest version of the GECDE-input tool used at the JMPR 2025 is version 1.5.49, which incorporated 81 new foods (and their ingredients) for which new consumption data were available in the CIFOCOss dataset from September 2024. The total number of foods covered by the GECDE input tool is now 3013. Furthermore, the tool was extended to 957 commodities for which residues could be reported and which were assigned to the appropriate ingredients within those 3013 foods. Commodities, not listed in the Codex Classification, for which STMR-Ps were available, were assigned a temporary three-character code. The latest version of the CIFOCOss dataset was downloaded in December 2025 for use in the dietary exposure calculations. Some dietary surveys were removed from the CIFOCOss dataset for a number of reasons to ensure reliability and robustness of the data. These included datasets without body weight data, and some older datasets where more than one dataset was available for the same subpopulation (by country, age and sex). Data from 46 countries were available in the current dataset (Annex 6). All subpopulations were included in the results presented for the subpopulation groups used for reporting, including infants and toddlers, children and adolescents, adult females and all male and female adults and older people. No data are excluded based on number of consumers, ensuring consumption patterns across all respondents reflect the consumption patterns within the survey. The meeting noted that quality criteria regarding the number of subjects and consumers in the survey, the date of the survey, and other parameters should be developed in order to exclude/include any survey in the assessment process. The code used to run the GECDE calculations, which reads input data from other files, was provided in Annex 6 in the 2024 JMPR report (FAO and WHO, 2025). The estimates of GECDE-mean and GECDE-high are summarized in Table 4.2.1. In addition, the percentages of CIFOCOss surveys for which the GECDE-mean and GECDE-high exceed the ADI are also summarized in Table 4.2.1. This information is provided to assist in characterizing the risk by showing the extent of any potential exceedance for subpopulation groups across a range of countries. For example, a small percent of exceedances of the ADI can be reflective of a very specific consumption pattern related to one subpopulation. A summary of the commodities that contribute most frequently to dietary exposures for those subpopulations that exceeded the ADI is provided in Annex 7. These detailed results are shown to provide more information around the characterization of the risk and can help inform risk management decisions.

Comparison of IEDI and GECDE

For most of the pesticides, the results on the ranges of percent of maximum of ADI calculated with the IEDI and the GECDE-mean are consistently leading to the similar conclusion regarding the risk. For example, for the GECDE-mean, ranges similar to the results for the IEDI are found for acynonapyr, azoxystrobin, bifenthrin, boscalid, broflanilide, cyfluthrin, cyantraniliprole, cyprodinil, difenoconazole, etoxazole, fludioxonil, fluopyram, mefentrifluconazole, mepiquat cation, metaflumizone, metconazole, proquinazid, pyraclostrobin, pyriofenone, pyriproxyfen, tiafenacil and trifloxystrobin for adults ("adults male and female" and "adults female"), and for broflanilide, cyfluthrin, dinotefuran, etoxazole, mepiquat cation, metconazole, pyriofenone, pyriproxyfen, and tiafenacil for children ("children and adolescents" and "infants and toddlers"). For the GECDE-high, ranges similar to the ones obtained with the IEDI are found for broflanilide, etoxazole, metconazole and proquinazid for adults ("adults male and female" and "adults female"), and broflanilide and etoxazole for children ("children and adolescents and "infants and toddlers").

When there was a large deviation between the two methods, this tended to be due to a particular dietary pattern in a country or small number of countries, but may be caused by other issues. More in-depth investigation of the results will help to identify the reason of the deviation.

The inclusion of statistics on the percentage of subpopulations exceeding the ADI helps to inform the likely pattern of exceedances, with a low percentage indicating either marginal exceedance or exceedance due to a specific dietary pattern.

Table 4.2.1 Summary of chronic (long-term) dietary exposure assessments (IEDI) and chronic dietary exposure estimates using national dietary survey data (GECDE)

CCPR code	Pesticide	ADI (mg/kg bw)	Range of IEDI as % of maximum ADI	Range of dietary exposures across national dietary surveys (GECDE), and % of maximum ADI			% of subpopulations exceeding the ADI[a]	
				Subpopulation group[b]	Mean	High[c]	Mean	High
333	Acynonapyr	0–0.1	0–3	Adults, male and female	0–2	0–6	0	0
				Adults, female	0–2	0–6	0	0
				Children and adolescents	0–5	0–10	0	0
				Infants and toddlers	0–10	0–20	0	0
229	Azoxystrobin	0–0.03	10–60	Adults, male and female	4–40	8–1090	0	8
				Adults, female	2–70	2–770	0	8
				Children and adolescents	6–80	10–560	0	20
				Infants and toddlers	7–90	7–300	0	50
178	Bifenthrin	0–0.01	10–40	Adults, male and female	0–40	0–140	0	3
				Adults, female	0–40	0–130	0	1
				Children and adolescents	2–30	3–140	0	6
				Infants and toddlers	3–60	3–200	0	30
221	Boscalid	0–0.04	10–60	Adults, male and female	4–30	5–180	0	3
				Adults, female	3–30	3–180	0	2
				Children and adolescents	5–50	6–280	0	10
				Infants and toddlers	6–120	6–490	10	30
326	Broflanilide	0–0.02	0–3	Adults, male and female	0–0	0–9	0	0
				Adults, female	0–1	0–10	0	0
				Children and adolescents	0–1	0–5	0	0
				Infants and toddlers	0–2	0–10	0	0
263	Cyantraniliprole	0–0.03	5–50	Adults, male and female	0–24	0–650	0	5
				Adults, female	0–37	0–470	0	4
				Children and adolescents	3–40	3–340	0	10
				Infants and toddlers	0–110	8–390	6	30
157	Cyfluthrin/ beta–cyfluthrin	0–0.04	0–3	Adults, male and female	0–1	0–5	0	0
				Adults, female	0–1	0–6	0	0
				Children and adolescents	0–2	0–5	0	0
				Infants and toddlers	0–4	0–10	0	0

CCPR code	Pesticide	ADI (mg/kg bw)	Range of IEDI as % of maximum ADI	Range of dietary exposures across national dietary surveys (GECDE), and % of maximum ADI			% of subpopulations exceeding the ADI[a]	
				Subpopulation group[b]	Mean	High[c]	Mean	High
207	Cyprodinil	0–0.03	8–80	Adults, male and female	1–30	1–230	0	20
				Adults, female	1–90	1–230	0	10
				Children and adolescents	3–50	3–390	0	30
				Infants and toddlers	1–190	1–790	20	60
224	Difenoconazole	0–0.01	10–100	Adults, male and female	2–50	2–220	0	10
				Adults, female	1–100	1–210	1	10
				Children and adolescents	2–150	2–310	9	60
				Infants and toddlers	3–190	3–530	50	80
255	Dinotefuran	0–0.2	0–3	Adults, male and female	0–2	0–9	0	0
				Adults, female	0–10	0–20	0	0
				Children and adolescents	0–3	0–10	0	0
				Infants and toddlers	0–4	0–20	0	0
241	Etoxazole	0–0.05	0–1	Adults, male and female	0–5	0–20	0	0
				Adults, female	0–6	0–20	0	0
				Children and adolescents	0–3	0–20	0	0
				Infants and toddlers	0–3	0–10	0	0
242	Flubendiamide	0–0.02	4–20	Adults, male and female	1–70	1–290	0	3
				Adults, female	1–70	1–280	0	2
				Children and adolescents	2–40	2–280	0	2
				Infants and toddlers	5–70	5–220	0	20
211	Fludioxonil	0–0.4	1–6	Adults, male and female	0–3	0–60	0	0
				Adults, female	0–5	0–40	0	0
				Children and adolescents	0–10	0–50	0	0
				Infants and toddlers	1–20	1–60	0	0
243	Fluopyram	0–0.01	20–80	Adults, male and female	5–60	5–160	0	10
				Adults, female	3–70	3–150	0	8
				Children and adolescents	10–200	10–340	30	60
				Infants and toddlers	30–270	50–690	90	90
320	Mefentrifluconazole	0–0.04	4–40	Adults, male and female	1–20	1–180	0	5
				Adults, female	1–20	1–180	0	3
				Children and	3–30	3–230	0	10

CCPR code	Pesticide	ADI (mg/kg bw)	Range of IEDI as % of maximum ADI	Range of dietary exposures across national dietary surveys (GECDE), and % of maximum ADI			% of subpopulations exceeding the ADI[a]	
				Subpopulation group[b]	Mean	High[c]	Mean	High
				adolescents				
				Infants and toddlers	3–110	3–420	3	20
336	Mepiquat cation[d]	0–0.229	0–2	Adults, male and female	0–1	0–5	0	0
				Adults, female	0–1	0–3	0	0
				Children and adolescents	0–3	0–7	0	0
				Infants and toddlers	0–1	0–8	0	0
236	Metaflumizone	0–0.1	0–3	Adults, male and female	0–2	0–10	0	0
				Adults, female	0–2	0–10	0	0
				Children and adolescents	0–7	0–20	0	0
				Infants and toddlers	0–6	0–30	0	0
TBC	Metarylpicoxamid	0–0.2	0–0	Adults, male and female	0–1	0–7	0	0
				Adults, female	0–1	0–6	0	0
				Children and adolescents	0–4	0–10	0	0
				Infants and toddlers	0–3	0–10	0	0
313	Metconazole	0–0.04	0–2	Adults, male and female	0–0	0–3	0	0
				Adults, female	0–1	0–3	0	0
				Children and adolescents	0–1	0–7	0	0
				Infants and toddlers	0–3	0–10	0	0
347	Proquinazid	0–0.01	1–5	Adults, male and female	0–3	0–7	0	0
				Adults, female	0–3	0–7	0	0
				Children and adolescents	0–10	0–20	0	0
				Infants and toddlers	2–20	2–40	0	0
210	Pyraclostrobin	0–0.03	1–8	Adults, male and female	1–5	1–30	0	0
				Adults, female	0–4	0–20	0	0
				Children and adolescents	1–8	1–20	0	0
				Infants and toddlers	1–20	1–60	0	0
310	Pyriofenone	0–0.09	0–1	Adults, male and female	0–1	0–20	0	0
				Adults, female	0–1	0–20	0	0
				Children and adolescents	0–2	0–10	0	0
				Infants and toddlers	0–3	0–20	0	0

CCPR code	Pesticide	ADI (mg/kg bw)	Range of IEDI as % of maximum ADI	Range of dietary exposures across national dietary surveys (GECDE), and % of maximum ADI			% of subpopulations exceeding the ADI[a]	
				Subpopulation group[b]	Mean	High[c]	Mean	High
200	Pyriproxyfen	0–0.1	0–1	Adults, male and female	0–1	0–8	0	0
				Adults, female	0–0	0–10	0	0
				Children and adolescents	0–1	0–4	0	0
				Infants and toddlers	0–2	0–6	0	0
233	Spinetoram	0–0.05	2–20	Adults, male and female	0–130	0–590	3	3
				Adults, female	0–150	0–560	4	5
				Children and adolescents	1–70	1–560	0	2
				Infants and toddlers	1–10	1–70	0	0
349	Tiafenacil	0–0.004	1–5	Adults, male and female	0–2	0–10	0	0
				Adults, female	0–3	0–7	0	0
				Children and adolescents	0–6	1–10	0	0
				Infants and toddlers	1–5	1–10	0	0
213	Trifloxystrobin	0–0.04	1–9	Adults, male and female	0–10	1–90	0	0
				Adults, female	0–10	0–70	0	0
				Children and adolescents	1–10	1–120	0	6
				Infants and toddlers	1–80	1–360	0	20

Notes: ADI: acceptable daily intake; bw: body weight; CCPR: Codex Committee on Pesticide Residues; GECDE: global estimate of chronic dietary exposure; IEDI: international estimated daily intake; CIFOCOss: Chronic Individual Food Consumption summary statistics; NA: Not assessed.

[a] A subpopulation is a unique combination of country, age and/or gender and survey year. Within the specified subpopulation groups, the number of subpopulations are: adults, male and female (81); adults, female (88); children and adolescents (50); infants and toddlers (30).

[b] Infants and toddlers included ages up to 35 months; children and adolescents included age groups from 3 years up to 14 or 17 years; adults included age groups from 15 or 18 years.

[c] For each national survey in the CIFOCOss database for the GECDE-high model for a specified age or age/sex group, a high percentile dietary exposure was first calculated for each commodity with an assigned STMR: if there were more than 180 consumers of a commodity, a 97.5th percentile dietary exposure for consumers only was derived; if there were more than 60 but fewer than 181 consumers, a 95th percentile dietary exposure was derived; if there were more than 30 but fewer than 61 consumers, a 90th percentile dietary exposure was derived; and if there were more than 10 but fewer than 31 consumers, a median dietary exposure was derived. If there were fewer than 11 consumers, only the mean dietary exposure for the whole population was derived for that Codex commodity code.

[d] Residue definition for mepiquat chloride is expressed as mepiquat cation.

4.3 Acute dietary exposure

At the current meeting, the international estimate of short-term intake (IESTI) was calculated for compounds for which an acute reference dose (ARfD) was established. For foods that are or can be consumed as individual commodities, the highest expected residue (highest residue in the edible portion of a commodity [HR]) in combination with a variability factor depending on the unit weight is used in the IESTI calculation. For bulked and blended commodities, the STMR or STMR-P is used as the residue level in the IESTI calculation. The highest large portion (LP) food consumption value for the general population (all ages) and children (6 years and under) was used for the calculation of the IESTI. The LP data are derived from single-day measures of food consumption, from national dietary surveys, calculated back to their raw agricultural commodity (e.g. apple, whole fruit) or raw primary commodity derivative (e.g. orange flesh or orange juice). A description of the IESTI method is included in EHC 240.

The IESTI results are expressed as a percentage of the ARfD and are summarized in Table 4.3.1.[8] The detailed calculations of acute dietary exposure are given in Annex 4. Further discussion of the results of the acute dietary exposure assessment is provided in the report under each chemical.

Table 4.3.1 Summary of acute dietary exposure assessments (IESTI)

CCPR code	Pesticide	ARfD (mg/kg bw)	Range of percentages of ARfD across commodities[a]
178	Bifenthrin	0.01	0–70
157	Cyfluthrin/beta–cyfluthrin	0.04	0–40
224	Difenoconazole	0.3	0–0
255	Dinotefuran	1.0	0–1
242	Flubendiamide	0.2	0–5
243	Fluopyram	0.5	0–10
320	Mefentrifluconazole	0.3	0–40
336	Mepiquat cation[b]	0.4578	0–1
313	Metconazole	0.04	0–0
347	Proquinazid	0.3	0–8
210	Pyraclostrobin	0.7	0–1

Notes: ARfD: acute reference dose; bw: body weight; CCPR: Codex Committee on Pesticide Residues; IESTI: international estimate of short-term intake.
[a] Includes estimates for children and estimates for the general population.
[b] Residue definition for mepiquat chloride is expressed as mepiquat cation.

Possible refinement when the IESTI exceeds the ARfD

For the compounds evaluated at this meeting, no exceedances were observed for IESTI; hence, no refinement was warranted.

[8] The spreadsheet is available at: iesti_calculation21_model.xlsx (live.com).

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5. Evaluation of data for acceptable daily intake, acute reference dose, maximum residue levels and supervised trials median residue and highest residues

5.1 2-Phenylphenol and its sodium salts (056) (T, R)**

Toxicology

2-Phenylphenol and its sodium salts was reviewed by the present meeting as part of the periodic review programme of the Codex Committee on Pesticide Residues (CCPR).

During the evaluation of 2-phenylphenol and its sodium salts, the meeting noted the increased incidence of liver carcinoma in mice, and of transitional cell bladder carcinoma in rats and some indication of genotoxicity *in vivo*. However, despite the availability of several mechanistic studies, no mode of action (MOA) analysis was made available to the meeting. Therefore, the meeting postponed the evaluation of 2-phenylphenol pending the submission of an MOA analysis of these tumours according to the International Programme on Chemical Safety framework for analysing the relevance of a cancer mode of action for humans.

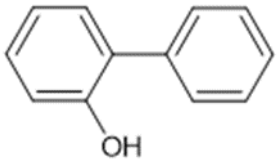
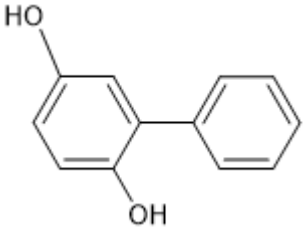
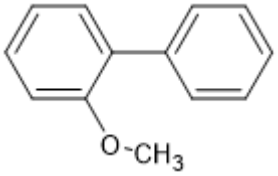
Residue and analytical aspects

2-Phenylphenol (ISO name) and its sodium salts are fungicides used for post-harvest treatments. The IUPAC name for 2-phenylphenol is biphenyl-2-ol and the name for its anhydrous sodium salt is sodium 2-biphenylate. The sodium salt is also produced as a tetrahydrate.

2-Phenylphenol and its sodium salts were first evaluated by the 1962 JECFA for residues resulting from post-harvest treatment of fruits and vegetables and again by the 1964 JECFA for specifications of their identity and purity and their toxicology. The 1969 JMPR recommended MRLs for 2-phenylphenol and its sodium salts in several fruits. 2-Phenylphenol and its sodium salts were evaluated under the Periodic Review program by the 1999 JMPR for toxicology and residues and again by the 2002 JMPR for residues. 2-phenylphenol and its sodium salts were scheduled by the 55th Session of the CCPR (2024) for Periodic Review by the 2025 JMPR for toxicology and residues.

The meeting received information from the manufacturer on identity, physical-chemical properties, metabolism in citrus fruits and pears after post-harvest treatment, animal metabolism, analytical methods, storage stability during frozen storage, use patterns, fate of residues during cold storage after post-harvest treatments of citrus fruits and fate of residues during processing. Table 5.1.1 shows the compounds discussed in this appraisal.

Table 5.1.1 Compounds and their structures

Compound	Structure
2-phenylphenol OPP	
Phenylhydroquinone PHQ	
1-methoxy-2-phenylbenzene 2-MBP	

Physical-chemical properties

2-phenylphenol in its acid form is a colourless solid with a slight phenolic odour and is not regarded as volatile (vapour pressure 475 mPa at 20 °C). The compound is slightly soluble in water (0.53–0.64 g/L at 20 °C) and has a log Pow of 3.0–3.2, indicating it's potential to sequester into fat. The compound is not susceptible to hydrolysis and is stable under environmental conditions (at least 30 days at 25 °C). The data indicated that photolysis may play an important role in the degradation of 2-phenylphenol (DT_{50} 0.3 days, equivalent to 1.7–2.6 solar days). However, since it is used as a post-harvest treatment and fruits are stored in the dark after treatment, this will have no impact on the expected residues.

Plant metabolism

The meeting received plant metabolism studies for 2-phenylphenol after post-harvest dipping on oranges and pears. Residue concentrations are expressed as 2-phenylphenol equivalents (OPP eq).

Oranges

A total of 106 Navel oranges were dipped for 3 minutes in an 0.1 percent solution of [phenyl-UL-^{14}C]-labelled sodium ortho-phenylphenate ([^{14}C]-SOPP) in water, equivalent to 0.088 kg/hL OPP eq. In addition, eight oranges were dipped in a 0.5 percent solution of [^{14}C]-SOPP, equivalent to 0.44 kg/hL OPP eq. The oranges were air-dried for 2 hours and stored at 11.7 °C (at 90 percent humidity) for four weeks and subsequently at 5 °C to retard fruit spoilage. Oranges were collected after 2 hours, 2 days and 1, 2, 4, 6, 8, 10 and 12 weeks of cold storage, rinsed with methanol and then peeled and processed to yield juice and pulp.

Total radioactive residue (TRR) levels in whole fruit remained constant over the 12-week cold storage period and ranged between 8.4 and 11.6 mg/kg OPP eq, with an average TRR level of 9.7 mg/kg OPP eq for the 0.1 percent dip solution and 16.2 mg/kg OPP eq for the 0.5 percent dip solution.

Most of the radioactivity was found in the peel plus methanol rinse (>99 percent). Surface residues, washed off into the methanol rinse, decreased from the initial 58 percent TRR of whole fruit at 2 hours to 3.9–4.7 percent TRR after 6–12 weeks of cold storage. Radioactivity in the peel increased from 42 percent TRR of whole fruit at 2 hours to 95 percent TRR after 6–12 weeks of cold storage. The change in distribution of the radioactive residue with time shows that the residue migrated from the surface of the oranges into the peel, with very little further translocation.

Extraction of the peel with hexane (2×) and methanol (2×) released 95 to 99 percent TRR at the various sampling points. As time progressed, less radioactivity was found in the hexane fraction and more was found in the methanol fraction and in the post extraction solids fraction (PES). At 12 weeks after treatment, hexane, methanol, and PES accounted for 65, 32 and 2.6 percent TRR of the peel (28.7 mg eq/kg), respectively.

The 12-week samples from the low and high dose treated fruits were used for metabolite characterization. The methanol extract of the peel was subjected to acid hydrolysis (1 mol/L HCl for 4 hours at 110 °C in a vacuum tube) or β-glucosidase treatment to release potential conjugates. The juice and the pulp were extracted with ethyl acetate.

Total radioactive residues in the 0.1 percent dip treated oranges sampled after 12 weeks of cold storage contained 9.2 mg/kg OPP eq as whole fruit (from methanol rinse, peel, juice and pulp). A total of 86 percent TRR (7.9 mg/kg OPP eq as whole fruit) was identified as parent 2-phenylphenol: 65 percent TRR as free form and 21 percent TRR as conjugate (with 13 percent TRR identified as glucose conjugates). The metabolite PHQ was found in peel only at 6.9 percent TRR (0.63 mg/kg OPP eq as whole fruit): 2.8 percent TRR as free form and 4.1 percent TRR as conjugate. A minor metabolite, 2-methoxybiphenyl (2-MBP) was found in the methanol rinse only at 0.27 percent TRR (0.025 mg/kg OPP eq as whole fruit). Unknown metabolites were observed in the different fractions, but never accounting for more than 1 percent TRR (0.091 mg/kg OPP eq as whole fruit).

Pears

A total of 153 Bosc pears were dipped for 3 minutes in a 4 percent solution of [phenyl-UL-^{14}C]-labelled sodium ortho-phenylphenate ([^{14}C]-SOPP, equivalent to 3.5 kg/hL OPP eq), in water containing sodium silicate (pear float), adjusted to pH 13.3 and maintained at 0 °C. After treatment, pears were rinsed with distilled water at 13 °C and air-dried for 2 hours. Pears were stored at 1–4 °C and 90 percent humidity. Pears were collected after 2 hours, 2 days, 7 days, and 2 to 28 weeks of cold storage, rinsed with methanol and peeled.

TRR levels in whole fruit remained constant over the 28-week cold storage period and ranged between 22 and 42 mg/kg OPP eq, with an average TRR level of 40 mg/kg OPP eq for the 4 percent dip solution. Radioactivity was translocated with time to both the peel and the flesh. At 2 hours after treatment, 80 percent TRR of whole fruit was found in the methanol rinse and 20 percent TRR in the peel, with only 0.05 percent TRR in the flesh. The radioactivity in the methanol rinse decreased to 8.2 percent TRR after 28 weeks of cold storage, while at the same time the radioactivity in the peel and flesh increased to 66 and 26 percent TRR, respectively.

The peel and flesh samples of the pears were extracted twice with 4:1 acetonitrile:0.1 mol/L HCl. Extraction of the peel of pears stored for 2 hours to 28 weeks released 96 to 91 percent TRR. Extraction of the flesh of pears stored for 4 to 28 weeks, released 98 percent TRR. Extracts were treated with 1 mol/L HCl at 116 °C for 1 hour in a vacuum tube to release conjugates. The PES from the 28-week peel sample (6.5 percent TRR of whole fruit) was sequentially hydrolysed with cellulase, 1 mol/L HCl and 6 mol/L HCl and partitioned between water and ethyl acetate. A further 3.7 percent TRR (as whole fruit) was released.

Most of the residue in pears stored for 2 hours to 28 weeks after post-harvest treatment is parent 2-phenylphenol (free and conjugated, >89 percent at all time points). The concentration of the 2-phenylphenol conjugates increases with time of storage. TRR in the 4 percent dip treated pears sampled after 28 weeks of cold storage contained 42 mg/kg OPP eq as whole fruit (from methanol rinse, peel and flesh). A total of 91 percent TRR (38 mg/kg OPP eq as whole fruit) was identified as parent: 6.3 percent TRR as free form and 77 percent TRR as polar OPP-conjugates (possibly sugar conjugates), and 7.2 percent TRR as non-polar OPP conjugates (polymers of OPP or OPP conjugated to non-polar natural compounds such as lipids). Metabolite C (2.8 percent TRR, 1.2 mg/kg OPP eq) was not further characterized.

Summary post-harvest treatments of fruit

In summary, the meeting concluded that the metabolism of 2-phenylphenol in fruits after post-harvest dip treatment is adequately understood. 2-Phenylphenol did not translocate beyond the peel of oranges, but migrated substantially into the flesh of pears. Most of the residue (>80 percent) in oranges stored for up to 12 weeks and in pears stored for up to 28 weeks is parent 2-phenylphenol (free and conjugated). Metabolite PHQ (free and conjugated) was found at 6.9 percent TRR (as whole fruit) in the peel of oranges stored for 12 weeks. One other metabolite, 2-methoxybiphenyl (2-MBP) was identified at 0.27 percent TRR (as whole fruit) in the methanol rinse of oranges stored for 12 weeks.

Animal metabolism

The meeting received metabolism studies on lactating goats, where animals were dosed with 2-phenylphenol radiolabelled in the hydroxylated phenyl ring. Metabolism studies with laying hens were not submitted.

Lactating goats

Two lactating Nubian goats, 2 to 4 years of age, received single daily oral encapsulated doses of [phenyl-UL-^{14}C]-labelled 2-phenylphenol for 5 consecutive days at an average level of 13.7 or 53.3 mg/day. The actual doses were equivalent to 11.3 ppm and 32.1 ppm of the test material in the diet. Milk, urine, and faeces were collected daily from each animal. The goats were sacrificed about 23 hours after the last dose, and samples of kidneys, liver, muscle (round), and fat (omental and renal, mixed) were collected.

More than 90 percent of the total administered radioactivity (TAR) was excreted, with 80–83 percent in the urine, 4.3–10 percent in the faeces, 1.3–7.0 percent in the cage wash and 0.09–0.10 percent in the 5-day milk production. Tissues contained 0.01 percent TAR.

The radioactivity in the milk of both animals reached a plateau on day 2 equivalent to 0.007–0.008 mg/kg OPP eq for the low dosed goat and 0.036–0.043 mg/kg OPP eq for the high dosed goat. Residue levels in tissues were low: 0.005 and 0.020 mg/kg OPP eq in kidney for the low and high dosed goats, respectively, 0.004 and 0.014 mg/kg OPP eq in liver, <0.0005 and 0.003 mg/kg OPP eq in fat and <0.001 mg/kg OPP eq in muscle for both goats.

Extraction with acetone (2×) released 87–94 percent TRR in the milk from both goats. Muscle and fat tissues were not further analysed because of low radioactivity levels. Extraction with acetonitrile (3×) and methanol:water (80:20, 3×) released a total of 97–102 percent TRR from kidney and 50–57 percent TRR from liver, leaving 5.0–9.9 percent TRR in kidney PES and 45–56 percent TRR in liver PES. Extracts and PES were not hydrolysed to release possible conjugates because of the low radioactivity.

Only the extracts of milk, kidney and liver with sufficient levels of radioactivity were analysed by HPLC-UV with radio-detection. None of the peaks co-chromatographed with the parent 2-phenylphenol or PHQ. No further attempts were made to identify the unknown metabolites or to release conjugates, because of the low radioactivity (highest metabolite level is 0.006 mg/kg OPP eq in high dose milk).

Summary of animal metabolism

2-Phenylphenol and/or its metabolites are quickly eliminated in the urine and do not accumulate in any tissues or milk. None of the metabolites co-chromatographed with the parent compound or the metabolite PHQ.

Methods of residue analysis

The meeting received information on analytical methods for 2-phenylphenol and its conjugates and the metabolite phenylhydroquinone (PHQ) and its conjugates in plant matrices and the free form of 2-phenylphenol in animal matrices.

Analytical methods for plant matrices consisted of hydrolysis followed by clean-up and GC-MS or LC-MS/MS detection with LOQs of 0.01–0.1 mg/kg for 2-phenylphenol and 0.01–0.2 mg/kg for PHQ. 2-Phenylphenol and PHQ are hydrolysed under different conditions and are analysed separately.

PHQ is very sensitive to oxidation under hydrolytic conditions and ascorbic acid and EDTA are added to stabilize the analyte during the hydrolysis step, which needs to be conducted under vacuum or a purge of argon or nitrogen gas.

GC-MS method 1996 consisted of hydrolysis followed by derivatization of the free 2-phenylphenol and free PHQ by trimethylsilylation with N,O-bis(trimethylsilyl)trifluoro-acetamide (BSTFA). The derivatization step often produced variable results for both compounds with recoveries outside 70 to 120 percent and relative standard deviations above 20 percent. The meeting concluded that this GC-MS method is not suitable, however, when concurrent recoveries are from 70 to 120 percent with a relative standard deviation below 20 percent, trials can be selected.

GC-MS method 2005a/b consisted of hydrolysis using steam distillation with 1 mol/L HCl for 2 hours or reflux with 2 mol/L HCl for 2 hours for 2-phenylphenol and 0.3 mol/L HCl at 100 °C (oven) for 1 hour for PHQ. An overall extraction efficiency of 89 percent for 2-phenylphenol and 56 percent for PHQ was demonstrated for incurred residues in orange peel (derived from the metabolism study). The method is considered fit for purpose with an LOQ of 0.1 mg/kg for 2-phenylphenol (free and conjugated) in citrus commodities (whole fruit, peel, flesh, marmalade).

LC-MS/MS method 2019a consisted of hydrolysis using 4 mol/L HCl at 80 °C (water bath) for 1 hour. Studies with incurred residues in orange peel demonstrated an overall extraction efficiency of 100 percent for 2-phenylphenol and 106 percent for PHQ using these conditions, and the method is considered fit for purpose with an LOQ of 0.01 mg/kg for 2-phenylphenol (free and conjugated) and 0.01 mg/kg for PHQ (free and conjugated) in commodities with high acid content (citrus flesh, peel), high water content (pear), high oil content (rape seed), high protein content (dry beans) and high starch content (wheat grain).

GC-MS methods 2011 and 2012 and LC-MS/MS method 2019c consisted of hydrolysis using 1 mol/L HCl at 70 °C (oven) for 16 hours followed by 5 min steam distillation or 1 mol/L HCl at 70 °C (oven) for 16 hours. Hydrolysis efficiency was not demonstrated for these conditions and the meeting concluded that these methods are not sufficiently validated and trials using these methods are not selected.

Analytical methods for animal matrices consisted of extraction with acetonitrile/water containing 1 percent formic acid, QuEChERS clean-up and LC-MS/MS detection. The meeting concluded that LC-MS/MS method 2019b is suitable to measure 2-phenylphenol in its free form in animal commodities (muscle, fat, liver, whole milk and eggs) with an LOQ of 0.01 mg/kg. No validation data are available for kidney. Conjugates were not covered by this method.

Stability of pesticide residues in stored analytical samples

The meeting received information on storage stability of 2-phenylphenol and PHQ only in citrus commodities.

Data showed that 2-phenylphenol is stable at –18 °C or lower for at least 7 months in orange whole fruit, orange flesh and orange peel, at least 3 months in orange oil, and at least 2 months in orange juice and orange dry pomace.

PHQ is stable at –18 °C or lower for at least 7 months in orange whole fruit and orange flesh and at least 2 months in orange juice and orange dry pomace, but it is not stable in orange peel and orange oil and degraded respectively within 46 and 15 days of storage at –18 °C.

Storage stability for orange marmalade was not investigated but is considered covered by the storage stability data for orange whole fruit and flesh.

Available storage stability studies with longer storage periods could not be accepted because of insufficient performance of the analytical method.

The meeting agreed that the demonstrated storage stability on citrus commodities covered the residue sample storage intervals used in the post-harvest trials considered by the current meeting. Processed orange samples from the 2018 and 1995 processing studies exceeded the storage intervals investigated in the storage stability studies, and are not taken into account.

Definition of the residue

Plant commodities

Plant metabolism studies were available for post-harvest dip treatments of oranges and pears. Most of the residue in oranges stored for up to 12 weeks and in pears stored for up to 28 weeks after treatment is parent 2-phenylphenol (free and conjugated, >80 percent) and concentration of the conjugates increases with time of storage. After 12 weeks of storage the residue in orange is 9.2 mg/kg OPP eq, with 65 percent in free form and 21 percent as conjugate. After 28 weeks of storage, the residue in pears is 42 mg/kg OPP eq, with 6.3 percent in free form and 84.2 percent as conjugate. The meeting agreed that the conjugated form needs to be included in the residue definition for enforcement. The meeting noted that suitable analytical methods exist to measure 2-phenylphenol in its free and conjugated form in plant commodities.

The meeting decided to define the residue for compliance with the MRL for plants as: *sum of 2-phenylphenol and its salts and conjugates, expressed as 2-phenylphenol.*

In addition to 2-phenylphenol, the metabolites phenylhydroquinone (PHQ, free and conjugated) and 2-methoxybiphenyl (2-MBP) were identified in oranges only. These metabolites were considered for inclusion in the residue definition for dietary intake estimation.

PHQ (free and conjugated) was only found in the peel of oranges at a level of 6.9 percent TRR (0.63 mg/kg OPP eq as whole fruit): 2.8 percent TRR as free form and 4.1 percent TRR as conjugate. Post-harvest trials show that PHQ (free and conjugated) was found in citrus whole fruit at levels up to 0.24–0.30 mg/kg PHQ eq and in citrus peel at levels up to 0.20–2.0 mg/kg PHQ eq depending on the type of application. PHQ (free and conjugated) was not found in citrus flesh, orange juice, orange marmalade or orange peel oil above the limit of quantification of the analytical method (0.2 mg/kg). The metabolite 2-MBP was only found in the methanol rinse of oranges at a level of 0.27 percent TRR (0.025 mg/kg OPP eq as whole fruit). This metabolite was not analysed in the post-harvest trials.

As PHQ and 2-MBP were not found in the edible part of citrus fruits and were not found in pears, there is no dietary exposure to these metabolites from the uses considered by the present meeting. However, since the meeting postponed the assessment of the toxicological information on the parent and its metabolites, no conclusion on the plant residue definition for dietary intake estimation could be made.

Animal commodities

The lactating goat study showed that total radioactive residues in animal commodities are low (<0.05 mg/kg eq in milk and all tissues) with a highest metabolite level of 0.006 mg/kg OPP eq in milk. Residues in milk or tissues do not contain the free forms of 2-phenylphenol, PHQ or PBQ. No further attempts were made to identify the unknown metabolites or to release conjugates.

The meeting noted that there is no suitable analytical method to measure 2-phenylphenol in its conjugated form in animal commodities and was unable to define the residue for animal commodities.

Conclusion on residue definition

The meeting recommended the following residue definitions for 2-phenylphenol.

Definition of the residue for compliance with the MRL for plants: *sum of 2-phenylphenol and its salts and conjugates, expressed as 2-phenylphenol.*

The meeting was unable to conclude on the residue definition for dietary intake estimation for plant commodities and for compliance with the MRL and dietary intake estimation for animal commodities.

Since metabolism studies are only available on post-harvest uses on fruits, the residue definition needs to be re-evaluated when uses on other crop types are submitted.

Results of supervised residue trials on crops

Product labels were available from Australia, Cyprus, Egypt, Greece, Jamaica, Morocco, Pakistan, Peru, Portugal, South Africa, Spain, Türkiye, and the United States of America for use on citrus fruits and pears. The spray concentrations are expressed as 2-phenylphenol even when the formulation is based on a sodium salt of 2-phenylphenol.

Post-harvest storage trials were available for the use of 2-phenylphenol on citrus fruits. No trials were submitted for pears. The meeting therefore withdraws the previous recommendation for pears.

The meeting agreed that post-harvest trials at the same location and conducted at the same date are considered independent when the application solution is different for each trial (e.g. different formulation and/or concentration and/or freshly prepared before each trial). In those cases, a residue from each individual trial was selected (if according to cGAP).

Post-harvest trials at the same location and conducted at the same date are considered replicate trials when the application solution has the same concentration and is prepared only once before each trial, also when varieties are different. In those cases, the highest residue of the replicate trials was selected (if according to cGAP).

Post-harvest trials where crates of fruits are treated at the same time in the same machine and samples are taken from different crates, are considered replicate samples. In those cases, the average residue of the replicate samples was selected (if according to cGAP).

According to the FAO manual (page 281), the number of post-harvest trials on a commodity should be at least four, taking into consideration the application techniques, storage facilities, and packaging materials used.

Citrus fruit

The meeting received labels for various post-harvest uses on citrus fruits, including drenching, dipping, foaming and waxing. Drenching is generally performed by moving the fruits through a shower of the application solution, dipping by immersion of the fruits in a bath, foaming by moving the fruits through a curtain of foam on a rolling machine, and waxing by a direct spray and subsequent brush application. Post-harvest trials were submitted for drenching, foaming, waxing and a combination of foaming and waxing. No post-harvest trials were submitted for dipping. No labels were submitted for the combination of foaming and waxing. And thus only drenching, foaming and waxing will be taken into account for maximum residue levels.

Most labels do not mention a minimum waiting period or maximum storage period under cool conditions. The meeting agreed to take the highest residue from each decline trial in such cases, irrespective of the storage period under cool conditions (including zero days).

Some of the trials were conducted according to the cGAP, but they could not be selected because samples were analysed by GC-MS method 2011 or 2012 or LC-MS/MS method 2019c, where hydrolysis conditions for 2-phenylphenol conjugates were less harsh than those validated.

The meeting considered the low variability of residues in post-harvest treatment on citrus fruits between the different citrus subgroups and decided to combine residue values from different citrus subgroups for the estimation of maximum residue levels.

The meeting did not estimate STMRs or HRs because the meeting could not conclude on the residue definition for estimation of dietary intake.

Drench applications

The critical GAP for drenching is the GAP from the United States for citrus fruits and involves a single drench application at 0.32 kg ai/hL for 2–4 minutes. Fruits need to be rinsed with water after application. No trials in support of this use were submitted.

The next critical GAP is the GAP from Australia, Peru, South Africa and Spain for citrus fruits and involves a single drench application at 0.2 kg ai/hL with an unspecified contact time. No trials in support of this use were submitted either.

The next critical GAP is the GAP from Morocco and Portugal for citrus fruits and involves a single drench application of 0.060 kg ai/hL with an unspecified contact time. Trials according to this GAP were conducted in mandarins and oranges.

Mandarins: In one post-harvest trial conducted in Spain using a single drench application at 0.061 kg ai/hL for 30 seconds, the 2-phenylphenol residues (including conjugates) in mandarin whole fruit was 2.0 mg/kg. Residues flesh were: <0.1 mg/kg. Four trials could not be selected because hydrolysis conditions were less harsh than those validated.

Oranges: In four post-harvest trials conducted in Spain using a single drench application at 0.058–0.062 kg ai/hL for 30 seconds, 2-phenylphenol residues (including conjugates) in orange whole fruits were: 0.67, 0.83, 1.2, 1.4 mg/kg. Two trials on whole fruit could not be selected because hydrolysis conditions were less harsh than those validated.

The meeting noted that the GAP is for the group of citrus fruits and decided to combine the two datasets to accommodate a group maximum residue level for citrus fruits.

The combined dataset for mandarins and oranges for a single drench application is (n = 5): 0.67, 0.83, 1.2, 1.4 and 2.0 mg/kg.

Foam applications

The critical GAP for foaming is the GAP from Greece and Pakistan for citrus fruits and involves a single application at 1.3 kg ai/hL with an unspecified contact time. Fruits need to be rinsed with water after application. Two trials conducted with mandarins according to this GAP could not be selected because hydrolysis conditions were less harsh than those validated.

Oranges: In two post-harvest trials conducted in the United States using a single foam application at 1.3 kg ai/hL for 30 seconds and followed by a water rinse, 2-phenylphenol residues (including conjugates) in orange whole fruits were 1.6 (2) mg/kg. One trial in Spain could not be selected because hydrolysis conditions were less harsh than those validated.

Lemons: In two post-harvest trials conducted in the United States using a single foam application at 1.3 kg ai/hL for 30 seconds and followed by a water rinse, 2-phenylphenol residues (including conjugates) in lemon whole fruits were 2.8 and 3.3 mg/kg.

Grapefruits: In four post-harvest trials conducted in the United States using a single foam application at 1.3 kg ai/hL for 30 seconds and followed by a water rinse, 2-phenylphenol residues (including conjugates) in grapefruit whole fruits were 0.40, 0.74, 0.91 and 1.5 mg/kg.

The meeting noted that the GAP is for the group of citrus fruits and that the median residues for mandarins, oranges and grapefruits are within a five-fold difference. To accommodate a group maximum residue level, the meeting decided to combine the three datasets.

The combined dataset for 2-phenylphenol (including conjugates) in oranges, lemons and grapefruits for a single foam application is (n = 8): 0.40, 0.74, 0.91, 1.5, 1.6 (2), 2.8 and 3.3 mg/kg.

Wax applications

The critical GAP for waxing is the GAP from the United States for citrus fruits and involves a single wax application at 0.64 kg ai/hL for an unspecified contact time. Fruits should not be rinsed after application. No trials in support of this use were submitted.

The next critical GAP for waxing is the GAP from Peru for citrus fruits and involves a single wax application at 0.57 kg ai/hL with an unspecified contact time. No trials in support of this use were submitted either.

The next critical GAP for waxing is the GAP from Egypt or Pakistan for citrus fruits and involves a single wax application at 0.50 kg ai/hL with an unspecified contact time. No trials in support of this use were submitted either.

The next critical GAP for waxing is the GAP from Greece, South Africa, and Spain for citrus fruits and involves a single wax application at 0.32 kg ai/hL with an unspecified contact time. Two trials on mandarins and two trials on oranges were conducted at 0.25 kg ai/hL (within 25 percent of cGAP). However, none of these wax trials could be selected because hydrolysis conditions were less harsh than those validated.

Overall conclusion on citrus fruits

As the cGAPs for drenching and foaming use different spray concentrations, the meeting agreed that the datasets for drenching and foaming cannot be combined and that foaming leads to slightly higher residues.

The combined dataset for 2-phenylphenol (including conjugates) in oranges, lemons and grapefruits for a single foam application is (n = 8): 0.40, 0.74, 0.91, 1.5, 1.6 (2), 2.8 and 3.3 mg/kg.

The meeting estimated a maximum residue level of 6 mg/kg (Po) for 2-phenylphenol (including conjugates) for the group of citrus fruits.

The meeting withdraws the previous recommendation for the group of citrus fruits, of citrus pulp dried and orange juice.

Fate of residues during processing

High temperature hydrolysis

A high temperature hydrolysis study using 100 mg/L [phenyl-UL-^{14}C]-labelled 2-phenylphenol in water showed that 2-phenylphenol is stable under conditions simulating pasteurization, baking, brewing or boiling and sterilization.

Residues in processed commodities

The meeting evaluated three processing studies with oranges. Two studies could not be used because processed samples were stored for a period longer than the period investigated in the storage stability studies and/or because the performance of the analytical method was not acceptable. Furthermore, as the meeting could not conclude on the residue definition for dietary intake estimation no processing factors could be derived for marmalade from the third study.

Residues in animal commodities

Farm animal feeding studies

No farm animal feeding studies were submitted.

Farm animal dietary burden

Since the meeting could not agree on a residue definition for livestock, the meeting did not calculate dietary burdens.

Animal commodity maximum residue levels

Since the meeting could not agree on a residue definition for livestock, the meeting could not estimate maximum residue levels for animal commodities.

Further work or information

Desirable information:

- A metabolism study with lactating goats where all residues are subjected to hydrolysis and using reference standards for at least 2-phenylphenol, phenylhydroquinone, 2,4”-dihydroxybiphenyl and 1,4-benzoquinone. As storage stability might be an issue, care should be taken to analyse the residues within an appropriate time frame.
- A ruminant feeding study at the level of the estimated dietary intake based on citrus pulp consumption and at 10 and 100 times that level. Milk and tissues should be analysed for 2-phenylphenol and its conjugates and other metabolites identified in the metabolism study with lactating goats.
- A validated analytical method, which is able to analyse both the free and conjugated forms of 2-phenylphenol and other metabolites identified in the metabolism study with lactating goats.

Recommendations

As the definition of residue for dietary intake estimation for plants and for compliance with MRL and for estimation of dietary intake for animal commodities were not concluded, no recommendations were made by the meeting.

Definition of the residue for compliance with the MRL for plants: *sum of 2-phenylphenol and its salts and conjugates, expressed as 2-phenylphenol.*

Definition of the residue for estimation of dietary intake for plants: not concluded.

Definition of the residue for compliance with MRL and for estimation of dietary intake for animal commodities: not concluded.

Since metabolism studies are only available on post-harvest uses on fruits, the residue definition needs to be re-evaluated when uses on other crop types are submitted.

Table 5.1.2 Recommendation made by the meeting

CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
FP 230	Pear	W	20	–	–

Dietary risk assessment

The meeting was unable to perform a dietary risk assessment for 2-phenylphenol as the definition of the residue for dietary intake was not concluded and health-based guidance values (HBGVs) could not be established because of an incomplete toxicology dataset.

5.2 Acequinocyl (343) (T, R)*

Toxicology

Acequinocyl is the common name approved by the International Organization for Standardization (ISO) for (3-dodecyl-1,4-dioxonaphthalen-2-yl) acetate (International Union of Pure and Applied Chemistry [IUPAC]), for which the Chemical Abstracts Service (CAS) number is 57960-19-7.

Acequinocyl is used as an acaricide. The pesticidal mode of action (MOA) is inhibition of respiration in the complex III of insect mitochondria by the de-acetylated metabolite of acequinocyl. Acequinocyl has not previously been evaluated by the Joint FAO/WHO Meeting on Pesticide Residues (JMPR) and was reviewed by the present meeting at the request of the Codex Committee on Pesticide Residues (CCPR). All critical studies contained statements of compliance with good laboratory practice (GLP), unless otherwise specified. No additional information from a literature search was identified that complemented the toxicological information submitted for the current assessment.

Biochemical aspects

Absorption, distribution, metabolism and excretion (ADME) studies were conducted with [^{c}phenyl-^{14}C]acequinocyl in the rat.

The absorption of acequinocyl was rapid in low doses, with T_{max} values between 2 and 6 hours and slower at high doses, with a T_{max} value of 24 hours. Based on bile canulation studies over 24 hours, absorption was 20–30 percent at low doses and 4–5 percent in high doses. There were no sex differences. The highest concentrations of radioactivity were found in the gastrointestinal (GI) tract, followed by the fat, kidneys, liver, lungs, lymph nodes and pancreas.

The major route of excretion was the faeces, consisting mostly non absorbed compound. The absorbed material was excreted in the bile more than in the urine. Excretion was rapid, with the majority of the low dose excreted in the first 24 hours regardless of route; excretion of the high dose was longer. Of the acequinocyl found in the urine and bile, metabolism was extensive, as there were only small amounts of unchanged parent found in all excretion paths. The primary faecal metabolites were the result of cleaving the acetyl group to form 2-hydroxy-3-dodecyl-1,4-naphthalenedione (AKM-05). The two derivatives in urine were the hexanoic acid (AKM-15) and butanoic acid (AKM-14) derivatives. The glucuronide of AKM-05 was only found in the bile but was a major component of the absorbed dose.

In a comparative *in vitro* metabolism study, there were no human-specific metabolites, and only two metabolites were found at greater than 5 percent of the total radioactivity. Overall, substantial spontaneous degradation occurs *in vitro*.

Toxicological data

The acute oral median lethal dose (LD_{50}) of acequinocyl was greater than 5000 mg/kg bw, as was the dermal LD_{50}. The acute inhalation median lethal concentration (LC_{50}) was greater than 0.84 mg/L. Acequinocyl was minimally irritating to the skin and eyes. It was not a dermal sensitizing in via the Buehler method, but it was sensitizing via the maximization method. In repeat-dose studies on mice, rats and dogs, the main effects of acequinocyl were on blood clotting.

In a 13-week oral toxicity study in mice, acequinocyl was administered in the diet at concentrations of 0, 100, 500 or 1000 ppm (equal to 0, 16, 81 and 151 mg/kg bw per day in males and 0, 21, 100 and 231 mg/kg bw per day in females). The no-observed-adverse-effect level (NOAEL) for acequinocyl was 100 ppm (16 mg/kg per day), based on hepatocellular vacuolation in males and females, increased severity of extramedullary haematopoiesis in the spleens of males, and increased leukocyte levels in females at 500 ppm (81 mg/kg bw per day).

In a 90-day oral toxicity study in rats, acequinocyl was administered in the diet at concentrations of 0, 100, 400, 1600 or 3200 ppm (equal to 0, 7.6, 30.4, 119 and 253 mg/kg bw per day in males and 0, 8.3, 32.2, 129 and 286 mg/kg bw per day in females). The NOAEL for acequinocyl was 400 ppm (30.4 mg/kg bw per day) based on prolonged prothrombin time (PT) in males, increased activated partial thromboplastin time (APTT) in both sexes and ocular effects in females at 1600 ppm (119 mg/kg bw per day).

In a second 90-day oral toxicity study in rats, acequinocyl was administered in the diet at concentrations of 0, 100, 160, 400 and a top dose of 800 ppm (males) and 1600 ppm (females) (equal to 0, 6.4, 10.3, 26.0 and 50.7 mg/kg bw per day in males and 0, 8.0, 13.0, 31.5 and 125 mg/kg bw per day in females). The NOAEL for acequinocyl was 400 ppm (26.0 mg/kg bw per day) based on increased PT and APTT values at 800 ppm (50.7 mg/kg bw per day).

In a 90-day oral toxicity study in dogs, acequinocyl was administered in capsules at 0, 40, 160, 640 or 1000 mg/kg bw per day. A NOAEL for acequinocyl was not identified based on decreased body weight gains in males and an increase in platelet concentration in females at 40 mg/kg bw per day.

In a 12-month oral toxicity study in dogs, acequinocyl was administered in capsules at 0, 5, 20, 80 or 320 mg/kg bw per day. The NOAEL was 20 mg/kg bw per day based on increased red/brown stained faeces and bedding in males and females and increased platelets in females at 80 mg/kg bw per day.

The overall NOAEL for the dog studies was 20 mg/kg bw per day, based on increased platelet counts in females at the low-observed-adverse-effect level (LOAEL) of 40 mg/kg bw per day.

In an 80-week oral toxicity study in mice, acequinocyl was administered in the diet at concentrations of 0, 20, 50, 150 or 500 ppm (equal to 0, 2.7, 7.0, 20.3 and 66 mg/kg bw per day in males, and 0, 3.5, 8.7, 26.3 and 86 mg/kg bw per day in females). The NOAEL was 20 ppm (2.7 mg/kg bw per day) based on increased alkaline phosphatase, brown pigmented cells in the liver with an increase in perivascular inflammatory cell aggregation in males and females and fatty changes in the hepatocytes in males at the LOAEL of 50 ppm (7.0 mg/kg bw per day). The NOAEL for carcinogenicity was 500 ppm (66 mg/kg bw per day), the highest dose tested.

In a 104-week oral toxicity study in rats, acequinocyl was administered in the diet at concentrations of 0, 50, 200, 800 or 1600 ppm (equal to 0, 2.3, 9.0, 36.4 and 74 mg/kg bw per day in males and 0, 2.9, 11.6, 46.2 and 93.6 mg/kg bw per day in females). The NOAEL was 50 ppm (2.3 mg/kg bw per day) based on enlarged eyeballs with haemorrhage in males at the LOAEL of 200 ppm (9.0 mg/kg bw per day). The NOAEL for carcinogenicity was 1600 ppm (74 mg/kg bw per day), the highest dose tested.

The meeting concluded that acequinocyl is not carcinogenic in mice or rats.

Acequinocyl was tested for genotoxicity in an adequate range of *in vitro* and *in vivo* assays. No evidence of genotoxicity was found.

The meeting concluded that acequinocyl is unlikely to be genotoxic.

In view of the lack of genotoxicity and the absence of carcinogenicity in mice and rats, the meeting concluded that acequinocyl is unlikely to pose a carcinogenic risk to humans.

In a two-generation reproductive toxicity study in rats, acequinocyl was administered in the diet at concentrations of 0, 100, 800 or 1500 ppm (equal to 0, 7.0, 59 and 111 mg/kg bw per day in males and 0, 7.0, 56 and 107 mg/kg bw per day in females). The parental NOAEL was 100 ppm (7.0 mg/kg bw per day) based on clinical signs of haemorrhaging (not further defined), protruding eyes, paleness, swollen body parts, and poor physical condition in F1 males at the LOAEL of 800 ppm, (59 mg/kg bw per day). The reproductive NOAEL was 1500 ppm (107 mg/kg bw per day), the highest dose tested. The offspring NOAEL was 800 ppm (56 mg/kg bw per day), based on the clinical signs of toxicity after weaning, such as haemorrhagic effects, swollen body parts and protruding eyes in both F1 and F2 pups and blue-coloured eyes, head and extremities, bloody encrusted nose and paleness and cerebral haemorrhage in F2 pups, an increase in the number of deaths postnatal days (PNDs) 22–30 in F2 pups, and delayed eye opening and reduced startle response in F2 pups at the LOAEL of 1500 ppm (107 mg/kg bw per day).

In a developmental toxicity study in rats, acequinocyl was administered via gavage at 0, 50, 150 or 500 mg/kg bw per day from gestation day (GD) 7 to 17, and an additional dose group was administered 750 mg/kg bw per day from GD 7 to 10. The maternal NOAEL was 150 mg/kg bw per day, based on clinical signs (paleness to body/eyes, slow/irregular breathing, hypoactivity, piloerection, red vaginal discharge) and intrauterine haemorrhage at the LOAEL of 500 mg/kg bw per day. The embryo/fetal NOAEL was 500 mg/kg bw per day, based on increased early resorptions resulting in increased post-implantation loss at the LOAEL of 750 mg/kg bw per day.

In a developmental toxicity study in rabbits, acequinocyl was administered via gavage at 0, 30, 60 or 120 mg/kg bw per day from GD 6 to 18. The maternal NOAEL was 60 mg/kg bw per day, based on clinical signs, premature deaths and haemorrhages at the LOAEL of 120 mg/kg bw per day. The embryo/fetal NOAEL was 60 mg/kg bw per day, based on an increase of complete litter losses at the LOAEL of 120 mg/kg bw per day.

The meeting concluded that acequinocyl did not cause congenital malformations.

Acequinocyl was tested for endocrine disruption in a number of *in vitro* and *in vivo* studies, which did not provide useful information for risk assessment.

In an acute neurotoxicity study in rats, acequinocyl was administered via gavage at 0, 125, 500 or 2000 mg/kg bw per day. The NOAELs for neurotoxicity and systemic toxicity for acequinocyl were both 2000 mg/kg bw, the highest dose tested.

The meeting concluded that acequinocyl is not neurotoxic.

In a 28-day immunotoxicity study in female mice, acequinocyl was administered in the diet at concentrations of 0, 100, 250 or 500 ppm (equal to 0, 10, 24 and 45 mg/kg bw per day). The NOAEL was 500 ppm (45 mg/kg bw per day), the highest dose tested.

The meeting concluded that acequinocyl is not immunotoxic.

Mode of action studies

Four supplemental, non-guideline studies (non-GLP) were performed to investigate the effects of acequinocyl on blood coagulation.

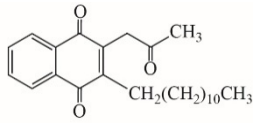
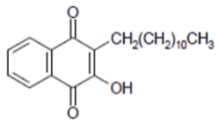
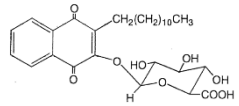
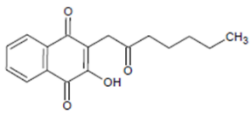
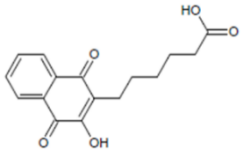
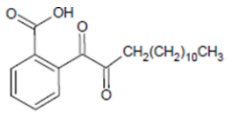
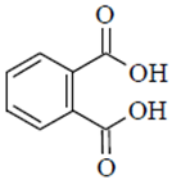
In three single-dose toxicity studies in rats (three male rats per dose group), acequinocyl was administered via gavage at 0 to 600 mg/kg bw. Measurements were made of PT and APTT at various time points in all the studies. The overall NOAEL was 20 mg/kg bw, based on increased PT and APTT at the LOAEL of 70 mg/kg bw.

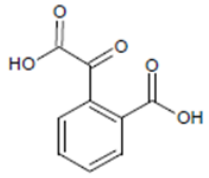
In a single-dose toxicity study in three Rhesus monkeys, acequinocyl was administered by gavage at 1000 mg/kg bw. While there were clinical signs of toxicity, there were no effects on PT or APTT values.

Toxicological data on metabolites and/or degradates

A toxicological evaluation of the following metabolites was performed. The following table shows an overall summary of the toxicological characterization of the plant/livestock metabolites for potential inclusion in the residue definition.

Table 5.2.1 Summary overview of toxicological characterization of plant/livestock metabolites of acequinocyl

Compound, code and structure	Major rat metabolite (>10% AD)	Genotoxicity assessment (data, QSAR, read-across)	General toxicity	Reference value for dietary risk assessment
Acequinocyl 	Parent	Data Not genotoxic	Full dataset	ADI: 0.02 mg/kg bw per day ARfD: 0.2 mg/kg bw per day
AKM-05 Acequinocyl-OH 	Yes (upstream metabolite of AKM-05-Gluc, which is a major rat metabolite)	Not genotoxic as covered by parent	Covered by parent	Parent's HBGVs
AKM-05-Gluc  AKM-05-glucuronide (AKM-05-GLU)	Yes	Not genotoxic as covered by parent	Covered by parent	Parent's HBGVs
AKM-08 	No	Not genotoxic (QSAR)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
AKM-15 	Yes	Not genotoxic as covered by parent	Covered by parent	Parent's HBGVs
AKM-18 	No	Not genotoxic (data)	LD_{50}>5000 mg/kg bw	TTC Cramer class III value: 1.5 µg/kg bw per day (chronic)
Phthalic acid  Conclusion on phthalic	No	Not genotoxic (additional data)		Based on JMPR 2024 evaluation: Separate ADI of 0–0.1 mg/kg bw ARfD: unnecessary

acid based on folpet (JMPR 2024)				
CBAA 	No	Not genotoxic (QSAR)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)

Notes: AD: Administered dose; TTC: threshold of toxicological concern; HBGVs: health-based guidance values.

Microbiological aspects

There was no information available in the public domain, and no experimental data was submitted, which addressed the possible impact of acequinocyl residues on the human intestinal microbiome.

Human data

No evidence of acute or chronic adverse effects in workers resulting from exposure to the active during annual medical surveillance.

The meeting concluded that the existing database on acequinocyl was adequate to characterize the potential hazards to the general population, including fetuses, infants and children.

Toxicological evaluation

The meeting established an acceptable daily intake (ADI) of 0–0.02 mg/kg bw, based on the NOAEL of 2.3 mg/kg bw per day in the two-year chronic and carcinogenicity study in the rat, supported by the 18-month carcinogenicity study in the mouse and using a safety factor of 100. This ADI also applies to metabolites AKM-05, AKM-05-Gluc and AKM-15.

The meeting established an acute reference dose (ARfD) of 0.2 mg/kg bw, based on the NOAEL of 20 mg/kg bw per day in the coagulation MOA studies in the rat and using a safety factor of 100. This ARfD also applies to metabolites AKM-05, AKM-05-Gluc and AKM-15.

The meeting recognized that phthalic acid, a common metabolite to a number of pesticides, was evaluated by the 2024 JMPR, where an ADI of 0–0.1 mg/kg bw was established, and ARfD was considered unnecessary.

The meeting concluded that the threshold of toxicological concern (TTC) Cramer class III approach for chronic exposure (1.5 µg/kg bw per day) and for acute exposure (5 µg/kg bw) should be considered in the dietary risk assessment of the following plant/livestock metabolites: AKM-08 and CBAA, if necessary. The meeting concluded that the threshold of toxicological concern (TTC) Cramer class III approach for chronic exposure (1.5 µg/kg bw per day) should be considered in the dietary risk assessment of AKM-18, if necessary.

A toxicological monograph was prepared.

Table 5.2.2 Levels relevant to risk assessment of acequinocyl

Species	Study	Effect	NOAEL	LOAEL
Mouse	78-week study of toxicity and carcinogenicity[a]	Toxicity	20 ppm, equal to 2.7 mg/kg bw per day	50 ppm, equal to 7.0 mg/kg bw per day
		Carcinogenicity	500 ppm, equal to 66 mg/kg bw per day[c]	–
Rat	Acute neurotoxicity study[b]	Neurotoxicity	2000 mg/kg bw[c]	–
	Two-year studies of toxicity and carcinogenicity[a]	Toxicity	50 ppm, equal to 2.3 mg/kg bw per day	200 ppm, equal to 9.0 mg/kg bw per day
		Carcinogenicity	1600 ppm, equal to 74 mg/kg bw per day[c]	–
	Two-generation study of reproductive toxicity[a]	Reproductive toxicity	1500 ppm, equal to 107 mg/kg bw per day[c]	–
		Parental toxicity	100 ppm, equal to 7.0 mg/kg bw per day	800 ppm, equal to 59 mg/kg per day
		Offspring toxicity	800 ppm, equal to 56 mg/kg bw per day	1500 ppm, equal to 107 mg/kg per day
	Developmental toxicity study[b]	Maternal toxicity	150 mg/kg bw per day	500 mg/kg bw per day
		Embryo/fetal toxicity	500 mg/kg bw per day	750 mg/kg bw per day
	Coagulation studies[b, d]	Toxicity	20 mg/kg bw[d]	70 mg/kg bw
Rabbit	Developmental toxicity study[b]	Maternal toxicity	60 mg/kg bw per day	120 mg/kg bw per day
		Embryo/fetal toxicity	60 mg/kg bw per day	120 mg/kg bw per day
Dog	13-week and one-year studies of toxicity[d,e]	Toxicity	20 mg/kg bw per day	40 mg/kg bw per day

Notes:
[a] Dietary administration.
[b] Gavage administration.
[c] Highest dose tested.
[d] Two or more studies combined.
[e] Capsule administration.

Acceptable daily intake (ADI):*

0–0.02 mg/kg bw

Acute reference dose (ARfD):*

0.2 mg/kg bw

*Applies to acequinocyl, AKM-05, AKM-05-Gluc and AKM-15, expressed as acequinocyl.

Information that would be useful for the continued evaluation of the compound

Results from epidemiological, occupational health and other such observational studies of human exposure.

Table 5.2.3 Critical end-points for setting guidance values for exposure to acequinocyl

Absorption, distribution, excretion and metabolism in mammals	
Rate and extent of oral absorption	Rapid but low (20–30%)
Distribution	Widely distributed but low with highest concentrations in the gastrointestinal tract. Intermediate amounts in the fat, kidneys, liver, lungs, lymph nodes and pancreas
Potential for accumulation	No evidence of accumulation
Rate and extent of excretion	Rapid and nearly complete via faeces; 95% within 120 hours with majority excreted in first 48 hours
Metabolism in animals	Hydrolysis of the acetyl group and subsequently into benzoic acid, hexanoic acid and butanoic acid metabolites
Toxicologically significant compounds in animals and plants	Acequinocyl, AKM-05, AKM-05-Gluc, AKM-08, AKM-18, AKM-15, phthalic acid, 2-(carboxycarbonyl) benzoic acid
Acute toxicity	
Rat, LD_{50}, oral	>5000 mg/kg bw
Mouse, LD_{50}, oral	>5000 mg/kg bw
Rat, LD_{50}, dermal	>5000 mg/kg bw
Rat, LC_{50}, inhalation	>0.84 mg/L
Rabbit, dermal irritation	Minimally irritating
Rabbit, ocular irritation	Minimally irritating
Guinea pig, dermal sensitization	Not sensitizing (Buehler)
Guinea pig, dermal sensitization	Sensitizing (Magnusson & Kligman)

Short-term studies of toxicity	
Target/critical effect	Liver and haematological changes
Lowest relevant oral NOAEL	16 mg/kg bw per day (mouse) 30 mg/kg bw per day (rat) 20 mg/kg bw per day (overall dog)
Long-term studies of toxicity and carcinogenicity	
Target/critical effect	Liver changes in the mouse and enlargement and haemorrhage of the eye in rats
Lowest relevant NOAEL	2.7 mg/kg bw per day (mouse) 2.3 mg/kg bw per day (rat)
Carcinogenicity	Not carcinogenic
Genotoxicity	Unlikely to be genotoxic[a]
Reproductive toxicity	
Target/critical effect	Haemorrhages in adults and offspring, increased pup death, delayed eye opening and reduced startle response
Lowest relevant parental NOAEL	7.0 mg/kg bw per day (rat)
Lowest relevant offspring NOAEL	56 mg/kg bw per day (rat)
Lowest relevant reproductive NOAEL	>107 mg/kg bw per day, highest dose tested (rat)
Developmental toxicity	
Target/critical effect	Clinical signs of toxicity, intrauterine haemorrhages and early resorptions (rat). Haemorrhages and complete resorptions (rabbit)
Lowest relevant maternal NOAEL	150 mg/kg bw per day (rat) 60 mg/kg bw per day (rabbit)
Lowest relevant embryo/fetal NOAEL	500 mg/kg bw per day (rat) 60 mg/kg bw per day (rabbit)
Neurotoxicity	No evidence of neurotoxicity
Acute neurotoxicity NOAEL	>2000 mg/kg bw, highest dose tested (rat)
Subchronic neurotoxicity NOAEL	No evidence from routine studies
Developmental neurotoxicity NOAEL	No data
Other toxicological studies	
Immunotoxicity	>45 mg/kg bw per day, highest dose tested (mouse)

Coagulation	20 mg/kg bw (rat)
Studies on toxicologically relevant metabolites	
AKM-18	Acute oral LD_{50}: >5000 mg/kg bw (rat) Not genotoxic (Ames, chromosomal aberration)
Phthalic acid	Not genotoxic (Ames, gene mutation, micronucleus *in vitro*)
Microbiological data	No data
Human data	No clinical cases or poisoning incidents have been recorded

Note: [a] Unlikely to pose a carcinogenic risk to humans via exposure from the diet.

Table 5.2.4 Summary

	Value	Study	Safety factor
ADI	0–0.02 mg/kg bw[a]	Two-year study of toxicity and carcinogenicity (rat), supported by an 18-month carcinogenicity study (mouse)	100
ARfD	0.2 mg/kg bw[a]	Coagulation mode of action studies (rat)	100

Note:

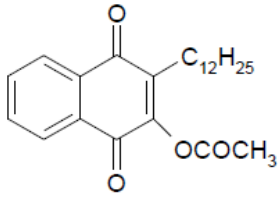
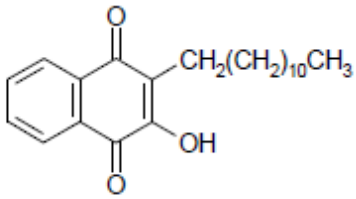
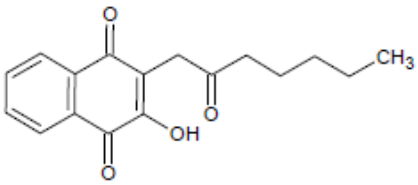
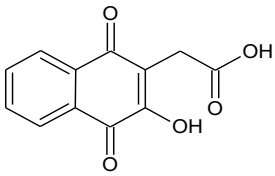
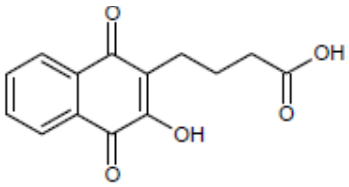
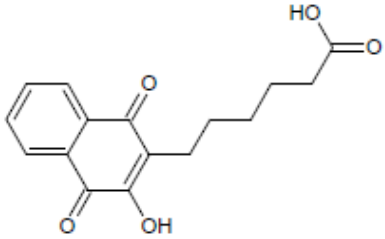
[a] Applies to acequinocyl, AKM-0, AKM-05-Gluc 5 and AKM-15, expressed as acequinocyl.

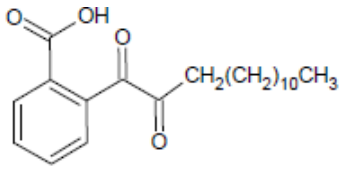
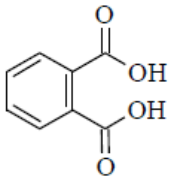
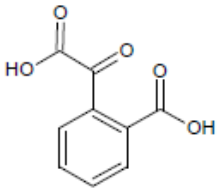
Residue and analytical aspects

Acequinocyl is an acaricide, effective against all mite development stages, and is registered for use in a variety of crops. It acts by as a mitochondrial complex III electron transport inhibitor. At the 55th Session of the CCPR, acequinocyl was scheduled for evaluation as a new compound for the 2025 JMPR.

The meeting received information on the identity and physicochemical properties of acequinocyl, its metabolism in plants and animals, methods of analysis, freezer storage stability, registered use patterns, supervised residue trials in citrus, grape, strawberry, tree nuts and hops, as well as the fate of residues during processing. The compounds referred to in this appraisal are shown in Table 5.2.5.

Table 5.2.5 Overview of compounds referred to in the appraisal

Compound	Chemical names (IUPAC)	Structure
Acequinocyl AKD2023	3-Dodecyl-1,4-dioxo-1,4-dihydro-2-naphthyl acetate	 Molar mass: 384.51 g/mol
Acequinocyl-OH AKD2023-OH R1 AKM-05	2-Dodecyl-3-hydroxy-1,4-naphthoquinone	 Molar mass: 342.47 g/mol
AKM-08	2-Hydroxy-3-(-2oxododecyl)-1,4-naphthoquinone	
AKM-13	(3-hydroxy-1,4-dioxo-1,4-dihydronaphthalen-2-yl)acetic acid	
AKM-14	4-(3-hydroxy-1,4-dioxo-1,4-dihydronaphthalen-2-yl)butanoic acid	
AKM-15	6-(3-Hydroxy-1,4-dioxo-1,4-dihydronaphthalen-2-yl) hexanoic acid	

Compound	Chemical names (IUPAC)	Structure
AKM-18	2-(2-Oxotetradecanoyl)benzoic acid	
Phthalic acid	benzene-1,2-dicarboxylic acid	 Molar mass: 166.13 g/mol
CBAA	2-(carboxycarbonyl) benzoic acid	 Molar mass: 194.14 g/mol

Physical and chemical properties

Acequinocyl exhibits poor solubility in water, but a good solubility in organic solvents. Its log P_{OW} of >6 (at 25 °C) indicates its potential to partition into fat. Acequinocyl is more susceptible to hydrolysis with increasing pH, with half-lives ranging from days at pH 4 to minutes at pH 9. The vapour pressure indicates that acequinocyl is not volatile.

Plant metabolism

The metabolic fate in plants was investigated following application of [^{14}C]-labelled acequinocyl to oranges, apples, eggplant and hops.

Oranges

Oranges received one foliar application of [^{14}C-phenyl]-acequinocyl at a rate of 1050 g ai/ha outdoors at 30 days before mature harvest. Samples of orange fruit and leaves were harvested at 0, 14 and 21 days after application (DAA). To investigate translocation, some fruits were covered prior to spraying.

Total radioactive residues (TRR) decreased from 0.633 mg eq/kg to 0.228 mg eq/kg in fruit and from 53.7 mg eq/kg to 25.9 mg eq/kg in leaves between 0 and 30 DAA. Radioactivity of protected fruit was about 18 percent of the unprotected fruit.

The orange fruits and leaves were surface-washed by immersion in acetonitrile, the fruits were then peeled and all samples (peel, flesh and leaves) were homogenized by blending with acetonitrile. The post extracted solids (PES) of orange peel and leaf samples containing >10 percent TRR were further extracted with acetonitrile:water (1:1), 1 mol/L NaOH (at ambient temperature and at 55 °C for 18 hours) and 5 mol/L NaOH (at 55 °C for 18 hours). In addition, PES of the leaf samples were subjected to acidic hydrolysis with 5 mol/L HCl at ambient temperature and 55 °C).

Most of the radioactivity in fruit and leaves was found in the surface wash (44–100 percent TRR). When the radioactivity measured in the solvent extract was also considered, the total extracted radioactive residue (ERR) was 65–100 percent TRR. The radioactivity in the PES generally increased with the DAA, reaching up to 29 percent TRR in fruits (21 DAA) and 36 percent TRR in leaves (30 DAA). Harsher treatments of the PES from peels and leaves released an additional 17–27 percent TRR (0.036–6.9 mg eq/kg), but were not further characterized. The flesh extract was not further characterized, due to its low radioactivity.

Parent acequinocyl was the major identified residue in orange fruit (surface wash and peel extract) and leaves accounting for 36–95 percent TRR (0.094–0.60 mg/kg) and 28–98 percent TRR (7.2–53 mg/kg), respectively. Additionally, four metabolites were identified, namely AKM-05 at <0.1–3.3 percent TRR (<0.001–0.85 mg eq/kg), AKM-18 at <0.1–6.8 percent TRR (<0.001–2.9 mg eq/kg), phthalic acid at 4.9–10.5 percent TRR (0.016–4.2 mg eq/kg) and CBAA (only in peel) at 0.79–7.2 percent TRR (0.017–0.20 mg eq/kg). The unextracted residue ranged between 0.20 and 9.0 percent TRR (0.003–2.62 mg eq/kg).

Apples

Apples received one foliar application of [^{14}C-phenyl]- or [^{14}C-dodecyl]-acequinocyl at a rate of 750 g ai/ha (0.2 g ai/L) outdoors at 30 days before mature harvest. In addition, samples of apple fruit and leaves were harvested at 0, 14 and 21 DAA. To investigate translocation from leaves to fruit, some fruits were covered prior to spraying.

The measured TRRs were generally similar for both labels. In apple fruits, the TRR was 1.3–1.4 mg eq/kg at 0 DAA, declining to 0.58–0.67 mg eq/kg at 30 DAA. In apple leaves, the TRR was 54 mg eq/kg at 0 DAA, declining to 4.6–24 mg eq/kg at 30 DAA. Radioactivity of protected fruit was 3.7 percent of the unprotected fruit.

Apple fruits and leaves were surface rinsed with acetonitrile, followed by peeling of the fruits and homogenization of all samples (peel, flesh and leaves) with acetonitrile. The PES of apple peel and leaf containing >10 percent TRR were further extracted with acetonitrile:water (1:1), 1 mol/L NaOH (at ambient temperature and at 55 °C for 18 hours) and 5 mol/L NaOH (at 55 °C for 18 hours).

Most of the radioactivity in apple fruit and leaves was found for both labels in the surface wash (40–99 percent TRR). When the radioactivity measured in the solvent extract was also considered, the ERR increased to 52–100 percent TRR. The radioactivity in the PES generally increased with the DAA, reaching up to 36 percent TRR in fruit and 48 percent TRR in leaves. Harsher treatments of the PES from apple peel and leaf samples released an additional 15–48 percent TRR (0.08–11 mg eq/kg). The flesh extract was not further characterized, due to its low radioactivity.

Parent acequinocyl was the major identified residue accounting for 28–92 percent TRR (0.17–1.2 mg/kg) and 20–94 percent TRR (1.2–51 mg/kg) in apple fruit (surface wash and peel extract) and leaves, respectively. Additionally, the following metabolites were identified: AKM-05 at 1.4–4.1 percent TRR (0.008–0.809 mg eq/kg), AKM-18 at 0.1–4.8 percent TRR (0.001–0.830 mg eq/kg) and phthalic acid (only [^{14}C-phenyl]-label, sum solvent extract + NaOH extract) at 12.7–17.1 percent TRR (0.049–2.5 mg eq/kg). The unextracted residue ranged between 0.3–6.4 percent TRR (0.004–0.043 mg eq/kg) in apple fruit and 0.5–0.8 percent TRR (0.037–0.43 mg eq/kg) in leaves.

Eggplants

Eggplants received one foliar application of [^{14}C-phenyl]- or [^{14}C-dodecyl]-acequinocyl indoors under artificial light at a rate of 600 g ai/ha 14 days prior to mature harvest. In addition, samples of eggplant fruit and leaves were harvested at 0 and 7 DAA. To investigate translocation from leaves to fruits, some fruits were covered prior to spraying. In a separate experiment, soil applications were performed with both labels at a rate of 600 g ai/ha and harvest at 14 DAA.

TRRs were generally similar for both labels. In eggplant fruits the TRR was 0.116–0.374 mg eq/kg at 0 DAA, declining to 0.061 mg eq/kg at 14 DAA for the [^{14}C-dodecyl]-label, whereas levels for the [^{14}C-phenyl]-label remained at a similar level of 0.140 mg eq/kg. In eggplant leaves, the TRR was 10–26 mg eq/kg at 0 DAA, declining to 5.0–7.2 mg eq/kg at 14 DAA. Radioactivity of protected fruit reached up to 22 percent of the unprotected fruit. Uptake of acequinocyl residues by the roots as a result of soil treatment, followed by translocation into fruits and leaves, reached levels of 0.012 mg eq/kg and 0.031 mg eq/kg, respectively.

Eggplant fruits and leaves were surface washed with acetonitrile. The fruits were peeled and samples (peel, flesh and leaves) were homogenized with acetonitrile. The PES of eggplant peel and leaf containing >10 percent TRR were further submitted to base hydrolysis with 1 mol/L NaOH (at ambient temperature for 24 hours) and/or enzyme hydrolysis using cellulase, hemicellulose, pectinase and ß-glucosidase (at 37 °C for 18–24 hours).

Most of the radioactivity in fruit and leaves was found for both labels in the surface wash (50–98 percent TRR). When the radioactivity measured in the solvent extract was also considered, the total ERR increased to 72–100 percent TRR. The radioactivity in the PES for both labels increased with the DAA, reaching up to 19 percent TRR in eggplant fruit and up to 25 percent TRR in leaves. Harsher treatments of the PES of eggplant peel and leaf released an additional 4.8–6.1 percent TRR (0.002–0.007 mg eq/kg) from eggplant fruits and 6.9–23 percent TRR (0.36–4.0 mg eq/kg) from leaves. The TRR in the flesh extract was not further characterized, due to its low radioactivity.

Parent acequinocyl was the major identified residue in eggplant fruit (surface wash and peel) and leaves accounting for 46–84 percent TRR (0.034–0.313 mg/kg) and 38–92 percent TRR (2.8–25 mg/kg), respectively. Metabolite AKM-05 was identified in eggplant fruit at up to 10.3 percent TRR (0.016 mg eq/kg) and in leaves at 1.0–4.1 percent TRR (0.05–0.701 mg eq/kg). Metabolite AKM-18 at 0.3–6.7 percent TRR (<0.001–0.520 mg eq/kg) and phthalic acid (only [^{14}C-phenyl]-label) at 1.7–14 percent TRR (0.002–2.5 mg eq/kg). The unextracted residue ranged between 0.8–28 percent TRR (0.001–0.017 mg eq/kg) in eggplant fruit and 0.2–6.4 percent TRR (0.040–0.83 mg eq/kg) in leaves.

Hops received one foliar application of [^{14}C-phenyl]-acequinocyl at a rate of 328 g ai/ha at BBCH 75 under protected outdoor conditions (glass canopy roof). Samples of mature hop cones were harvested at 21 DAA (BBCH 89) and allowed to dry for 5 days at room temperature to mimic agricultural practices. In addition, leaf samples were collected at 5 and 21 DAA.

The TRRs were 27 mg eq/kg both in dried hop cones and in leaves. The dried hop cones were homogenized and sequentially extracted with acetonitrile + 0.1 percent formic acid (three times), followed by acetonitrile:water (8:2) + 0.1 percent formic acid (twice) and water (once). The overall ERR reached 96 percent TRR, while the PES accounted for 4.2 percent TRR. The TRR in hop leaves was not further characterized.

Parent acequinocyl was the major identified residue in dried hop cones accounting for 84 percent TRR (22 mg/kg). Additionally, metabolite AKM-05 and phthalic acid were identified at minor proportions at 2.3 percent TRR (0.58 mg eq/kg) and 1.0 percent TRR (0.25 mg eq/kg), respectively. The PES was not further characterized.

Summary plant metabolism

The primary plant metabolism was similar in all crops investigated. It proceeds through the hydrolysis of the acetic acid ester to metabolite AKM-05, followed by the opening of the naphthalenedione ring leading to the metabolite AKM-18 and further hydrolysis of the dodecyl aliphatic chain, resulting in the formation of phthalic acid and CBAA (only in orange peel).

Animal metabolism

The meeting received studies on the metabolism of acequinocyl in laboratory animals and lactating goats. The evaluation of the metabolism studies in laboratory animals was carried out by the WHO Core Assessment Group.

Lactating goats

In lactating goats, the metabolic fate of acequinocyl was investigated using [^{14}C-phenyl]-acequinocyl. The compound was administered orally once daily for 5 consecutive days to one lactating goat at 10 ppm (0.285 mg/kg bw day). Milk was collected twice daily and excreta (urine and feces) once daily throughout the study period. Tissue samples were collected after sacrifice, which occurred 23 hours after the last dose.

The total recovery of the administered dose (AD) was 86 percent. The majority of the radioactivity was found in faeces at 64 percent AD, followed by urine at 9.9 percent AD. In edible tissues, radioactivity was highest in liver (0.14 mg eq/kg), followed by kidney (0.10 mg eq/kg), fat (up to 0.018 mg eq/kg) and muscle (up to 0.008 mg eq/kg).

In whole milk, the total radioactivity was low and ranged over the course of the study between <0.0003 and 0.0027 mg eq/kg. Daily residue levels reached a plateau after approximately 4 days.

Samples of liver and kidney tissue were sequentially extracted with acetonitrile (three times), acetonitrile/water (3:1) (once liver, twice kidney) and methanol (once, liver only). Fat samples were extracted with hexane (twice), acetonitrile (twice), acetonitrile:water (3:1) (once). Prior to analysis, the hexane extracts were partitioned against acetonitrile. Muscle and milk were not further investigated due to their low radioactive content.

Extraction with solvents was similar for liver, kidney and fat, releasing 56 percent TRR, 78 percent TRR and 75 percent TRR, respectively. The PES was lowest in kidney at 23 percent TRR, followed by fat at 25 percent TRR and in liver at 44 percent TRR. The PES from the solvent extraction of liver and kidney was further treated with protease. These harsher treatments released an additional 13 percent TRR from kidney and 24 percent TRR from liver.

Parent acequinocyl was detected as a major residue in kidney at 10 percent TRR (0.01 mg/kg) and in fat (co-eluting with AKM-05) at 44 percent TRR (0.008 mg/kg), as well as in liver at 1.5 percent TRR (0.002 mg/kg). Additionally, the following metabolites were identified at minor proportions: AKM-05 at up to 8.4 percent TRR (0.012 mg eq/kg) in liver, AKM-15 at up to 9.1 percent TRR (0.013 mg/eq/kg) in kidney and AKM-18 at up to 6.2 percent TRR (0.006 mg eq/kg) in liver.

Summary of livestock metabolism

Generally, the transfer of radioactivity into ruminants was low. The highest TRRs were found in liver and kidney. Overall identification rate was low, ranging between 21 and 44 percent. Parent acequinocyl was detected as a major residue in kidney and fat, but absolute concentrations were very low. In addition, metabolites AKM-05, AKM-15 and AKM-18 were detected at minor proportions in liver and kidney.

The main transformation of acequinocyl occurs by hydrolysis to AKM-05, followed by the opening of the naphthalenedione ring leading to the metabolite AKM-18 or hydrolysis of the dodecyl side chain leading to the metabolite AKM-15. Both are further degraded, leading to the formation of phthalic acid and minor polar metabolites.

Environmental fate

The meeting received studies on hydrolysis, soil photolysis, aerobic soil degradation and confined rotational crops.

Hydrolysis

In three hydrolysis studies, performed with [^{14}C-phenyl]-acequinocyl in aqueous buffer solutions at pH 4/5, 7 and 9 and temperatures ranging from 10 °C to 50 °C, increasing rates of hydrolysis were observed with increasing pH and temperatures. Estimated half-lives were only pH dependent and ranged between 4–116 days for pH 4/5, 7.2–86 hours at pH 7 and 7.8–96 minutes at pH 9. Identified hydrolysis products were AKM-05 (up to 97 percent AR), AKM-08 (up to 6.4 percent of the applied radioactivity, AR), AKM-13 (up to 4.7 percent AR), AKM-14 (up to 5.9 percent AR), AKM-15 (up to 3.0 percent AR) and AKM-18 (up to 17 percent AR).

Soil photolysis

The half-life of [^{14}C-phenyl]-acequinocyl during soil photolysis was 11 days under artificial light, corresponding to about 21 days of natural summer sunlight at 30° to 50° north. The overall half-life was 5.3 days considering both direct photolytic degradation and hydrolysis at the moistened soil surface. Identified degradation products were AKM-05 (up to 21 percent AR) and AKM-18 (up to 17 percent AR).

Aerobic soil degradation studies

In aerobic soil degradation studies performed under laboratory conditions, [^{14}C-phenyl]- and [^{14}C-dodecyl]-acequinocyl were not persistent, with estimated half-lives in various soils ranging between 0.6 and 4.7 days. Identified metabolites were AKM-05 and AKM-18, accounting for up to 34 percent AR and 43 percent AR, respectively. At the end of the studies, most of the radioactivity was either mineralized to CO_2 (accounting for 27–58 percent AR) or remained as bound residues (25–56 percent AR). AKM-05 and AKM-18 had estimated half-lives of 1.4–49 days and 0.1–10 days, respectively.

Confined rotational crop

A confined rotational crop study was conducted outdoors with [^{14}C-phenyl]-acequinocyl, applied at a rate of 672 g ai/ha (approximately the maximum seasonal rate for crops that could be rotated in the use pattern) to a sandy loam soil. After plant-back intervals (PBIs) of 30, 120 and 365 days, the nature and level of radioactive residues were investigated in lettuce, turnip and wheat.

At the 30-day PBI, radioactive residues ranged from 0.007–0.23 mg eq/kg, at the 120-day PBI from 0.009–0.054 mg eq/kg and at the 365-day PBI from 0.004–0.025 mg eq/kg. The TRR in immature crop samples was generally higher than what was observed in mature samples. In immature crops, the TRR was highest in lettuce (up to 0.23 mg eq/kg), followed by turnip immature tops (up to 0.063 mg eq/kg), both from 30-day PBI. At maturity, the TRR was highest in wheat straw and grain from 120-day PBI, at up to 0.040 mg eq/kg and 0.025 mg eq/kg, respectively.

Crop matrices with radioactivity >0.01 mg eq/kg were extracted with acetonitrile, followed by partitioning with hexane. Dry matrices were hydrated with water prior to acetonitrile extraction. The PES was further characterized by enzymatic hydrolysis using a mixture of cellulase, pectinase, amylase and amyloglucosidase. The PES from the enzymatic hydrolysis containing radioactivity of >0.01 mg eq/kg was further subjected to acid hydrolysis and/or base hydrolysis.

Extractability was insufficient in all matrices, ranging between 1.7 and 40 percent TRR, while harsher hydrolytic treatments (enzymatic, acid, base) released most of the radioactivity, accounting for 41–89 percent TRR. The radioactivity remaining in the unextracted residue ranged between 3.9 and 49 percent TRR.

Only the extracts of lettuce, turnip top, wheat forage and hay from the 30-day PBI contained sufficient radioactivity to identify the residue. Parent acequinocyl was identified as a minor residue in immature lettuce and turnip tops, accounting for 8.3 percent TRR (0.019 mg/kg) and 19 percent TRR (0.012 mg/kg), respectively. No other metabolites were identified.

Summary of environmental fate

The meeting concluded that acequinocyl is not hydrolytically stable at environmental pH 7 and other pHs. Photolysis represents a major route of degradation in soil, where neither acequinocyl, nor its major soil degradation products AKM-05 and AKM-18 have the potential to accumulate. Significant carry-over of acequinocyl residues in succeeding crops is unlikely.

Methods of residue analysis

The meeting received analytical methods for the determination of acequinocyl as well as metabolites AKM-05 and phthalic acid in plant matrices and for acequinocyl and AKM-05 in animal matrices.

Methods for matrices of plant origin for acequinocyl and AKM-05 involved solvent extraction with acetonitrile or acetonitrile:water or acetone or hexane (for matrices with a high oil content), followed by different combinations of clean-up steps, dependent on the matrix type. These clean-up steps involved for example hexane or acetonitrile partitioning and/or SPE on silica or C18 and/or GPC. Acequinocyl and AKM-05 were determined by LC-MS/MS, typically with an LOQ of 0.01 mg/kg each, including the multi-residue method QuEChERS. Phthalic acid was determined by extraction with acetonitrile, followed by salting out and LC-MS/MS detection with an LOQ of 0.2 mg/kg. Sufficient extraction efficiency was demonstrated for acequinocyl and AKM-05 in cross-validation studies for acetone and acetonitrile.

For matrices of animal origin, the methods involved extraction with hexane followed by acetonitrile partitioning, GPC and silica SPE, or extraction with acetonitrile or acetone with no additional clean-up. Acequinocyl and AKM-05 were determined by LC-MS/MS with an LOQ of 0.01 mg/kg each.

The meeting concluded that suitable methods are available to measure residues of acequinocyl and metabolite AKM-05 in plant matrices with high water content, high oil content, high starch content and high acid content at an LOQ of 0.01 mg/kg each, phthalic acid in plant matrices high water content at an LOQ of 0.2 mg/kg; and acequinocyl and AKM-05 in animal matrices (milk, muscle, liver, kidney and fat) at an LOQ of 0.01 mg/kg each.

Stability of residues in stored analytical samples

The meeting received information on the storage stability of acequinocyl and its metabolite AKM-05 in a variety of plant matrices stored under frozen conditions.

In high water matrices, acequinocyl was stable at least 12 months in tomato, 6 months in apple and 2 months in fresh hop cones. AKM-05 was stable for at least 12 months in tomato, 18 months in apple and 2 months in fresh hop cones. Phthalic acid was stable for at least 12 months in tomato.

In high acid matrices, acequinocyl was stable for at least 12 months in mandarin, 5 months in orange fruit, 3.7 months in strawberry and 6 months in grapes. AKM-05 was stable for at least 12 months in mandarin but not stable in strawberry, orange (whole fruit) and grapes. In dry matrices, acequinocyl was stable up to 2 months in dried hop cones. AKM-05 was stable for at up to 3 months in dried hop cones and inconclusive afterwards. In high oil matrices, acequinocyl was stable at least 3.4 months in almond nutmeat where AKM-05 was not stable.

In processed commodities, acequinocyl was stable for at least 3 months in orange juice, and oil, but not stable in orange dried pulp. AKM-05 was stable for at least 3 months in orange juice and oil, but was not stable in dried orange pulp. Additionally, residues of acequinocyl were stable up to 3.5 months in almond hulls, but AKM-05 was not stable.

The meeting noted that all samples from field trials analysed for acequinocyl were within the tested storage stability time, except trials on hops that were outside the maximum tested storage stability time (15 months). In all trials for which AKM-05 residues are available either the analyte was not stable, data was inconclusive and no crop specific storage stability was provided or storage exceeded that demonstrated storage time.

Definition of the residue

In food commodities from plant metabolism studies, the predominant residue in orange, apple, eggplant and hops was parent acequinocyl, accounting for 36–95 percent TRR, 28–92 percent TRR, 46–84 percent TRR and 84 percent TRR, respectively. In field trials on fruit crops, acequinocyl was detected throughout at levels above LOQ, but was not detected in tree nuts.

The meeting concluded that parent acequinocyl is a major residue in plants and is a suitable marker compound for compliance with MRLs. However, since only fruits and leafy crops were supported with metabolism data, future uses on crops from other groups would require additional metabolism studies. Analytical methods are available for monitoring acequinocyl in all plant matrices.

On deciding which compounds should be included in the residue definition for dietary intake estimation, the meeting considered the likely occurrence of the compounds and the toxicological properties of the metabolites AKM-05, AKM-18, phthalic acid and CBAA.

Metabolite AKM-05 was identified as a major metabolite in eggplant, accounting for 10 percent TRR (0.016 mg eq/kg) and up to 18 percent of the parent. In all other plant metabolism studies, AKM-05 occurred as a minor metabolite accounting for <0.1–4.1 percent TRR, and 10 to 150 times lower than the parent. In supervised field trials, for which storage stability was not sufficiently demonstrated, the metabolite was detected above the LOQ in lemon (at a similar level than parent) as well as occasionally in orange, strawberries and grapes (mostly around one order in magnitude lower, compared to parent). In addition, AKM-05 occurred up to 21 percent AR under the simulated processing conditions of boiling, baking and brewing. The meeting concluded that metabolite AKM-05 is of no greater toxicity than parent acequinocyl and is covered by the health-based guidance values (HBGVs) of the parent. The meeting concluded further that AKM-05 contributes significantly to the dietary exposure, even if a significant decline may have occurred in supervised field trials, and should be included into the residue definition for dietary intake estimation.

The meeting decided to include parent acequinocyl and metabolite AKM-05 in the residue definition for dietary intake estimation for plant commodities.

Metabolite AKM-18 was identified as a minor metabolite in orange, apple and eggplant, accounting for 0.1–2.9 percent TRR (0.1–7.4 percent, relative to the parent). Since no genotoxicity was indicated for metabolite AKM-18, the TTC approach for Cramer class III compounds (1.5 µg/kg bw per day, long-term) was applied.

Metabolite CBAA was only identified in an orange metabolism study in peel at 30 DAA as a minor metabolite, accounting for 7.2 percent TRR (18 percent, relative to the parent). Since no genotoxicity was indicated for metabolite CBAA, the TTC approach for Cramer class III compounds (1.5 µg/kg bw per day, long-term; 5 µg/kg bw, acute) was applied.

Phthalic acid was identified as a major metabolite in apples (21 DAA), accounting for 10 percent TRR (0.063 mg eq/kg), but approximately 3-times lower than parent. In all other plant metabolism studies, phthalic acid occurred as a minor metabolite accounting for 1.0–8.2 percent TRR and at least 4 times lower than the parent. Data on the occurrence of phthalic acid in supervised trials was not available. The meeting concluded that phthalic acid is not covered by the HBGVs of the parent and referred to the 2024 JMPR, where an ADI of 0–0.1 mg/kg bw was set for phthalic acid. The meeting noted that phthalic acid is not a unique metabolite to acequinocyl and concluded that, given its relatively low occurrence and higher ADI compared to the parent substance, the dietary risk arising from phthalic acid residues resulting from the use of acequinocyl is covered indirectly by the parent substance and does not require specific consideration in the residue definition.

In animal metabolism studies performed with a lactating goat, parent acequinocyl was detected as a major residue in kidney at 10 percent TRR and in fat (co-eluting with AKM-05) at 44 percent TRR, as well as in liver as a minor residue at 1.5 percent TRR. However, absolute levels in all matrices were <0.01 mg/kg. Hence, the meeting decided to include parent acequinocyl into the residue definition for compliance with MRLs. Analytical methods are available for monitoring acequinocyl in all animal matrices, except eggs.

In metabolism studies, acequinocyl was found in fat and muscle at the same level (0.008 mg/kg). Hence, the meeting concluded that acequinocyl is not fat soluble.

On deciding which compounds should be included in the residue definition for dietary intake estimation, the meeting considered metabolites AKM-05, AKM-15 and AKM-18.

Metabolite AKM-05 and AKM-15 were identified at up to 8.4 percent TRR (0.012 mg eq/kg, only in liver) and at up to 9 percent TRR (0.013 mg eq/kg, in liver and kidney), respectively. Both metabolites occurred at levels of approximately six times higher compared to parent. The meeting concluded that metabolite AKM-05 and AKM-15 are of no greater toxicity than parent acequinocyl and are covered by the HBGVs of acequinocyl. The meeting further noted that the dietary burden is approximately 30-times lower compared to the dose administered in the goat metabolism study and concluded that exposures to AKM-05 and AKM-15 are not significant and therefore are not included in the residue definition for dietary intake.

The meeting decided that the residue definition for dietary intake estimation for animal commodities is parent acequinocyl.

Metabolite AKM-18 was identified in liver and kidney at up to 6.2 percent TRR (0.006 mg eq/kg) and at a similar level than parent. AKM-18 is not covered by the HBGVs of the parent. Since no genotoxicity was indicated for metabolite AKM-18, the TTC approach for Cramer class III compounds (1.5 µg/kg bw per day, long-term) was applied.

Definition of the residue for compliance with the MRL for plant and animal commodities: *acequinocyl.*

Definition of the residue for estimation dietary intake for plant commodities: *sum of acequinocyl and 2-dodecyl-3-hydroxy-1,4-naphthoquinone (AKM-05), expressed as acequinocyl.*

Definition of the residue for estimation of dietary intake for animal commodities: *acequinocyl.*

The residue is not fat soluble.

Results of supervised residue trials on crops

Supervised trials were available for the use of acequinocyl on citrus (lemon, orange, grapefruit), grapes, strawberry, tree nuts (almonds, pecans) and hops.

The meeting noted that due to the stability issues of AKM-05 in all crops considered and the inadequacy of the frozen storage stability data, no STMRs could be estimated.

Citrus fruits

The critical GAP for citrus in the United States allows two foliar applications of acequinocyl at 336 g ai/ha with a RTI of 21 days and a PHI of 7 days. Field trials on lemon, orange and grapefruit matching the GAP were conducted in the United States.

Lemon

Residue levels of acequinocyl in lemon were (n = 4): <0.01, 0.031, 0.066 and 0.079 mg/kg.

The meeting concluded that the number of trials is insufficient to estimate maximum residue levels for acequinocyl in lemon.

Orange

Residue levels of acequinocyl in orange were (n = 11): 0.019, 0.020, 0.040, 0.049, 0.053, 0.060, 0.067, 0.085, 0.097, 0.11 and 0.16 mg/kg.

The meeting estimated a maximum residue level of 0.3 mg/kg, for acequinocyl in the subgroup of oranges, sweet, sour (FC 0004).

For dietary burden estimation, the meeting estimated a median residue of 0.06 mg/kg for acequinocyl in orange.

Grapefruit

Residue levels of acequinocyl in grapefruit were (n = 5): 0.023, 0.035, 0.044, 0.047, 0.071 mg/kg.

The meeting estimated a maximum residue level of 0.15 mg/kg for acequinocyl in the subgroup of pummelo and grapefruits (FC 0005).

Berries and other small fruits

Grapes

The critical GAP for small fruit vine climbing in the United States allows two foliar applications of acequinocyl at 336 g ai/ha with a RTI of 21 days and a PHI of 7 days.

Field trials were conducted with grapes in the United States according to the GAP, giving residues of (n = 11): 0.028, 0.043, 0.059, 0.12, 0.14, 0.17, 0.20, 0.28, 0.35, 0.42, 0.45 mg/kg.

The meeting estimated a maximum residue level of 0.8 mg/kg for acequinocyl in the subgroup of small fruit vine climbing (FB 2008).

For dietary burden estimation, the meeting estimated a median residue of 0.17 mg/kg in grapes.

Strawberry

The critical GAP for low growing berries in the United States allows two foliar applications of acequinocyl at 336 g ai/ha with a RTI of 21 days and a PHI of 1 day.

Field trials were conducted with strawberry in the United States according to the GAP, giving residues of (n = 8): 0.16, 0.18, 0.19, 0.19, 0.20, 0.24, 0.27, 0.34 mg/kg.

The meeting estimated a maximum residue level of 0.7 mg/kg for acequinocyl in the subgroup of low growing berries (FB 2009).

Tree nuts

The critical GAP for tree nuts in the United States allows two foliar applications of acequinocyl at 336 g ai/ha with a RTI of 21 days and a PHI of 7 days.

Field trials on almonds (n = 5) and pecans (n = 5) matching the GAP were conducted in the United States, giving residues of acequinocyl of <0.01 (10) mg/kg.

The meeting estimated a maximum residue level of 0.01* mg/kg for acequinocyl in the group of tree nuts (TN 0085).

Hops

The critical GAP for hops in the United States allows two foliar applications of acequinocyl at 336 g ai/ha with a RTI of 21 days and a PHI of 7 days.

Field trials were conducted with hops in the United States according to the GAP (± 25 percent) giving residues in dried hop cones of 1.1 and 2.4 mg/kg.

The meeting concluded that the number of trials is insufficient to estimate maximum residue levels for acequinocyl in hops.

Feeding commodities

Almond hulls

The critical GAP for tree nuts in the United States allows two foliar applications of acequinocyl at 336 g ai/ha with a RTI of 21 days and a PHI of 7 days.

Field trials were conducted with almonds in the United States according to the GAP giving residue levels of acequinocyl in almond hulls of (n = 5): 0.44, 0.51, 0.58, 0.64 and 1.1 mg/kg.

The meeting estimated a maximum residue level of 3 mg/kg (dw), based on a dry matter content of 90 percent and a median residue of 0.58 mg/kg (as received) for acequinocyl in almond hulls.

Fate of residues during processing

The meeting received information on the hydrolysis of [^{14}C-phenyl]-acequinocyl, simulating typical processing conditions (90 °C, pH 4, 20 minutes to simulate pasteurization, 100 °C, pH 5, 60 minutes to simulate boiling, baking and brewing and 120 °C, pH 6, 20 minutes to simulate sterilization).

Significant hydrolysis of acequinocyl occurred under the conditions of pasteurization (67 percent parent remaining), boiling, baking and brewing (41 percent parent remaining) and sterilization (48 percent parent remaining).

As a major hydrolysis product, AKM-05 was identified up to 21 percent under the conditions of boiling, baking and brewing. Additionally, AKM-18 and AKM-08 were identified as minor hydrolysis products at up to 4 percent and 1.4 percent, respectively.

The meeting concluded that acequinocyl undergoes hydrolysis under the conditions of pasteurization, boiling, baking and brewing and sterilization.

The fate of acequinocyl residues has been examined simulating household and commercial processing of orange and grape. The meeting noted that due to the stability issues of AKM-05 in all crops considered and inadequacy of the frozen storage stability data, no processing factors for commodities used in dietary exposure could be derived. For orange oil, the meeting estimated a maximum residue level of 50 mg/kg, based on a processing factor 152 and a maximum residue level of 0.3 mg/kg for orange.

Residues in animal commodities

Farm animal feeding studies

Feeding studies on farm animals were not provided.

Estimated maximum and mean dietary burdens of livestock

Dietary burdens were calculated for beef cattle, dairy cattle, broilers and laying poultry based on feed items evaluated by the current meeting. The dietary burdens, estimated using the OECD diets listed in Appendix IX of the 2016 edition of the FAO manual, are presented in Annex 5. The summary results are shown in Table 5.2.6.

Table 5.2.6 Estimated livestock dietary burden for the sum of acequinocyl, ppm of dry matter diet

	United States/Canada		European Union		Australia		Japan	
	Max.	Mean	Max.	Mean	Max.	Mean	Max.	Mean
Beef cattle	0.007	0.007	0.003	0.003	0.30[a]	0.30[c]	–	–
Dairy cattle	0.071	0.071	0.013	0.013	0.30[b]	0.30[d]	–	–
Poultry – broiler	No feed items applicable							
Poultry – layer	No feed items applicable							

Notes:
[a] Highest maximum beef or dairy cattle dietary burden suitable for MRL estimates for mammalian tissues.
[b] Highest maximum dairy cattle dietary burden suitable for MRL estimates for mammalian milk.
[c] Highest mean beef or dairy cattle dietary burden suitable for STMR estimates for mammalian tissues.
[d] Highest mean dairy cattle dietary burden suitable for STMR estimates for milk.

For beef and dairy cattle, a maximum and mean dietary burden of 0.30 ppm was estimated. A lactating goat metabolism studies involved administration of 10 ppm acequinocyl in the diet, which is about 30 times overdosed compared to the expected maximum dietary burden. Extrapolation of the highest residue found in tissues and milk (0.01 mg/kg in kidney) to the maximum dietary burden would result in residues at up to 0.0003 mg/kg. Therefore, the meeting concluded that no residues >0.01 mg/kg are expected in milk and ruminant tissues and estimated maximum residues levels of 0.01* mg/kg for the Group of milks, the Group of muscle (from mammals other than marine mammals), the Group of mammalian fats (except milk fats), and the Group of edible offal (mammalian).

No exposure is expected for poultry and the meeting estimated maximum residues levels of 0.01* mg/kg for the Group of avian muscle, Groups of avian fats, Group of avian, Edible offal of and Group of eggs.

Recommendations

In all trials for which AKM-05 residues are available either the analyte was not stable, data was inconclusive and no crop specific storage stability was provided or storage exceeded that demonstrated storage time. Consequently, STMRs or HRs could not be estimated and no recommendations was made. Table 5.2.7 show the residues included in the dietary burden calculation.

Definition of the residue for compliance with the MRL for plant and animal commodities: *acequinocyl.*

Definition of the residue for estimating dietary intake for plant commodities: *sum of acequinocyl and 2-dodecyl-3-hydroxy-1,4-naphthoquinone (AKM-05), expressed as acequinocyl.*

Definition of the residue for estimating dietary intake for animal commodities: a*cequinocyl.*

The residue is not fat soluble.

Table 5.2.7 Residue levels suitable for estimation of animal dietary burdens

Codex group	Feed commodity	Median, in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed
AM/AV	Almond, hulls	0.58	–	90
AB	Citrus dried pulp[a]	0.06	–	91
AB	Grape pomace, wet[b]	0.17	–	15

Notes:

[a] Based on residues in orange.

[b] Based on residues in grape.

Dietary risk assessment

In all trials for which AKM-05 residues are available either the analyte was not stable, data was inconclusive and no crop specific storage stability was provided or storage exceeded that demonstrated storage time. Consequently, STMRs or HRs could not be estimated. Hence, no dietary risk assessment was conducted.

TTC assessments (Cramer class III)

During the 2024 JMPR meeting, the WHO concluded that the Cramer class III threshold for long-term exposure (1.5 µg/kg bw per day) should be applied to metabolites AKM-18 and CBAA and the threshold for acute exposure (5 µg/kg bw) should be applied to CBAA.

Since no dietary exposure to metabolites AKM-18 and CBAA is expected, a TTC assessment was deemed unnecessary.

5.3 Acynonapyr (333) (R)

Residue and analytical aspects

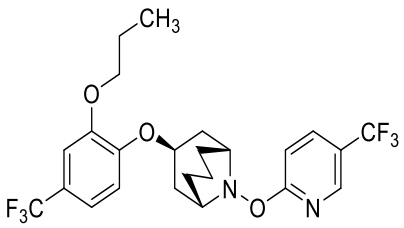
Acynonapyr (ISO name) is a new mode of action miticide with activity against motile stages of tetranychid mites. UPAC name is 3-endo-(2-propoxy-4-(trifluoromethyl)phenoxy)-9-((5-(trifluoromethyl)-2-pyridyl)oxy)-9-azabicyclo(3.3.1)nonane. It belongs to the class of calcium-activated potassium channel (KCa_2) modulators, acting on inhibitory glutamate receptors and disrupts neurotransmission.

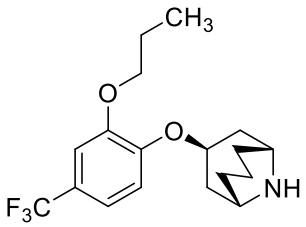
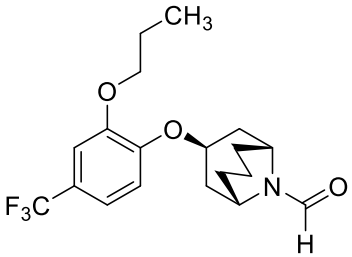
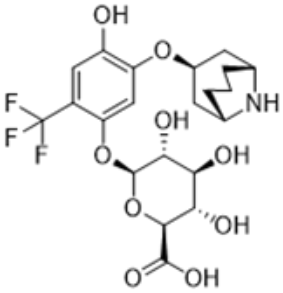
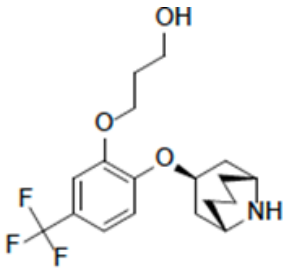
Acynonapyr was scheduled at the 54th Session of the CCPR (2023) for evaluation as a new compound by the 2024 JMPR for toxicology and residues, which was postponed to the 2025 JMPR for residues.

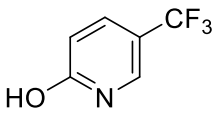
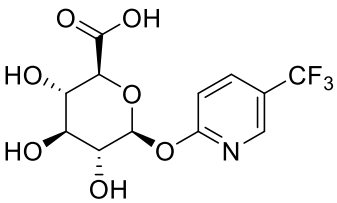
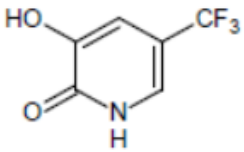
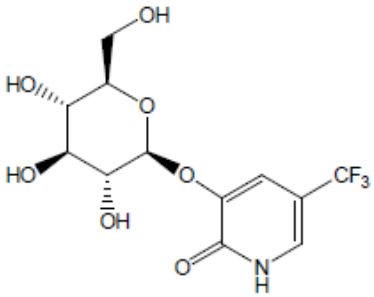
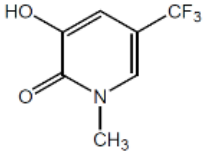
The JMPR 2024 established an ADI of 0–0.1 mg/kg bw for acynonapyr, which also applies to metabolites AP-2, AP-4-gluc/AP-1-OH-gluc, AY, AY-gluc, AY-1 and AY-1-gluc. The meeting concluded that an ARfD is not necessary for the parent but established an ARfD of 0.1 mg eq/kg bw for the metabolites AY, AY-Glu and AP-2, expressed as parent. The metabolites AP, AP-8 and AH should be assessed through Cramer class III 1.5 µg/kg bw per day for chronic exposure and an ARfD of 0.03 mg/kg bw was established for AP, which also applied to AP-8.

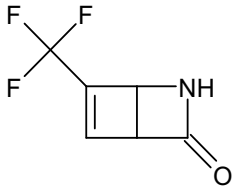
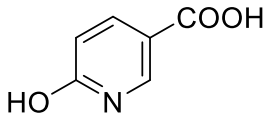
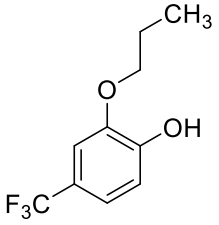
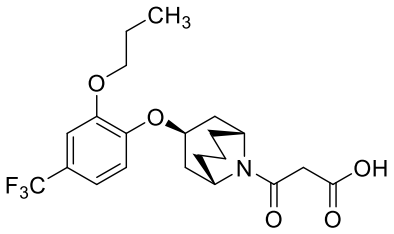
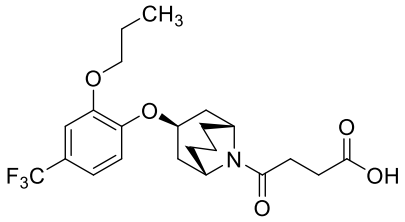
The meeting received information on identity, physical chemical properties, plant and animal metabolism, soil degradation, residue analysis, storage stability, use patterns, residues resulting from supervised trials on citrus fruit (mandarins), pome fruit (apples and pears), berries (grapes), fruiting vegetables (eggplants), almonds and hops, and fate of residues during processing (oranges, apples, grapes and hops). No additional data were submitted to the 2025 meeting. Table 5.3.1 shows the compounds referred to in this appraisal.

Table 5.3.1 Abbreviations used for relevant compounds referred to in the appraisal

Compound	Name	Structure
Acynonapyr NA-89 74-2793 [all labels]	3-*endo*-[2-propoxy-4-(trifluoromethyl)phenoxy]-9-[5-(trifluoromethyl)-2-pyridyloxy]-9-azabicyclo[3.3.1]nonane	

Compound	Name	Structure
AP (PHEN and AZA-label)	3-*endo*-[2-propoxy-4-(trifluoromethyl)phenoxy]-9-azabicyclo[3.3.1]nonane	
AP-2 (PHEN- and AZA-label)	3-*endo*-[2-propoxy-4- (trifluoromethyl)phenoxy]-9- azabicyclo[3.3.1]nonane-9- carbaldehyde	
AP-4-Glu	5-(3-*endo*-9-azabicyclo[3.3.1]nonan-3-yloxy)-4-hydroxy-2-(trifluoromethyl)phenyl ß-D-glucopyranosiduronic acid	
AP-8	3-*endo*-[2-(3-hydroxypropoxy)-4-(trifluoromethyl)phenoxy]-9-azabicyclo[3.3.1]nonane	

Compound	Name	Structure
AY Synonym: HTFP (PYR label only)	5-(trifluoromethyl)-2-pyridinol	
AY-Glu (PYR-label only)	5-(trifluoromethyl)-2-pyridyl ß-D-glucopyranosiduronic acid	
AY-1 (PYR-label only)	3-hydroxy-5-(trifluoromethyl)-2-pyridone	
AY-1-Glc PM-1[a] (PYR-label only)	5-(trifluoromethyl)-2-pyridon-3-yl ß-D-glucopyranoside	
AY-3 (PYR-label only)	3-hydroxy-1-methyl-5-(trifluoromethyl)-2-pyridone	

Compound	Name	Structure
AY-4 (PYR-label only)	6-(trifluoromethyl)-2-azabicyclo-[2.2.0]hex-5-en-3-one	
AY-5 (PYR-label only)	6-hydroxynicotinic acid	
AH (PHEN-label only)	2-propoxy-4-(trifluoromethyl)phenol	
AP-mal	-oxo-3-{3-*endo*-[2-propoxy-4-(trifluoromethyl)phenoxy]-9-azabicyclo[3.3.1]nonan-9-yl} propionic acid	
AP-suc	4-oxo-4-{3-*endo*-[2-propoxy-4-(trifluoromethyl)phenoxy]-9-azabicyclo[3.3.1]nonan-9-yl }butyric acid	

Note:

[a] PM-1 was found in cucumber fruit and leaves and initially assumed to be an isomer of AY-1, but in a subsequent independently conducted study it was shown that PM-1 is in fact a glucose conjugate of AY-1.

Physical-chemical properties

Acynonapyr is an odourless pale yellow solid and is not regarded as volatile. The compound is very slightly soluble in water (0.89 µg/L at 20 °C) and has log P_{ow} of 6.5, indicating that it has a potential to sequester into fat. The data indicated that aqueous photolysis may play an important role in the degradation of acynonapyr, which is hydrolysed to AP and AH and AY and AY-5 at pH 4–7, depending on the label.

Plant metabolism

The meeting received plant metabolism studies for acynonapyr after foliar application on apple, cucumber and lettuce. The studies were conducted with acynonapyr labelled at the phenyl, azabicyclo, or pyridine position, which are further referred to as [PHEN-^{14}C], [AZA-^{14}C] and [PYR-^{14}C], respectively. The studies were conducted outdoor (apple) and in a greenhouse (cucumber and lettuce) and the compound was formulated as a suspension concentrate.

Apple – foliar – outdoor

^{14}C-labelled acynonapyr ([PHEN-^{14}C], [AZA-^{14}C], or [PYR-^{14}C]) was applied once by foliar application to outdoor grown apple trees at BBCH 72 (for harvest at 110 days after treatment [DAT]), or maturity (for harvest at 7 DAT and 30 DAT) at an application rate ranging from 34 to 42 mg ai/m^2, mimicking the maximum seasonal rate of 100 g ai/ha. Apple fruits were harvested at 7, 30 and 110 DAT.

The total radioactive residues (TRR) in fruits were similar for the different labels and decreased with increasing DAT, ranging from 0.89 to 1.1 mg eq/kg at 7 DAT down to 0.11–0.21 mg eq/kg at 110 DAT. The radioactivity was extracted with acetone (washing solution) and acetone/water (extraction of plant material), accounting for 100 percent TRR at 7 DAT, 98 percent TRR at 30 DAT and 87–92 percent TRR at 110 DAT. The main portion of the radioactive residue was recovered in the surface wash at 7 and 30 DAT, comprising of 93–96 percent TRR and 74–79 percent TRR, respectively, but was lower at 110 DAT (30–51 percent TRR). At 110 DAT, 40–62 percent TRR was found in the organic extract, with levels at 7 and 30 DAT ranging from 3.4 to 6.9 percent TRR and from 18 to 25 percent TRR, respectively. The amount of post-extraction solids (PES) increased over time (0.1–2.4 percent at 7 and 30 DAT) and 7.5–13 percent TRR at 110 DAT.

Though decreasing over time, parent acynonapyr was the predominant compound observed in apple fruit at all time points and with all three labels (93–96 percent TRR at 7 DAT, 79–87 percent TRR at 30 DAT) and 44–52 percent TRR at 110 DAT), with absolute levels decreasing from 0.86–1.1 mg/kg at 7 DAT to 0.051–0.092 mg/kg at 110 DAT.

Parent acynonapyr was split into metabolites AP and AY. Metabolites AP and AP-2 were the only metabolites identified with the [PHEN-^{14}C] and [AZA-^{14}C] labels and accounted for 4.9–5.7 and 0.9 percent TRR, respectively at 7 DAT, increasing over time to 23 and 4.5–5.7 percent TRR, respectively at 110 DAT. Absolute levels ranged from 0.031 to 0.094 mg eq/kg for AP and from 0.0076 to 0.037 mg eq/kg for AP-2 over all time points and with both labels.

Metabolite AY was observed with the [PYR-^{14}C]-label only and increased in time from 3.5 to 34 percent TRR (0.031 to 0.083 mg eq/kg). Further minor metabolites were detected, but in total never exceeding 4.7 percent TRR (0.0023–0.021 mg eq/kg).

Cucumber – foliar – greenhouse

[PHEN-^{14}C]- or [PYR-^{14}C]-labelled acynonapyr was applied twice by foliar application to indoor grown cucumber plants after flowering, with the first application made at BBCH 87 and a 7 day interval to the second application. The actual total application rates were 395 and 396 g ai/ha for the [PHEN-^{14}C]- en [PYR-^{14}C]-label treatments, respectively. Fruit and foliage samples were taken at 1, 3, 7 and 14 days after the last treatment (DALT).

TRR in cucumber fruit ranged from 0.007 to 0.026 mg eq/kg at 14 DALT and 3 DALT, respectively with the [PHEN-^{14}C]-label and from 0.013 to 0.051 mg eq/kg with the [PYR-^{14}C]-label. TRR in foliage was higher and ranged from 1.7 to 2.7 mg eq/kg and from 0.97 to 1.3 mg eq/kg with both labels, respectively. A large portion of the radioactive residue was recovered in the hexane surface wash (rinsing) of the fruits and foliage (15–53 percent TRR with both labels). Three subsequent extractions with acetone:water after the rinsing released another 45–83 percent TRR. Totals after rinsing plus extraction ranged from 92 to 99 percent TRR, leaving post-extraction solids (PES) ranging from 0.6 to 8.3 percent TRR in fruit and foliage.

Regardless of the label, parent acynonapyr was the predominant compound observed at all time points in cucumber fruit (48–51 percent TRR at 1 DALT and 18.8–24.4 percent TRR at 14 DALT), with absolute levels ranging from 0.002 to 0.019 mg/kg.

In the cucumber fruits, parent acynonapyr was split into AP and AY. In the [PHEN-^{14}C] samples, metabolites AP and AP-2 were only observed in the cucumber fruit extracts at 1 and 3 DALT (8.8–18.1 and 1.8–3.3 percent TRR, respectively), with absolute levels of ≤0.005 mg eq/kg. In the [PYR-^{14}C]-cucumber fruit extracts, AY was found at 21–35 percent TRR (0.003–0.015 mg eq/kg) at 1 DALT to 14 DALT. AY-1-Glc was identified at 7.9–25 percent TRR (0.002–0.012 mg eq/kg). Unidentified metabolites accounted for ≤3.6 percent TRR and ≤0.002 mg eq/kg.

The majority of the residues in cucumber foliage could be assigned to the parent acynonapyr (53–76 percent TRR and 0.50–1.5 mg eq/kg). Other identified metabolites were AY (2.6–13 percent TRR, 0.027–0.16 mg eq/kg), AY-1-Glc (3.0–23 percent TRR, 0.029–0.13 mg eq/kg), AP (19–36 percent TRR, 0.38–0.87 mg eq/kg) and AP-2 (0.8–5.5 percent TRR, 0.014–0.12 mg eq/kg). Unidentified metabolites accounted for ≤6.5 percent TRR (0.009–0.10 mg eq/kg).

Lettuce – foliar – greenhouse

[PHEN-^{14}C]-, [AZA-^{14}C]- or [PYR-^{14}C]-labelled acynonapyr was applied by foliar application either once (at BBCH 19) or twice (with first application at BBCH 19 and the second application at BBCH 35) to the leaves of indoor grown lettuce plants. The actual total application ranged from to 179 to 199 g ai/ha and were arranged in such a way that all samples could be collected at BBCH 49, representing DALT 30 (1 application), or DALT 23 days (2 applications) or DALT 7 days (2 applications). Samples were divided in two portions of which one was surface washed with acetone.

TRR in lettuce ranged from 2.2 to 4.8 mg eq/kg in the samples after single application (30 DALT), from 6.4–10 mg eq/kg in the 23 DALT group (2 applications) and from 6.5 to 13 mg eq/kg in the 7 DALT group (2 applications).

Surface wash released about 56 to 89 percent TRR. The total extractabilities of radioactivity with acetone:water with the three labels in surface-washed (surface wash plus extracts) and non-surface washed lettuces ranged from 95 to 99 percent TRR, with PES ranging from 1.4 to 4.6 percent TRR (0.065–0.32 mg eq/kg) in all groups.

Overall, acynonapyr was the major component in lettuce, accounting for 58 to 96 percent TRR (1.4–10 mg/kg) in all groups and with all three labels. For the [AZA-^{14}C]- and [PHEN-^{14}C]-labels, AP was a major metabolite observed, accounting for 4.4 to 31 percent TRR (0.32–1.8 mg eq/kg) in all groups and with both labels. Additionally, AP-2 was observed, but only accounting for 0.59 to 3.8 percent TRR (0.069–0.21 mg eq/kg) in all groups and with both labels. With the [PYR-^{14}C]-label, AY and AY-1-Glc were detected, with AY accounting for 3.0–15 percent TRR (0.21–1.1 mg eq/kg) and AY-1-Glc for 1.1–8.5 percent TRR (0.082–0.54 mg eq/kg). Two unidentified metabolites together accounted for ≤4.2 percent TRR. AY-3 was observed once in the water extract of surface-washed lettuce (0.78 percent TRR, 0.05 mg eq/kg), but not in any of the other samples.

Plant metabolism summary

The metabolism of acynonapyr after foliar indoor and outdoor applications was evaluated in apple, cucumber (fruit and foliage) and lettuce, covering two major crop groups (fruits and fruiting vegetables and leafy vegetables). The metabolic profile in the two crop groups was identical; acynonapyr, as the predominant compound in all crops (range 19–96 percent TRR or 0.0051–7.3 mg/kg), was metabolized by cleavage of the oxyamine bond between the azabicyclo and the pyridine ring to form AP (range 4.4–36 percent TRR or ≤0.005–1.8 mg eq/kg) and AY (range 3.5 to 34 percent TRR, 0.003–1.1 mg eq/kg). Subsequent introduction of an aldehyde group (N-formylation on the azabicyclo ring) to AP, resulted in the formation of AP-2 (0.59–5.5 percent TRR or ≤0.005–0.21 mg eq/kg) in all crops. In lettuce and cucumber AY was further metabolized to AY-1-Glc (possibly through the AY-1 intermediate) at levels ranging from 3.1 to 23 percent TRR (0.002–0.54 mg eq/kg).

Environmental fate

The meeting received studies on aqueous photolysis, aqueous hydrolysis and aerobic soil metabolism for acynonapyr.

Hydrolysis

In two studies, the hydrolytic degradation of [PHEN-^{14}C]-, [PYR-^{14}C]-, or [AZA-^{14}C]- labelled acynonapyr was investigated in aqueous solutions at pH 4, 7, and/or 9 at 25 °C. The rate of hydrolysis of acynonapyr as well as the formation of hydrolysis products was investigated over a duration of 30 days. DT_{50} was 1.2 day at pH 4, 13 days at pH 7, and 3.9 days at pH 9. Depending on the label, the major hydrolysis products were AP (up to 16 percent) and AH (up to 89 percent) at pH 4 after 7 days, AP at pH 7 and pH 9 and AY at all pHs. AY was further hydrolysed to AY-5 at pH9 with a DT_{50} of 14 days. AP (max 21 percent AR) and an unidentified degradate UK-15 (max 71 percent AR) remained rather constant up to the 30 days of the study.

The meeting concluded that hydrolytic degradation is moderately fast and may contribute to the degradation of acynonapyr under environmental conditions (pH 7).

Photochemical degradation in water (laboratory conditions)

A study investigating the photolytic breakdown of [PYR-^{14}C]- and [AZA-^{14}C]-acynonapyr was carried out in sterile, buffered aqueous solutions at pH 7. In the irradiated samples acynonapyr degraded to below the LOQ within 24 hours. In the dark control samples parent degraded to 75 and 73 percent of applied radioactivity (AR) with both labels, respectively within 24 hours, showing a slower decline. Depending on the label, acynonapyr degraded into AY (both irradiation and dark control) and subsequently into AY-4 (94 percent AR after 22 days, in irradiated samples only) or parent degraded into AP in both irradiated (max 93 percent AR after 22 days) and dark control samples (max 62 percent AR after 22 days).

The DT_{50} of acynonapyr adjusted for United States summer days, was 3.6 hours, indicating that [^{14}C]-acynonapyr degrades rapidly in water, predominantly degrading into AP and AY possibly as the result of increased hydrolysis. AY degrades further into AY-4 as a result of photodegradation.

Photochemical degradation in soil (laboratory conditions)

The photolytic degradation of [PHEN-^{14}C]-, [PYR-^{14}C]-, or [AZA-^{14}C]-acynonapyr following surface application to a non-sterile United States silt loam soil was investigated in irradiated and dark control samples over a period of 14 days. [^{14}C]-Acynonapyr was observed to photodegrade relatively fast in the silt loam soil, with a DT_{50} of 7.8 days in the irradiated samples and 31 days in the dark controls. This resulted in a net photolysis DT_{50} of 10 days, equivalent to 20 global summer days. The only significant transformation products were AP and AY which increased to a maximum of 56–62 percent AR and 50 percent AR, respectively, in the irradiated samples and to a maximum of 20–30 percent AR and 28 percent AR, respectively in the dark control samples.

The results indicate that [^{14}C]-acynonapyr degrades moderately fast in a silt loam soil, with a photolytic half-life of 10 days, predominantly degrading into AP and AY.

Aerobic soil metabolism (laboratory conditions)

The route and degradation of [PHEN-^{14}C]- (n = 4 soils), [PYR-^{14}C]- (n = 1 soil) and [AZA-^{14}C]- (n = 1 soil) [^{14}C]-labelled acynonapyr was studied in soils under aerobic conditions in the dark at 20 °C for 120 days. Degradation at 30 days was moderate with 49 to 64 percent AR remaining in the different soils and with the different labels. The DT_{50} values for acynonapyr ranged from 42 to 69 days.

The major degradates observed during the study were AP and AY, with AP reaching mean maximum values ranging from 26 to 63 percent AR and AY reaching a maximum mean level of 16 percent AR. Small amounts of degradates AP-Mal and AP-Suc were detected in one soil, each increasing to maximum means of 7.2 percent AR. Unknown chromatographic peaks were observed, with combined maximum values of 4.1 to 5.7 percent AR. All other combined unknown degradates were detected at levels no greater than 2.2 percent AR for a single compound. A DT_{50} value of 40 days was calculated for AP, which was observed in all four soils.

The degradation rate of [PHEN-^{14}C]-labelled AP and [PYR-^{14}C]-labelled AY was also studied in three different soils under aerobic conditions in the dark at 20 °C for 120–122 days. The DT_{50}s for AP and AY were determined to be 267–892 and 40–61 days, respectively.

Soil degradation (field studies)

Four field dissipation trials were conducted in the United States, where acynonapyr was applied as an SC formulation, either as a single application at 132–165 g acynonapyr/ha or two applications of 215 g ai/ha at a 14-day interval (total application rate of 430 g ai/ha). Actual application rates were within ±6 percent of the nominal rate. Soil samples were collected at various intervals from 512 to 601 days after application to a maximum depth of 122 cm.

The half-life of parent acynonapyr ranged from 2.3 to 45 days. AP kinetic modelling was not consistent over the experiment resulting in AP half-lives of 0.113 to 201 days and DT_{90} values ranging from 64 to 403 days. Half-lives for AY were between 33 and 163 days. Attempts to remove the residues with solvents of differing polarity did not recover an appreciable additional amount, indicating that they are irreversibly adhered to the soil.

Rotational crop metabolism

Confined and field rotational crop studies were not submitted. They are not required since the current meeting only received information in support of permanent crops (citrus and pome fruit) and indoor grown crops (eggplants), which are usually grown on soil substitutes. Extension of uses in future may require studies investigating the residue behaviour in rotational crops.

Summary of environmental fate

Hydrolysis and photochemical degradation are potential pathways in the breakdown of acynonapyr under environmental conditions. DT_{50} of acynonapyr in soil was estimated to be in the range 42 to 69 days under laboratory aerobic conditions and 2.3 to 45 days under field conditions. The half-lives of the metabolites are longer than parent, but the metabolites also adhered irreversibly to soil suggesting they are not bioavailable for rotational crops. The meeting concluded that there may be a potential for the metabolite to accumulate in soil, however, bioavailability needs to be confirmed with confined and field rotational crop studies.

Animal metabolism

The meeting received animal metabolism studies on lactating goats where animals were dosed with acynonapyr radiolabelled in the phenyl ring, the pyridine ring, or the azabicyclo-ring ([PHEN-^{14}C], [AZA-^{14}C], or [PYR-^{14}C]).

Goats

Three six year old goats (Saanen x Toggenburg) were fed [PHEN-^{14}C]-, [PYR-^{14}C]-, or [AZA-^{14}C]-labelled acynonapyr, respectively) at an average dose of 12.799, 12.497 and 15.846 ppm (dry feed), respectively per gelatine capsule on seven consecutive days. Milk was collected twice daily and excreta once daily. The goats were sacrificed approximately 10 hours after the administration of the final dose and tissue samples (liver, kidneys, muscle and fat) taken.

The majority of the applied radioactivity was eliminated via faeces and urine. Little of the radioactivity was transferred to milk and edible tissues, with the highest TRR in the liver, with 1.253, 0.034 and 1.183 mg eq/kg in [PHEN-^{14}C]-, [PYR-^{14}C]- and [AZA-^{14}C]-samples, respectively. TRR in the kidney samples were 0.131, 0.054 and 0.164 mg eq/kg in the respective labelled samples. Residues were ≤0.01 mg eq/kg in all matrices, except for flank muscle and perirenal fat, with residues of the [AZA^{14}C]-label accounting for 0.013 and 0.015 mg eq/kg, respectively.

TRR in milk reached a plateau concentration after 1 to 5 days, depending on the label. The residue in milk did not exceed maximum concentrations of 0.005, 0.018 and 0.008 mg eq/kg in any 24 h period during dosing for [PHEN-^{14}C]-, [PYR-^{14}C]- and [AZA-^{14}C]-samples, respectively.

Milk, liver, kidney, and muscle were extracted three times with methanol:water (4:1). Fat tissues were extracted three times with hexane, followed by extraction with acetonitrile. The extractability was ≥75.2 percent TRR in milk samples with all three labels. Tissues from the [PYR-^{14}C]-experiment also exhibited high extractability with ≥77 percent TRR, but the extractabilities for the [PHEN-^{14}C]- and [AZA-^{14}C]-labelled tissue samples were poor (≤45 percent TRR) in all instances, with the exception of [AZA-^{14}C]-omental fat (73.4 percent TRR).

Selected fractions were subjected to HPLC-radio detector for quantification and identification of residues. Residues were identified by co-chromatography with authentic synthetic reference standards and subsequent confirmation by a second contrasting HPLC method or thin layer chromatography (where possible). Identification of compounds was possible only in the solvent extracts of milk (all labels) and in the [PYR-^{14}C]-extracts of liver, kidney and flank muscle.

In milk, parent acynonapyr was observed up to 3.1 percent TRR, <0.001 mg/kg. Metabolite AY was tentatively assigned in milk (63.4 percent TRR, 0.005 mg eq/kg) using the [PYR-^{14}C]-label. Metabolites AP (8.5–11 percent TRR, ≤0.001 mg eq/kg) and AP-8 (17–38 percent TRR, <0.001–0.002 mg eq/kg) were the major components observed with the [PHEN-^{14}C]- and [AZA-^{14}C]- labels. In addition, several minor unknown components were detected, none of which individually accounted for >7.0 percent TRR (<0.001 mg eq/kg).

In kidney, parent acynonapyr was not observed. Metabolite AY (32 percent TRR, 0.017 mg eq/kg) and the glucuronide conjugate of AY, AY-Glu (32 percent TRR, 0.018 mg eq/kg), were identified as the primary metabolites.

Parent acynonapyr was not observed in liver, where AY was the only metabolite identified (54 percent TRR or 0.019 mg eq/kg).

Parent was not observed in muscle. AY was the only metabolite assigned in flank muscle (66 percent TRR or 0.002 mg eq/kg).

Residues remaining following solvent extract in liver and kidney debris for [PHEN-^{14}C]- and [AZA-^{14}C]-experiments were subject to exhaustive characterization and identification efforts. The results show that acynonapyr was subject to extensive metabolism and that residues may be strongly associated with or incorporated in endogenous protein components.

Summary of animal metabolism

The primary biotransformation pathway of acynonapyr in goats involved cleavage of the trifluoromethyl phenol azabicyclic moiety leading to AP-type metabolites, which are then strongly associated to natural products and also to the formation of AY-type metabolites. AY is further metabolized by glucuronide conjugation leading to metabolite AY-Glu and AP is further metabolized by hydroxylation leading to metabolite AP-8. AP is also metabolized by cleavage of the propane group or cleavage of the ether group and subsequent hydroxylation leading to metabolite AP-4 followed by glucuronide conjugation leading to metabolite AP-4-Glu.

Methods of analysis

LC-MS/MS methods (MRID 517228X) was developed for analyses of acynonapyr and its metabolites AP, AP-2, AY, AY-3 and AY-1-Glc in plant matrices. Samples were extracted twice with 80:20 acetone:water and 2 M ammonium bicarbonate solution. For analysis of acynonapyr in oily matrices (almond oil and orange oil), samples were extracted a third time with 80:20 acetone:water. Depending on the metabolite and matrix, additional SPE clean-up, dilution with 50:50 acetone:water, or drying + reconstitution (50:50 methanol:water) steps were included. All samples were analysed by LC-MS/MS with an LOQ of 0.01 mg/kg for parent and all metabolites in all matrices.

The methods were independently validated for raw and processed almond, citrus (orange juice and dried pulp), grape (fruit, juice and raisin), pome fruit (fruit, juice and pomace), and hop (flocs, spent hops, beer, hop yeast) matrices.

The meeting concluded that the methods are suitable to measure acynonapyr, and its metabolites AP, AP-2, AY, AY-3 and AY-1-Glc in raw and processed high acid (citrus fruit, grapes), high water (pome fruit) and high oil (almond and hop matrices).

A multiresidue method (QuEChERS) was attempted but was not demonstrated to be fit for purpose.

No validated analytical methods to measure acynonapyr and its metabolites in animal matrices were submitted.

Stability of pesticide residues in stored analytical samples

The meeting received five storage stability studies, as part of the method validation studies, for acynonapyr and its metabolites AP, AP-2, AY, AY-3, and AY-1-Glc in raw and processed plant commodities. All studies were conducted by spiking samples with either formulated acynonapyr, acynonapyr as pure technical ingredient, or a mixture of the metabolites.

The results showed that formulated acynonapyr and metabolites AP, AP-2, AY, AY-3, and AY-1-Glc are stable for at least 10 months in plant commodities representative of high-water content (apple whole fruit) and 6 months in commodities representative of high acid (orange whole fruit and grape whole fruit), high oil content (almond nutmeat, hops) when stored frozen. Some results suggested that the residues of the samples spiked with the pure technical ingredient were not stable in orange, apple and grapes after approximately 1 month, when parent was degraded into AP and AY. When adding either AP or AY to parent, the total residues were generally stable up to approximately

6 months in all crop matrices, except for orange whole fruit when based on the sum of parent + AP but were stable when based on the sum of parent + AY.

No information was submitted to the meeting to conclude on the addition of stabilizing compounds in commercial formulations to prevent degradation of parent into AY and AP. As such, the meeting could not conclude on the storage stability of acynonapyr in general.

The meeting noted that the storage stability of the residues in the samples in the Japanese field trials was tested in concurrence with each study and that the storage stability on various plant commodities in support of the current uses are sufficiently covered. The meeting also concluded that if the metabolite/degradation product AY or AP is considered in assessment of the storage stability, the storage stability is sufficiently demonstrated for at least 10 months in commodities representative of high-water content (apple whole fruit) and 6 months in commodities representative of high acid (orange whole fruit and grape whole fruit), high oil content (almond nutmeat, hops) when stored frozen.

No storage stability data for animal matrices were submitted.

Definition of the residue

Plant commodities

The metabolism of acynonapyr was investigated in apples, cucumber (fruit, foliage) and lettuce and was found to be similar in all crops. These studies represent the fruit crop group and leafy crop group.

Parent acynonapyr was the predominant compound observed in all crop commodities; 44–96 percent TRR (0.0051–1.1 mg/kg) in apples, 19–51 percent TRR (0.002–0.019 mg/kg) in cucumber fruit, 52.8–76 percent TRR (0.548–1.490 mg/kg) in cucumber foliage and 60–94 percent TRR (2.2–7.3 mg/kg) in lettuce. Acynonapyr is found in all primary crop commodities investigated in metabolism studies and field studies and is considered to be a suitable marker compound for primary crops.

The nature of residue under simulated processing conditions has not been investigated, but processing studies showed that parent acynonapyr was generally detected in processed food matrices (orange oil, grape juice and apple juice), except roasted almond and in hops beer.

The meeting noted that suitable analytical methods exist to measure acynonapyr, AY and AP in plant commodities.

The meeting noted that based on the inconclusive data on storage stability of acynonapyr in a formulation versus the pure technical active ingredient, significant degradation of parent into AP and AY in stored samples may occur and decided that at least one of the two degradation products should be included in the residue definition for compliance with the MRL. Since only AY is covered by the toxicity of parent acynonapyr, the meeting decided to include it over AP, allowing also further dietary exposure assessment based on monitoring results.

The meeting decided to define the residue definition for compliance with the MRL as sum of acynonapyr and AY, expressed as acynonapyr.

In deciding which compounds should be included in the residue definition for estimation of dietary intake, the meeting considered the likely occurrence and the toxicological properties of the metabolites AY, AY-1-Glc, AP, and AP-2 observed in the metabolism studies and of AH, the degradation product observed in the aqueous hydrolysis study.

AP and AY were observed in metabolism studies in apples, cucumber (fruit and foliage) and lettuce. Metabolite AY was observed at levels ranging from 13 to 34 percent TRR (0.012 to 1.1 mg eq/kg). AY-1-Glc was not found in apple, but ranged from 8.5 to 25 percent TRR (0.012 to 0.54 mg eq/kg) in the other matrices. Metabolite AP was observed at levels ranging from 18 percent TRR to up to 36 percent TRR (≤0.005 to 1.8 mg eq/kg). AP-2 levels ranged from 3.3 to 5.5 percent TRR (≤0.005 to 0.21 mg eq/kg).

The 2024 meeting concluded that metabolite AY is covered by the ADI for acynonapyr and that its acute exposure should be assessed against the maximum ADI of 0.1 mg/kg bw for acynonapyr. In addition to the findings in the metabolism studies, the metabolite AY contributes significantly to the residue (parent + AY) in field studies (ranging from 9.6 percent in hops to 48 percent of parent + AY in citrus) and some processed commodities (ranging from 10 percent in orange oil to 92 percent in hops beer). The meeting decided to include AY in the residue definition for chronic dietary intake and to set a separate residue definition for acute dietary intake of AY.

Metabolite AY-1-Glc is covered by the HBGV for acynonapyr. AY-1-Glc forms a significant part of the residue in the cucumber metabolism study and to a lesser extent in lettuce. In field trials it is only a significant part of the total residue (parent + AY + AY-1-Glc) in some citrus fruits (up to 75 of the total residues in lemon, less in grapefruit, but not found in oranges) and is detected in hops (up to 8 percent), but is always less than LOQ in the other commodities in field trials. The meeting noted that this metabolite was not analysed in the field trials in eggplants. AY-1-Glc is below LOQ in all processed commodities, except in dry citrus pomace where it contributes to 25 percent to the total residue. The meeting noted that based on the limited number of current uses, AY-1-Glc will not contribute to >10 percent of the total dietary intake. However, considering the limited variety of crops included in the current evaluation, the infrequent occurrence, and the fact that AY-1-Glc is a downstream metabolite of AY that may increase with longer PHIs, the meeting decided to include AY-1-Glc in the residue definition for dietary intake.

AP and its metabolite AP-2 are counterparts of the AY-metabolites and are found as major components in plant commodities both in metabolism studies as well as in field studies, with AP sometimes even being present at higher levels than parent compound in both RAC and processed commodities.

The 2024 meeting concluded that metabolite AP is not covered by the ADI of acynonapyr and should be assessed under TTC as a Cramer class III compound for chronic exposure (1.5 µg/kg bw). The meeting established an ARfD of 0.03 mg/kg bw for this metabolite.

The 2024 meeting concluded that metabolite AP-2 is covered by the ADI for acynonapyr, and established an ARfD of 0.1 mg/kg bw, expressed as parent. Since AP-2 is a counterpart of the AY-derived metabolites in a parallel metabolic pathway, the meeting concluded that by including AY and AY-1-Glc, expressed as parent, the AP-2 is sufficiently covered in the residue definition for dietary intake.

AH is formed due to hydrolysis under environmental conditions. No information is available on the formation of AH under conditions mimicking baking/boiling/brewing, pasteurization and sterilization, but it is expected to be formed even faster at high temperatures. AH was not analysed for in the processing studies. In the absence of any toxicological data, the meeting decided that AH should be assessed under TTC as a Cramer class III compound for chronic exposure (1.5 µg/kg bw). AH can be formed from both parent compound and AP. As AY and AP are each other's counterparts, the residue definition of enforcement (parent + AY, expressed as parent) is considered suitably representative for conversion of the residue to AH. Assuming the total residue is completely converted to AH, the meeting used a molecular mass conversion (MM) factor of 2.29 to calculate from parent to AH (MM_{AH} = 220.191 amu and MM_{parent} = 504.47 amu).

The meeting decided to define the residue for estimation of dietary intake of acynonapyr for plant commodities as acynonapyr + AY + AY-1-Glc, expressed as acynonapyr.

In addition, the meeting decided to define a residue definition for acute dietary intake of AY in plant commodities as AY, expressed as acynonapyr.

Animal commodities

The nature of the acynonapyr residue was investigated in lactating goat following oral administration of the substance. No animal feeding studies were available.

Parent acynonapyr was only observed in milk (up to 3.1 percent TRR, <0.001 mg/kg), but not in any of the goat tissues. Metabolite AY was identified as a major metabolite in kidney (32 percent TRR, 0.017 mg eq/kg), liver (54 percent TRR or 0.019 mg eq/kg), and in flank muscle (66 percent TRR, 0.002 mg eq/kg). AY was only tentatively assigned in milk (63 percent TRR, 0.005 mg eq/kg). The glucuronide conjugate of AY, AY-Glu was also observed in kidney (32 percent TRR, 0.018 mg eq/kg), but not in liver. Metabolites AP (8.5–11 percent TRR, ≤0.001 mg eq/kg) and AP-8 (17–38 percent TRR, <0.001–0.002 mg eq/kg) were the major components in milk but were not observed in any of the goat tissues.

Since parent was not observed in any of the animal tissues and only at low concentrations in milk, it was not considered a suitable marker for enforcement purposes. AY was detected in all tissues and is therefore considered to be a suitable marker for compliance of acynonapyr with the MRL.

No analytical methods are available for animal matrices.

The meeting concluded that the definition of residue for compliance with the MRL is acynonapyr + AY, expressed as acynonapyr.

In deciding which additional compounds should be included in the residue definition for dietary intake, the meeting considered the likely occurrence and the toxicological properties of the metabolites AY, AY-Glu, AP, and AP-8 observed in the metabolism study in goat.

Metabolites AY and AY-Glu, are both covered by the ADI for acynonapyr. The meeting decided to include both metabolites in the residue definition for dietary intake. In addition, the acute exposure of metabolite AY and its conjugate AY-Glu should be assessed against their ARfD of 0.1 mg /kg bw, expressed as parent.

Metabolite AP and AP-8 were observed in milk only and at very low absolute concentrations (≤0.002 mg eq/kg). The meeting concluded that these metabolites should be assessed under TTC as Cramer class III for chronic exposure (1.5 µg/kg bw) and the acute exposure against an AP-specific ARfD of 0.03 mg/kg bw. Based on structural similarity, the acute dietary exposure of AP-8 should be combined with the exposure to AP and assessed against the ARfD of 0.03 mg/kg bw for AP.

The meeting noted limited identification of residues in animal matrices in the goat metabolism. However, the radioactivity did not accumulate in fatty matrices compared to other tissues. The meeting concluded that the residue is not fat soluble.

The meeting decided that the definition of residue for long-term dietary intake of acynonapyr for animal commodities is acynonapyr + AY + AY-Glu, expressed as acynonapyr.

The meeting decided to define a residue definition for acute dietary intake of AY in animal commodities is the sum of AY and AY-Glu, expressed as parent acynonapyr.

For estimating residues in animal commodities, the meeting concluded that dietary burdens based on acynonapyr and metabolite AY are required to address residues according to the residue definitions.

Summary of residue definitions

The meeting recommended the following residue definitions for acynonapyr.

Definition of the residue for compliance with the MRL for plant and animal commodities: *sum of parent acynonapyr plus 5-(trifluoromethyl)-2-pyridinol (AY), expressed as acynonapyr.*

Definition of the residue for estimation of long-term dietary intake for plant commodities: *sum of acynonapyr plus 5-(trifluoromethyl)-2-pyridinol (AY) and 5-(trifluoromethyl)-2-pyridon-3-yl ß-D-glucopyranoside (AY-1-Glc), expressed as acynonapyr.*

Definition of the residue for estimation of long-term dietary intake for animal commodities: *sum of parent acynonapyr plus 5-(trifluoromethyl)-2-pyridinol (AY) and 5-(trifluoromethyl)-2-pyridyl ß-D-glucopyranosiduronic acid (AY-Glu), expressed as acynonapyr.*

Definition of the residue for estimation of acute dietary intake of AY for plant commodities: *5-(trifluoromethyl)-2-pyridinol (AY), expressed as acynonapyr.*

Definition of the residue definition for estimation of acute dietary intake of AY for animal commodities: *sum of 5-(trifluoromethyl)-2-pyridinol (*AY) and *5-(trifluoromethyl)-2-pyridyl ß-D-glucopyranosiduronic acid (AY-Glu), expressed as acynonapyr.*

Results of supervised residue trials on crops

Supervised trials were available for the use of acynonapyr on citrus fruit (lemon, orange, mandarin, and grapefruit), pome fruit (apples, pears, and Japanese pears), grapes, eggplants, almonds and hops.

A product label was available from Japan for the use on citrus fruit, pome fruit and eggplants.

In plant commodities, the residue definition for compliance with MRL is parent plus AY and for dietary intake consists of parent + AY + AY-1-Glc, expressed in parent equivalents. In the majority of the field trials parent compound as well as metabolites AY and AY-1-Glc were determined. All residues reported in the evaluation are values converted to parent equivalents with molecular weight (MW) conversion based on MWs for parent = 504.47 g/mol; AY = 163.10 g/mol; AY-1-Glc = 341.24 g/mol. Where values below LOQ were measured, the reported LOQ expressed in parent equivalents (generally 0.01 mg/kg in the United States trials and 0.016 and 0.007 mg/kg for AY and AY-1-Glc, respectively, in the Japanese trials) was included in the summation of the residue. In the Japanse trials, metabolite AY-1-Glc was not determined. Total residues for the Japanese eggplant trials were calculated by using a conversion factor of 1.26 for fruiting vegetables, derived from the ratio observed at 1 DALT in the metabolism study in cucumber. Since AY-1-Glc was not observed in the apple metabolism study, nor in the United States field trials in apples, no correction factors were applied for the Japanese data on pomefruit. No correction factor was applied to the residue levels of mandarins, because the metabolite was not observed in the apple metabolism study, nor in peeled citrus fruits. Table 5.3.2 exemplifies the calculations used to estimate the total residues in the United States and Japanese trials.

Table 5.3.2 Calculation of the total residues in plant commodities

	Parent	AY	AY-1-Glc	Conversion factor	Total residues
United States studies (citrus, grapes, hops)	5.53	0.52	0.14	–	6.20
United States studies (citrus, grapes, hops)	1.26	0.097	<0.01	–	1.36
United States studies (citrus, grapes, hops)	0.038	<0.01	<0.01	–	0.058
Japanese studies (mandarin, pome fruit)	<0.005	<0.016	assumed <0.007	–	<0.028
Japanese studies (eggplants)	0.098	<0.016	–	1.26	0.14

For the estimation of maximum residue level, STMR and HR, the following residues were listed for each commodity:

parent + AY	*maximum residue level estimation, expressed as parent*
parent + AY + AY-1-Glc	*STMR for estimation of dietary intake, expressed as parent*
AP	*STMR and HR for estimation for TTC and acute dietary intake*
AY	*STMR and HR for estimation for acute dietary intake, express as parent*
AH	*STMR and HR for estimation for TTC of processed commodities*

Citrus fruit

The critical GAP for citrus is from Japan and consists of a single foliar application at a 2000-fold dilution (equivalent to 10 g ai/hL) and a PHI of 1 day. Trials were conducted in the United States on lemons, oranges and grapefruits, but did not support the Japanese GAP.

Mandarins

Japanese trials were submitted in support of the Japanese critical GAP for citrus.

Residues of acynonapyr for compliance with the MRL (parent + AY) and for dietary burden calculations in mandarin whole fruit were (n = 6): 0.22, 0.26, 0.29, 0.30, 0.51 and 0.57 mg/kg.

The meeting estimated a maximum residue level of 1.5 mg/kg for acynonapyr in the Subgroup of Mandarins (FC 0003) and a median residue/STMR of 0.295 mg/kg for dietary burden calculations and for estimating STMR-Ps for processed commodities for acute dietary intake calculations for AY.

Total residues of acynonapyr (parent + AY + AY-1-Glc) in mandarin pulp for dietary intake were (n = 6): 0.030 (2), 0.031 (2), 0.034 and 0.043 mg eq/kg.

The meeting estimated an STMR of 0.031 mg/kg (pulp) for acynonapyr in the Subgroup of Mandarins (FC 0003).

Total residues of acynonapyr (parent + AY + AY-1-Glc) in mandarins whole fruit were (n = 6) 0.23, 0.27, 0.30, 0.31, 0.51 and 0.58 mg/kg.

The meeting estimated an STMR of 0.305 mg/kg for mandarin whole fruit for estimation of STMR-P of processed commodities.

Total residues of acynonapyr (parent + AY + AY-1-Glc) for mandarin peels were (n = 6): 1.40, 1.44, 1.46 (2), 2.48, and 2.90 mg/kg.

The meeting estimated an STMR for residues in mandarin peel of 1.46 mg/kg.

Residue levels of AP in mandarin pulp were (n = 6): <0.008 (6) mg eq/kg, corresponding to <0.0054 (6) mg AP/kg (using a correction factor of 1.47).

Residue levels of AP in mandarin peel were (n = 6): 0.17, 0.24, 0.25, 0.26, and 0.38 (2) mg eq/kg, corresponding with 0.12, 0.16, 0.17, 0.18, and 0.26 (2) mg AP/kg.

Residue levels of AP in mandarin whole fruit were (n = 6): 0.041, 0.054, 0.056 (2), 0.067 and 0.071 mg eq/kg, corresponding to 0.028, 0.037, 0.038 (2), 0.046 and 0.048 mg AP/kg.

The meeting estimated an STMR/HR of 0.0054 mg/kg for AP in mandarin pulp, an STMR and HR of 0.173 and 0.26 mg AP/kg, respectively in mandarin peel.

The meeting also estimated an STMR and HR of 0.038 and 0.048 mg AP/kg, respectively, for AP in mandarin whole fruit to estimate STMR-P and HR-P of processed commodities.

Residue levels of AY in mandarin pulp were (n = 6): <0.016 (6) mg eq/kg.

Residue levels of AY in mandarin peel were (n = 6): 0.037, 0.056, 0.062 (2), 0.080, and 0.083 mg eq/kg.

Residue levels of AY in mandarin whole fruit were (n = 6): 0.019, 0.021, 0.024 (2), 0.030 (2) mg eq/kg.

The meeting estimated an STMR/HR 0.016 mg eq/kg for AY in mandarin pulp, an STMR and HR of 0.062 and 0.083 mg eq/kg in peel.

The meeting also estimatedand an STMR and HR for AY in mandarin whole fruit of 0.024 and 0.030 mg eq/kg to estimate STMR-P and HR-P for processed commodities.

Residue levels of AH (parent + AY) converted to AH with a correction factor of 2.29) in mandarin whole fruit for TTC assessment of processed commodities were (n = 6): 0.096, 0.011, 0.13 (2), 0.22 and 0.25 mg/kg.

The meeting estimated a STMR and HR of 0.13 and 0.25 mg AH/kg, respectively in mandarin whole fruit for estimation of STMR-P and HR in processed commodities.

Apples

The critical GAP for apples is from Japan and is a single foliar application at a 1000 fold dilution (equivalent with 20 g ai/hL), with a PHI of 1 day. In Japan, the spray concentration is the critical application parameter and the trials were selected based on that criterium.

Residues of acynonapyr for compliance with MRL (parent + AY) and for dietary burden calculations matching the critical GAP were (n = 6): 0.39, 0.79, 0.81, 0.98, 1.2, and 1.7 mg/kg.

Total residues of acynonapyr (parent + AY + AY-1-Glc) in apples were (n = 6): 0.40, 0.79, 0.82, 0.99, 1.2, and 1.7 mg eq/kg.

The meeting estimated a maximum residue level of 3 mg/kg, an STMR of 0.905 mg/kg for acynonapyr in apples (FP 0226) and a median residue/STMR of 0.895 mg/kg for dietary burden calculations and for estimating STMR-Ps for processed commodities for acute dietary intake calculations for AY.

Residue levels of AP in apples were (n = 8): 0.015, 0.018, 0.047, 0.065, 0.13, 0.17, 0.20, and 0.25 mg eq/kg, corresponding with 0.010, 0.012, 0.032, 0.044, 0.088, 0.12, 0.14, and 0.17 mg AP/kg (converted back in AP with a correction factor of 1.47).

The meeting estimated an STMR and HR of 0.066 and 0.17 mg/kg for AP in apples, respectively.

Residue levels of AY in apples were (n = 8): 0.046, 0.059, 0.062, 0.074, 0.099, and 0.15 mg eq/kg.

The meeting estimated an STMR and HR of 0.068 and 0.15 mg eq/kg for AY in apples, respectively.

Residue levels of AH (parent + AY) converted to AH with a correction factor of 2.29) in apples were (n = 6): 0.17, 0.34, 0.35, 0.43, 0.48, and 0.74 mg AH/kg.

The meeting estimated a median residue/STMR and HR residue of 0.39 and 0.74 mg/kg AH, respectively in apples for processing.

Pears

The critical GAP for pears is from Japan and is a single foliar application at 2000 fold dilution (equivalent with 10 g ai/hL), with a PHI of 1 day. In Japan, the application concentration is the critical application parameter and the trials were selected based on that criterium.

Residues of acynonapyr for compliance with MRL (parent + AY) in Japanese pears independent trials matching the critical GAP were (n = 6): 0.13, 0.21, 0.24, 0.25, 0.39, and 0.40 mg/kg.

Total residues of acynonapyr (parent + AY + AY-1-Glc) in Japanese pears for dietary intake were (n = 6): 0.14, 0.22, 0.25, 0.26, 0.39, and 0.41 mg eq/kg.

The meeting estimated a maximum residue level of 0.9 mg/kg and an STMR of 0.255 mg/kg mg/kg for acynonapyr in pears (FP 0230) and an STMR of 0.245 mg/kg for estimating STMR-Ps for processed commodities for acute dietary intake calculations of AY.

Residue levels of AP in pears were (n = 8): 0.031, 0.035, 0.068, 0.081, 0.082, 0.094 (2), and 0.13 mg eq/kg, corresponding with 0.021, 0.024, 0.046, 0.055, 0.056, 0.064 (2), and 0.088 mg AP/kg (converted back to AP with a correction factor of 1.47).

The meeting estimated an STMR and HR of 0.051 and 0.088 mg/kg for AP in pears, respectively.

Residue levels of AY were (n = 6): 0.025, 0.031, 0.037 (3), and 0.046 mg eq/kg.

The meeting estimated an STMR and HR of 0.037 and 0.046 mg eq/kg for AY in pears, respectively. Since AY can be formed from parent during processing, for the acute dietary intake of AY in processed pears, the meeting estimated an STMR and HR of 0.245 and 0.41 mg/kg, respectively.

Residue levels of AH (parent + AY) converted to AH with a correction factor of 2.29) were (n = 6): 0.092, 0.10, 0.11, 0.13, 0.17, and 0.17 mg AH/kg.

The meeting estimated an STMR and HR of 0.12 and 0.17 mg/kg for AH, respectively in pears for estimating STMR-P for processed commodities.

Grapes

Field trials on grapes conducted in the United States were provided to the meeting. As no GAP was provided to the meeting, it was not possible to estimate an MRL.

Eggplant

The critical GAP for greenhouse grown eggplant is from Japan and consists of two foliar applications at 2000 fold dilution (equivalent to 10 g ai/hL) on a 7-day retreatment interval, with a PHI of 1 day. In Japan the spray concentration of the formulation is the critical application parameter and the trials were selected on that criterium.

Residues of acynonpyr for compliance with MRL (parent + AY) in independent trials in eggplants matching the critical GAP were (n = 8): 0.042, 0.046, 0.065, 0.080, 0.11, 0.12, 0.16, and 0.31 mg/kg.

Total residues of acynonapyr (parent + AY + AY-1-Glc) in eggplants for dietary intake were (n = 8): 0.053, 0.058, 0.082, 0.10, 0.14, 0.15, 0.20 and 0.40 mg eq/kg.

The meeting estimated a maximum residue level of 0.5 mg/kg and an STMR of 0.12 mg/kg for acynonapyr in the Subgroup of Eggplants (VO 2046).

Residue levels of AP were (n = 8): <0.008 (4), 0.009 (2), 0.012, and 0.028 mg eq/kg.

After correction back from expression in parent equivalents to expression in AP (correction factor of 1.47), the meeting estimated an STMR and HR value of 0.0057 and 0.019 mg/kg for AP, respectively.

Residue levels of AY in eggplants were (n = 6): <0.016 (5), 0.019 mg eq/kg.

The meeting estimated an STMR and HR of <0.016 and 0.019 mg eq/kg for AY in eggplants, resepectively. Since AY can be formed from parent during processing, for the acute dietary risk assessment of AY in processed eggplant, the meeting estimated an STMR and HR of 0.095 and 0.31 mg/kg, respectively.

Residue levels of AH (total residues (parent + AY) converted to AH with a correction factor of 2.29) were (n = 8): 0.018, 0.020, 0.028, 0.035, 0.048, 0.052, 0.070 and 0.14 mg AH/kg.

The meeting estimated an STMR of 0.0415 mg/kg for AH.

Hops

Field trials on hops conducted in the United States were provided to the meeting. As no supporting GAP was submitted to the meeting, it was not possible to estimate an maximum residue level.

Fate of residues during processing

The meeting received information on the fate of acynonapyr residues during processing of orange, apple, grapes, almonds and hops. Table 5.3.3 and Table 5.3.4 show the processing factors, maximum residue levels and STMR-P values for acynonapyr in processed commodities, for which recommendations are given for the raw commodities.

Table 5.3.3 Estimated processing factors (PF) and maximum residue level of acynonapyr for the commodities considered at the current meeting

Raw commodity	Processed commodity	Parent + AY (for compliance with MRL), expressed as parent		
		Individual PF	Mean or best estimate PF	Maximum residue level mrl × PF (mg/kg)
Mandarin [mrl: 1.5 mg/kg]	Mandarins, oil, edible (OR 0003)	67	67	100
	Mandarin, dried pulp (AB 0003)	2.6[a]	2.6[a]	5 (dw)
Apples [mrl: 3 mg/kg]	Apple pomace, dried [b] (AB 0226)	2.0[b]	2.0[b]	15 (dw)

Notes:

[a] Derived from processing study on oranges and corrected for dry matter content of 91%.

[b] Derived from data on processing factor for apple wet pulp and corrected for dry matter content of 40%.

Table 5.3.4 Estimated processing factors (PF) and STMR-P estimation of acynonapyr for the commodities considered at the current meeting

Raw commodity	Processed commodity	Food: sum of parent + AY + AY-1-Glc, expressed as parent Feed: sum of parent + AY, expressed as parent		
		Individual PF	Mean or best estimate PF	STMR-P = $STMR_{RAC}$ × PF (mg eq/kg)
Mandarin STMR: 0.305 mg/kg[b] median: 0.295 mg/kg[c]	Mandarin, juice	0.23[a]	0.23[a]	0.072
	Mandarin, oil, edible	46[a]	46[a]	14
	Mandarin, dried pulp	2.6[a]	2.6[a]	0.767 (median)
Apple STMR: 0.905 mg/kg[b] median: 0.895 mg/kg[c]	Apple, juice	0.12	0.12	0.11
	Apple, pomace wet	1.7	1.7	1.52 (median)
Pear STMR: 0.255 mg/kg[b]	Pear, juice	0.12[b]	0.12	0.306

Notes:

[a] Derived from processing study on oranges.

[b] Total residues (parent + AY + AY-1-Glc, express as parent).

[c] for dietary burden (parent+AY, express as parent).

Table 5.3.5, Table 5.3.6 and Table 5.3.7 show the processing factors and STMR-P and or HR-P values for the metabolites AP, AY and HR in processed commodities, respectively, for which recommendations are given for the raw commodities.

Table 5.3.5 Estimated processing factors (PF) and STMR-P estimations of AP for the commodities considered at the current

Raw commodity	Processed commodity	AP, expressed as AP		
		Individual PF	Mean or best estimate PF	STMR-P = $STMR_{RAC}$ × PF (mg/kg)
Mandarin [STMR: 0.038 mg/kg]	Mandarin, juice	0.05[a]	0.05[a]	0.0019
	Mandarin, oil, edible	34[a]	34[a]	0.13
Apple [STMR: 0.066 mg/kg]	Apple, juice	0.12	0.12	0.0079
Pear [STMR: 0.051]	Pear, juice	0.12[b]	0.12[b]	0.0061

Notes:

[a] Derived from processing study on oranges.

[b] Derived from processing study on apples.

Table 5.3.6 Estimated processing factors (PF) and STMR-P estimation for AY for acute dietary intake for the commodities considered at the current meeting

Raw commodity	Processed commodity	AY, expressed as parent PF: $AY_{PP}/(parent + AY)_{RAC}$		
		Individual PF	Mean or best estimate PF	STMR-P = $STMR_{RAC}$ × PF (mg/kg)[c]
Mandarin [STMR: 0.295 mg/kg]	Mandarin, juice	0.12[a]	0.12[a]	0.037
	Mandarin, oil, edible	8.3[a]	8.3[a]	2.53
Apple [STMR: 0.895 mg/kg]	Apple, juice	0.12	0.12	0.11
Pear [STM: 0.245 mg/kg]	Pear, juice	0.12[b]	0.12[b]	0.031

Notes:

[a] Derived from processing study on oranges.

[b] Derived from processing study on apples.

[c] PF was applied to the STMR RAC of parent + AY, since AY in the processed product may have been formed from parent during processing.

Table 5.3.7 Estimated processing factors (PF) and STMR-P and HR-P estimation of AH for acute and chronic dietary intake for the commodities considered at the current meeting

Raw commodity	Processed commodity	AH (converted from parent + AY), expressed as parent		
		Individual PF[a]	Mean or best estimate PF	STMR-P = $STMR_{RAC}$ × PF (mg/kg)
Mandarin STMR: 0.13 mg/kg	Mandarin, juice	0.23[b]	0.23[b]	0.023
	Mandarin, oil, edible	67[b]	67[b]	8.71
Apple STMR: 0.39 mg/kg	Apple, juice	0.10	0.10	0.039
Pear STMR: 0.12 mg/kg	Pear, juice	0.10[c]	0.10[c]	0.012

Notes:

[a] Similar PF as PF for enforcement based on parent + AY.

[b] Derived from processing study on oranges.

[c] Derived from processing study on apples.

Residues in animal commodities

Farm animal feeding studies

No animal feeding studies were submitted.

Farm animal dietary burden

Dietary burdens were calculated for beef cattle, dairy cattle, broilers and laying poultry based on the feed items evaluated by the JMPR in 2025, using the most recent version of the OECD livestock dietary burden calculator. The input was based on the residues of acynonapyr + AY, expressed as acynonapyr. The dietary burdens are presented in Annex 5 of the 2025 JMPR Report and summarized in Table 5.3.8.

Table 5.3.8 Estimated maximum and mean dietary burdens of farm animals

	Animal dietary burden: acynonapyr + AY, ppm of dry matter diet							
	United States/Canada		European Union		Australia		Japan	
	Max.	Mean	Max.	Mean	Max.	Mean	Max.	Mean
Beef cattle	0.084	0.084	0.760	0.760	0.844[a]	0.844[c]	0	0
Dairy cattle	0.380	0.380	0.464	0.464	0.549[b]	0.549[d]	0	0
Poultry – broiler	0	0	0	0	0	0	0	0
Poultry – layer	0	0	0	0	0	0	0	0

Notes:

[a] Highest maximum beef or dairy cattle dietary burden suitable for MRL estimates for mammalian tissues.

[b] Highest maximum dairy cattle dietary burden suitable for MRL estimates for mammalian milk.

[c] Highest mean beef or dairy cattle dietary burden suitable for STMR estimates for mammalian tissues.

[d] Highest mean dairy cattle dietary burden suitable for STMR estimates for milk.

Animal commodity maximum residue levels

Cattle

Noting the absence of animal feeding studies, the absence of analytical methods and storage stability data for residues of acynonapyr in animal matrices the meeting concluded that it was not possible to recommend maximum residue levels for animal commodities.

Poultry

The current uses do not lead to a dietary burden for poultry.

Further work or information

Desirable information to be considered:

- a metabolism study in laying hens;
- validated analytical methods for animal matrices;
- storage stability studies for animal matrices;
- nature of residues studies under conditions simulating typical processing procedures (pasteurization, baking/brewing/boiling, and sterilization) with specific attention to the formation of AH;
- information on the formation of AH in processing studies; and
- farm animal feeding studies in dairy cattle and laying hens (conditional).

Recommendations

On the basis of the data obtained from supervised trials, the meeting concluded that the residue levels listed in Table 5.3.9 and in Annex 1 are suitable for establishing maximum residue limits and for the estimation of dietary intake. Table 5.3.10 shows the commodities/residues included in the dietary burden calculation.

Definition of the residue for compliance with the MRL for plant and animal commodities: *sum of parent acynonapyr plus 5-(trifluoromethyl)-2-pyridinol (AY), expressed as acynonapyr.*

Definition of the residue for estimation of long-term dietary intake for plant commodities: *sum of parent plus 5-(trifluoromethyl)-2-pyridinol (AY) and 5-(trifluoromethyl)-2-pyridon-3-yl ß-D-glucopyranoside (AY-1-Glc), expressed as acynonapyr.*

Definition of the residue for estimation of long-term dietary intake for animal commodities: *sum of parent acynonapyr plus 5-(trifluoromethyl)-2-pyridinol (AY) and 5-(trifluoromethyl)-2-pyridyl ß-D-glucopyranosiduronic acid (AY-Glu), expressed as acynonapyr.*

Definition of the residue for acute dietary intake of AY for plant commodities*: 5-(trifluoromethyl)-2-pyridinol (AY), expressed as acynonapyr.*

Definition of the residue for acute dietary intake of AY for animal commodities: sum of *5-(trifluoromethyl)-2-pyridinol (*AY) and *5-(trifluoromethyl)-2-pyridyl ß-D-glucopyranosiduronic acid (AY-Glu), expressed as acynonapyr.*

The residue is not fat soluble.

Table 5.3.9 Residue levels suitable for establishing maximum residue limits and for the estimation of dietary intake

CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P mg/kg
		New	Previous	
FP 0226	Apple	3	–	0.905
AB 0226	Apple pomace, dried	15 (dw)	–	–
JF 0226	Apple, juice	–	–	0.11
OR 0003	Mandarins, oil, edible	100	–	14
FP 0230	Pear	0.9	–	0.255
JF 0230	Pear, juice	–	–	0.306
HS 3383	(Satsuma) mandarin, peel fresh	–	–	1.46
VO 2046	Subgroup of Eggplants	0.5	–	0.12
FC 0003	Subgroup of Mandarins	1.5	–	0.305 (whole fruit) 0.031 (pulp)
–	Subgroup of mandarins, juice	–	–	0.072

Table 5.3.10 Residues of acynonapyr for estimation of animal dietary burden

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed
AB	Apple, pomace, wet	1.52	–	40
AB	Citrus, dried pulp	0.77[a]	–	91

Note:

[a] From mandarin, dried pulp.

Table 5.3.11 shows the residues of metabolites used for dietary intake estimations.

Table 5.3.11 Residues of metabolites of acynonapyr for TTC and other dietary intake

Compound	Commodity	STMR (mg/kg)	HR (mg/kg)	Source
AY: for acute dietary exposure against an ARfD based on the highest ADI of parent (expressed as parent)				
AY	Apple	0.068	0.15	Field trials
AY	Apple, juice	0.11	n.a.	Field trials × PF (Table 5.3.6)
AY	Apple, other processed commodities	0.895	–	Field trials (values for parent + AY, since parent can be converted to AY during processing)
AY	Eggplant	0.016	0.019	Field trials
AY	Eggplant, processed commodities	0.095	0.31	Field trials (values for parent + AY, since parent can be converted to AY during processing)
AY	Mandarins, oil edible	2.53	n.a.	Field trials × PF (Table 5.3.6)
AY	Pear	0.037	0.046	Field trials
AY	Pear, juice	0.031	n.a.	Field trials × PF (Table 5.3.6)
AY	Pear, other processed commodities	0.245	–	Field trials (values for parent + AY, since parent can be converted to AY during processing)
AY	(Satsuma) mandarin, peel	0.062	0.083	Field trials
AY	Subgroup of mandarins, juice	0.037	n.a.	Field trials × PF (Table 5.3.6)
AY	Subgroup of Mandarins, pulp	0.016	0.016	Field trials
AY	Mandarins, other processed commodities	0.295	–	Field trials (values for parent + AY, since parent can be converted to AY during processing)

Compound	Commodity	STMR (mg/kg)	HR (mg/kg)	Source
AY	Liver, mammalian	0.019	0.019	Highest TRR from goat metabolism study
AY	Milk, mammalian	0.005	0.005	Highest TRR from goat metabolism study
AY	Muscle, mammalian	0.002	0.002	Highest TRR from goat metabolism study
AY + AY-Glu	Kidney, mammalian	0.035	0.035	Highest TRR from goat metabolism study
AP + AP-8: for chronic dietary exposure against TTC Cramer class III of 1.5 µg/kg bw per day (expressed as AP) AP + AP-8: for acute dietary exposure assessment against specific ARfD of 0.03 mg AP/kg (expressed as AP)				
AP	Apple	0.066	0.17	Field trials
AP	Apple, juice	0.0079	n.a.	Field trials × PF (Table 5.3.5)
AP	Eggplant	0.0057	0.019	Field trials
AP	Mandarins, oil edible	0.13	n.a.	Field trials × PF (Table 5.3.5)
AP	Pear	0.051	0.088	Field trials
AP	Pear, juice	0.0061	n.a.	Field trials × PF (Table 5.3.5)
AP	(Satsuma) mandarin, peel	0.173	0.26	Field trials
AP	Subgroup of mandarins, juice	0.0065	n.a.	Field trials × PF (Table 5.3.5)
AP	Subgroup of Mandarins, pulp	0.0054	0.0054	Field trials
AP + AP-8	Milk, mammalian	0.0021[a]	n.a.	Highest TRR for AP + AP-8 from goat metabolism study
AH: for chronic assessment of processed commodities against TTC Cramer class III of 1.5 µg/kg bw per day				
AH	Apple, juice	0.039	n.a.	Field trials × PF of 0.10 [b] (Table 5.3.7)
AH	Eggplant	0.0415	n.a.	Field trials a
AH	Mandarins, oil edible	8.71	n.a.	Field trials × PF of 67[b] (Table 5.3.7)
AH	Pear, juice	0.012	n.a.	Field trials × PF of 0.10[b] (Table 5.3.7)
AH	Subgroup of mandarins, juice	0.023	n.a.	Field trials × PF of 0.23[b] (Table 5.3.7)
AH	Liver, mammalian	0.0083	n.a.	Highest TRR for AY from goat metabolism study[c]
AH	Milk, mammalian	0.0022	n.a.	Highest TRR for AY from goat metabolism study[c]
AH	Muscle, mammalian	0.00087	n.a.	Highest TRR for AY from goat metabolism study[c]
AH	Kidney, mammalian	0.015	n.a.	Highest TRR for AY + AY-Glu worst case from metabolism study[c]

Notes: n.a. = not applicable.

[a] Actual values of 0.001 and 0.002 mg eq/kg for AP and AP-8, respectively. Corrected for MW 0.00068 ((0.001/504.5$_{mw\ parent}$) * 343.4$_{mw\ AP}$) and 0.0014 ((0.002/504.5$_{mw\ parent}$) * 359.9$_{mw\ AP8}$).

[b] STMR-P according to the residue definition for MRL assessment / the molecular weight conversion factor of 2.29, as a worst case assuming parent + AY is fully converted to AH.

[c] AY converted to AH using mw conversion factor 2.29 because levels of AY in animal tissues were expressed in parent equivalents. Actual levels in the tissues were: in liver AY only at 0.019 g eq/kg; in milk AY only at 0.005 mg eq/kg; in muscle AY only at 0.002 mg eq/kg; in kidney 0.017 mg eq/kg AY plus 0.018 mg eq/kg = 0.035 mg eq/kg.

Dietary risk assessment

Long-term dietary exposure

The ADI for acynonapyr is 0–0.1 mg/kg bw. The International Estimated Daily Intakes (IEDIs) for acynonapyr were estimated for the 17 GEMS/Food Consumption Cluster Diets using the STMR or STMR-P values estimated by the JMPR. The results are shown in Annex 3.

The IEDIs ranged from 0 to 3 percent of the maximum ADI. The meeting concluded that long-term dietary exposure to residues of acynonapyr from uses considered by the JMPR is unlikely to present a public health concern.

Acute dietary exposure

An ARfD for acynonapyr is unnecessary. The meeting concluded that the acute dietary exposure to residues of acynonapyr is unlikely to present a public health concern.

AY and AY-Glu

The ARfD for the metabolites AY (plants and animal commodities) and AY-Glu (animal commodities) of 0.1 mg eq/kg bw, expressed as parent.

The International Estimate of Short Term Intakes (IESTIs) for AY (plant and animal commodities) and AY-Glu (animal commodities) were calculated for the food commodities and their processed commodities for which HRs (were estimated by the current meeting and for which consumption data were available. The results are shown in Annex 4.

The IESTIs for AY (plant commodities and animal commodities) and for AY plus AY-Glu (kidney) ranged from 0 to 30 percent of the ARfD of 0.1 mg/kg bw for acynonapyr for children and 0 to 20 percent of the ARfD for the general population. The meeting concluded that acute dietary exposures to residues of AY (plant commodities) or AY (animal commodities) plus AY-Glu (kidney only), from uses considered by the current meeting are unlikely to present a public health concern.

AP and AP-8

The ARfD for AP and AP-8 is ARfD of 0.03 mg/kg bw.

The International Estimate of Short-Term Intakes (IESTIs) for AP (all commodities) and AP plus AP-8 (milk only) were calculated for the food commodities and their processed commodities for which HRs were estimated by the current meeting and for which consumption data were available. The results are shown in Annex 4 of the 2025 JMPR Report.

The IESTIs for AP and for AP plus AP-8 ranged from 0 to 30 percent of the ARfD of 0.03 mg/kg bw for children and 0to 10 percent of the ARfD for the general population.

The meeting concluded that acute dietary exposures to residues of AP (plant commodities) or AP plus AP-8 (milk only), from uses considered by the current meeting are unlikely to present a public health concern.

Treshold of toxicological concern (TTC) consideration for metabolites

The 2024 meeting concluded that the chronic exposure to metabolites AP and AP-8 and the potential degradation product AH should be assessed using the TTC approach for Cramer class III compounds against the threshold of 1.5 µg/kg bw per day.

AP (plus AP-8 for milks): The dietary intake calculations for AP (plus AP-8 for milks) resulted in a maximum estimated intake of 12.6 µg per person or 0.21 µg/kg bw (bw of 60 kg), which is below the threshold of 1.5 µg/kg bw indicating that it does not present a public health concern.

AH: Assuming 100 percent conversion of the residue expressed in parent equivalents to AH in processed commodities, the dietary intake calculations resulted in a maximum estimated intake of 6.5 µg per person or 0.11 µg/kg bw (bw of 60 kg), which is below the threshold of 1.5 µg/kg bw indicating that it does not present a public health concern.

The meeting concluded that the estimated chronic intake to residues of acynonapyr metabolites AP, AP-8 and AH from uses considered by the JMPR do not present a public health concern.

5.4 Azoxystrobin (229) (R)

Residue and analytical aspects

Azoxystrobin was first evaluated for toxicology and residues by the 2008 JMPR, and in subsequent years for residues only (2011, 2012, 2013, 2017, 2019 and 2022). The compound was last evaluated in 2024 (T, R), when an ADI of 0–0.03 mg/kg bw was established and an ARfD was considered unnecessary.

The residue definition for compliance with the MRL and estimation of dietary intake for plant and animal commodities is azoxystrobin. The residue is fat soluble.

Azoxystrobin was scheduled at the 55th Session of the CCPR for the evaluation of additional MRLs in 2025. The current meeting received an additional analytical method, storage stability data, GAP information and residue trial data for uses on Chinese broccoli and chili peppers.

Methods of residue analysis

The analytical method QuEChERS was used in the supervised residue trials on Chinese broccoli and chili peppers. This method determines residues of parent azoxystrobin by LC-MS/MS, with an LOQ of 0.01 mg/kg. Validation data were provided and the method demonstrated to be suitable for the analysis of azoxystrobin residues in these matrices.

Stability of residues in stored analytical samples

Chinese broccoli and chili peppers are classified as high water content commodities. The 2008 JMPR concluded that residues of azoxystrobin were stable at ≤−18 °C for at least 24 months in high water, high oil, high acid, and high starch commodities. The current meeting received new storage stability data for azoxystrobin in Chinese broccoli and chili peppers. Residues were stable over storage intervals of at least 360 days in Chinese broccoli and for at least 150 days in chili peppers. These results are adequate to support the storage durations in studies provided to the meeting.

Results of supervised residue trials on crops

Broccoli, Chinese

The critical GAP for Chinese broccoli in Thailand is foliar treatment at up to three times at a maximum rate of 93.75 g ai/ha each, with a 7-day retreatment interval and a 3-day pre-harvest interval (PHI).

The meeting received six supervised residue trials on Chinese broccoli conducted in Thailand matching the critical GAP. Residues of azoxystrobin were (n = 6): 0.06, 0.16, 0.18 (2), 0.24 and 0.70 mg/kg.

The meeting estimated a maximum residue level of 1.5 mg/kg and an STMR of 0.18 mg/kg for azoxystrobin in Chinese broccoli (VL 0401).

Peppers, Chili

The 2008 JMPR recommended a maximum residue level of 3 mg/kg for fruiting vegetables, other than cucurbits, except fungi and sweet corn. Using a default concentration factor of 10 for extrapolation from sweet peppers to dried chili peppers, the 2008 JMPR estimated a maximum residue level of 30 mg/kg for azoxystrobin in dried chili pepper. The recommendation was based on combined outdoor and indoor trials conducted on sweet peppers and tomatoes according to GAPs involving a spray concentration of 25 g ai/hL or 250 g ai/ha with six applications and a 3-day PHI.

The GAP for chili peppers in Thailand is three foliar applications at a maximum rate of 62.5 g ai/ha, with a 7-day retreatment interval and a 3-day PHI.

The meeting received six supervised residue trials on chili peppers approximating the GAP in Thailand. Residues of azoxystrobin in chili peppers were (n = 6): 0.02, 0.04, 0.06, 0.09, 0.26, and 0.46 mg/kg.

The meeting noted that the recommendation of the 2008 JMPR for fruiting vegetables, other than cucurbits, except fungi and sweet corn covers the existing use. Therefore, the meeting confirmed its previous recommendations of a maximum residue level of 3 mg/kg for azoxystrobin in chili peppers (VO 0444) and 30 mg/kg in peppers, chili, dried (HS 0444).

Residues in animal commodities

Farm animal feeding studies

No animal feeds are associated with the uses considered by the meeting. The meeting confirmed its previous recommendations for azoxystrobin in animal commodities.

Recommendations

On the basis of the data from supervised trials, the meeting concluded that the residue levels listed in Table 5.4.1 and Annex 1 are suitable for recommending maximum residue limits and estimation of dietary intake.

The definition of the residue for compliance with the MRL and for dietary risk assessment for plant and animal commodities: *azoxystrobin*.

The residue is fat soluble.

Table 5.4.1 Residue levels suitable for recommending maximum residue limits and estimation of dietary intake

CCN	Commodity name	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg
		New	Previous	
VL 0401	Broccoli, Chinese	1.5	–	0.18

Dietary risk assessment

Long-term dietary exposure

The ADI for azoxystrobin is 0–0.03 mg/kg bw. The International Estimated Daily Intakes (IEDIs) for azoxystrobin were estimated for the 17 GEMS/Food Consumption Cluster Diets using the STMR or STMR-P values estimated by the previous and present JMPR. The results are shown in Annex 3.

The IEDIs ranged from 10 to 60 percent of the maximum ADI. The meeting concluded that the long-term intake of residues of azoxystrobin from uses considered by the JMPR is unlikely to present a public health concern.

Acute dietary exposure

An ARfD for azoxystrobin is unnecessary. The meeting therefore concluded that the acute dietary exposure to residues of azoxystrobin from the uses considered is unlikely to present a public health concern.

5.5 Bifenthrin (178) (T, R)

Toxicology

Bifenthrin is the name approved by the International Organization for Standardization (ISO) for (2-methyl-3-phenylphenyl) methyl (1RS, 3RS)-3-[(Z)-2-chloro-3,3,3-trifluoroprop-1-enyl]-2,2-dimethylcyclopropane-1-carboxylate (International Union of Pure and Applied Chemistry [IUPAC]), for which the Chemical Abstracts Service (CAS) number is 82657-04-3.

Bifenthrin is a synthetic pyrethroid insecticide and acaricide. The toxicity of bifenthrin was first evaluated by the 1992 Joint FAO/WHO Meeting on Pesticide Residues (JMPR). It was re-evaluated by the JMPR meeting in 2009. The meeting established an acceptable daily intake (ADI) of 0–0.01 mg/kg bw on the basis of a no-observed-adverse-effect level (NOAEL) of 1.0 mg/kg bw per day in a study of developmental toxicity in rats (gavage), based on the increased incidence of tremors in dams during gestation days (GDs) 10–19 and increased fetal and litter incidences of hydroureter without hydronephrosis seen at the lowest-observed-adverse-effect level (LOAEL) of 2.0 mg/kg bw per day, using a safety factor of 100. The meeting established an acute reference dose (ARfD) of 0.01 mg/kg bw based on a threshold dose of 1.3 mg/kg bw for motor activity in a study of acute toxicity in rats treated by gavage, using a safety factor of 100. Although this study was conducted with male rats only, it was considered appropriate, as there was no evidence of sex-specific differences among the data on bifenthrin.

Bifenthrin was evaluated by the current meeting to support the new uses at the request of the Codex Committee on Pesticide Residues (CCPR). The new information on bifenthrin included genotoxicity studies, potential for endocrine disruption studies, new studies on toxicokinetics and biotransformation studies, a literature review of relevant articles and several position papers to support the genotoxicity profile.

All critical studies contained statements of compliance with good laboratory practice (GLP) and were conducted in accordance with relevant national or international test guidelines, unless otherwise specified. Additional information from a literature search was identified and considered in evaluating its impact on previously established ADI and ARfD.

The studies with the parent compound bifenthrin were assessed and it was concluded that they would not affect the current ADI and ARfD. These studies will be reviewed as part of a periodic re-evaluation in the future.

A toxicological monograph addendum was not prepared.

Residue and analytical aspects

Bifenthrin is a pyrethroid insecticide and miticide. It was first evaluated for residues and toxicology by the JMPR in 1992, under the Periodic Review Programme in 2009 (T) and 2010 (R), and subsequently in 2015, 2019 and 2022 for residues only.

An ADI of 0–0.01 mg/kg bw and an ARfD of 0.01 mg/kg bw were established by the 2009 JMPR. The residue definition for compliance with the MRL and for estimation of dietary intake (for animal and plant commodities) is bifenthrin (sum of isomers).

The residue is fat soluble.

Bifenthrin was scheduled at the 55th Session of the CCPR for the evaluation of additional MRLs by the 2025 JMPR. The meeting received information on new GAPs, analytical methods, supervised residue trials and processing studies for citrus fruits and cranberries.

Methods of residue analysis

The methods used in the residue trials and in the processing studies were similar to, or slight modifications of, those evaluated by the 2010 JMPR. In general, the methods involved extraction with ammonium acetate solution or/and acetonitrile or/and acetone, followed by clean-up procedures, including SPE. Determination was achieved using LC-MS/MS with an LOQ of 0.01 mg/kg for citrus fruits, juice, pulp (wet and dry), marmalade and oil, or GC-ECD and GC-MSD for cranberry with an LOQ of 0.05 mg/kg. The methods were considered suitable for the analysis of bifenthrin in the supervised residue trials and the processing studies.

Enforcement methods for bifenthrin residues in plant and animal commodities had been previously evaluated by the 2010 JMPR. The meeting received additional validation data for the multi-residue method DFG S19 on orange fruit, orange juice, orange wet pulp, orange dry pulp, orange marmalade, orange oil and cranberries. The method, based on GC-ECD determination, demonstrated accepted recoveries and precision across all matrices.

Stability of pesticide residues in stored analytical samples

The 2010 JMPR concluded that bifenthrin is stable for at least 18 months in high-acid commodities. No additional data was submitted to the meeting. The maximum frozen storage interval in the supervised trials submitted to the c meeting was approximately 14.5 months and is therefore covered by the previously established storage stability period.

Results of supervised residue trials on crops

Citrus fruit

Citrus fruits were previously evaluated by the 2010 JMPR with a GAP for bifenthrin in Brazil, involving one foliar spray application at 36 g ai/ha with a 7-day PHI, and in the United States involving ground application to bare soil beneath citrus trees at 560 g ai/ha with a PHI of 1 day. Supervised trials were available for lemons, oranges, and grapefruits from both Brazil and the United States, with all residues below the LOQ except for a single value of 0.05 mg/kg. Based on these trials, the 2010 meeting recommended a maximum residue level, STMR, and HR of 0.05 mg/kg for citrus fruits.

The meeting received critical GAP for bifenthrin on citrus in Brazil, which consists of two foliar applications at 58.5 g ai/ha, with a retreatment interval (RTI) of 7 days and PHI of 7 days.

The meeting received eight independent supervised residue trials on oranges conducted in Brazil during the 2020–2021 growing seasons. Four trials were conducted with two foliar applications at 31.0 g ai/ha, and four trials with two applications at 58.5 g ai/ha, all with 7-day intervals and a 7-day PHI.

Residues in oranges (whole fruit) from the 58.5 g ai/ha trials (n = 4) are 0.02, 0.04 (2) and 0.06 mg/kg.

Residues in oranges (whole fruit) from the 31.0 g ai/ha trials (n = 4) are 0.02 (2), 0.05 and 0.06 mg/kg.

Scaled residues in oranges (whole fruit) using the proportionality principle from 31 to 58.5 g ai/ha trials (n = 4): 0.037 (2), 0.094 and 0.11 mg/kg.

Therefore, residues in oranges (whole fruit) from the combined residues (n = 8) are 0.02, 0.037 (2), 0.04 (2), 0.06, 0.094 and 0.11 mg/kg.

Noting that orange is a representative crop for the subgroup of oranges and that the GAP includes all citrus fruits, the meeting estimated a maximum residue level of 0.2 mg/kg, an STMR of 0.04 mg/kg and an HR of 0.11 mg/kg and for the Subgroup of Oranges, Sweet, Sour (FC 0004).

The meeting withdrew its previous recommendation of 0.05 mg/kg for the group of citrus fruits (Group 001) and proposed a maximum residue level, STMR, and HR of 0.05 mg/kg for the Subgroup of Lemons and Limes (FC 0002), the Subgroup of Mandarins (FC 0003), and the Subgroup of Pummelos and Grapefruits (FC 0005), based on the 2010 JMPR data supporting the United States GAP.

Cranberry

The critical GAP for bifenthrin on cranberry in from the United States and consists of three foliar applications at a rate of 112 g ai/ha, with a RTI of 7-days and a PHI of 30 days.

Five independent residue trials on cranberry were conducted in the United States matching the GAP. The residues of bifenthrin in fruits were (n = 5): 0.204, 0.265, 0.561, 0.630 and 0.698 mg/kg.

The meeting estimated a maximum residue level of 1.5 mg/kg, an STMR of 0.56 mg/kg, and an HR of 0.76 mg/kg (highest individual result) for bifenthrin in cranberry (FB 0265).

Fate of residues during processing

The meeting received processing studies for oranges. Estimated processing factors for oranges and STMR-P or median for processed commodities are summarized in Table 5.5.1.

Table 5.5.1 Processing factor for estimation of STMR-P

RAC	Processed commodity	Calculated processing factors	PF (median or best estimate)	STMR-P or median (mg/kg)
Orange STMR: 0.04 mg/kg	Juice	0.03, 0.03	0.03	0.0012
	Wet pulp	1.25, 0.893	1.1	0.044
	Dry pulp	1.21, 3.69	2.45	0.098 (median)
	Marmalade	0.34, 0.03	0.34	0.014
	Oil	80, 76	78	3.12

Based on the maximum residue level of 0.2 mg/kg, an STMR of 0.04 mg/kg for the Group of oranges and a processing factor of 2.45, the meeting estimated a maximum residue level of 0.5 mg/kg and an median of 0.098 mg/kg for citrus pulp, dry.

Based on a processing factor of 78, the meeting also estimated a maximum residue level of 20 mg/kg and an STMR-P of 3.12 mg/kg for Orange oil, edible (OR 0004).

Residues in animal commodities

Farm animal dietary burden

Dietary burdens were calculated for beef cattle, dairy cattle, broilers and laying poultry based on feed items evaluated by the JMPR. The dietary burdens, estimated using the 2018 OECD Feed diets listed in Appendix XIV Electronic attachments to the 2016 Edition of the FAO manual, are presented in Annex 5.

Of the commodities evaluated by the current meeting, only citrus pulp, dried, needed consideration with respect to livestock diets. Therefore, refined calculations were performed including citrus pulp, dried, which did not result in a significant change of the dietary burdens of farm animals conducted by the 2022 JMPR and decided not recalculate and confirmed the previous recommendations for in animal commodities.

Following the update of the Codex Classification (see General consideration 2.4 of the 2024 JMPR report), the meeting estimated:

- for the Group of muscle (from mammals other than marine mammals), a maximum residue level of 0.2 mg/kg, an STMR value of 0.07 mg/kg and an HR of 0.104 mg/kg;
- for the Group of edible offal (mammalian), a maximum residue level of 0.2 mg/kg, an STMR value of 0.07 mg/kg and an HR of 0.165 mg/kg;
- for the Group of mammalian fats (except milk fats,) a maximum residue level of 3 mg/kg, an STMR value of 0.59 mg/kg and an HR of 1.9 mg/kg;
- for Group of milks, a maximum residue level of 0.2 mg/kg and an STMR value of 0.053 mg/kg; and
- for Group of milk fats, a maximum residue level of 3 mg/kg and an STMR value of 0.49 mg/kg.

The meeting withdrew its previous recommendations of maximum residue level of 3 mg/kg for meat (from mammals other than marine mammals) based on the fat, of 0.2 mg/kg for edible offal (mammalian), 0.2 mg/kg for milks and of 3 mg/kg for milk fats.

The meeting noted that the 2010 JMPR did not estimate maximum residue levels, STMR or HR values for poultry tissues and eggs as the dietary burden exceeded the highest dosing level in the poultry feeding study by more than 30 percent. As the JMPR did not receive a new poultry feeding study, the current meeting was still not able to make estimations for avian commodities.

Recommendations

On the basis of the data obtained from supervised trials, the meeting concluded that the residue levels listed in Table 5.5.2 and Annex 1 are suitable for establishing maximum residue limits and for estimation of dietary intake. Table 5.5.3 shows the residues included in the dietary burden calculation, estimated at the current and previous meetings.

Definition of the residue for compliance with the MRL and for dietary risk assessment for animal and plant commodities is *bifenthrin (sum of isomers).*

The residue is fat soluble.

Table 5.5.2 Residue levels suitable for establishing maximum residue limits and for estimation of dietary intake

CCN	Commodity	Recommended Maximum residue limit (mg/kg)		STMR or STMR-P mg/kg	HR mg/kg
		New	Previous		
FC 0001	Citrus fruits	W	0.05	0.05	0.05
OR 0001	Citrus oil, edible	20	–	3.12	–
AB 0001	Citrus pulp, dry	0.5	–	–	–
FB 0265	Cranberry	1.5	–	0.56	0.76
MO 0105	Edible offal (Mammalian)	W	0.2	–	–
MO 0105	Group of Edible offal (Mammalian)	0.2	–	0.07	0.165
MF 0100	Group of Mammalian fats (except milk fats)	3	–	0.59	1.9
FM 0106	Group of Milk Fats[a]	3	–	0.49	–
ML 0106	Group of milks	0.2	–	0.053	–
MM 0095	Group of muscle (from mammals other than marine mammals)	0.3	–	0.07	0.104
–	Marmalade	–	–	0.014	–
MM 0095	Meat (from mammals other than marine mammals)	W	3 (fat)	–	–
FM 018	Milk Fats	W	3	–	–
ML 0106	Milks	W	0.2	–	–
JF 0004	Orange juice	–	–	0.0012	–
FC 0002	Subgroup of Lemons and Limes	0.05	–	0.05	0.05
FC 0003	Subgroup of Mandarins	0.05	–	0.05	0.05
FC 0004	Subgroup of Oranges, Sweet, Sour	0.15	0.05	0.04	0.06
FC 0005	Subgroup of Pummelos and Grapefruits	0.05	0.05	0.05	0.05

Note:

[a] For monitoring and regulatory purposes, whole milk is to be analysed, and the result compared to the MRL for whole milk.

Table 5.5.3 Residues of bifenthrin for estimation of animal dietary burden

Codex group	Commodity	Median residue (mg/kg)	Highest residue (mg/kg)	% DM assumed
AB	Apple pomace, dry	0.5	–	40
AF/AS	Barley straw and fodder, dry	0.26	0.45	88
AM/AV	Cabbages, head	1.5	3.1	15
VR	Carrot	0.05	0.05	12
VR	Cassava	0.05	0.05	37
AB	Citrus pulp, dry	0.098	–	91
AM/AV	Cotton gin by-products	0.22	–	90

Codex group	Commodity	Median residue (mg/kg)	Highest residue (mg/kg)	% DM assumed
SM	Cotton hulls	0.017	–	90
SM	Cotton meal	0.003	–	89
VD	Cowpea	0.05	–	88
VD	Field pea, (dry)	0.05	–	90
SM	Linseed seed meal	0.05	–	88
SM	Lupin seed meal	0.05	–	85
AF/AS	Maize fodder	2.2	5.5	83
AF/AS	Maize forage	0.58	2	40
AF/AS	Oat straw	2.6	4.5	90
AL	Pea hay or fodder	0.093	0.39	88
VR	Potato culls	0.05	0.05	20
SM	Rape seed meal	0.027	–	88
AF/AS	Rye straw and fodder, dry	2.6	4.5	88
VD	Soya bean, dry	0.05	–	89
SM	Soybean asp gr fn	9.5	–	85
SM	Soybean hulls	0.065	–	92
SM	Soybean meal	0.01	–	90
VR	Swede	0.05	0.05	10
VR	Turnip, Garden	0.05	0.05	15
CM/CF	Wheat gluten meal	0.19	–	40
GC	Wheat grain	0.25	–	89
CM/CF	Wheat milled bypdts	0.79	–	88
AF/AS	Wheat straw and fodder, dry	0.26	0.45	88

Dietary risk assessment

Long-term dietary exposure

The ADI for bifenthrin is 0–0.01 mg/kg bw. The International Estimated Daily Intakes (IEDIs) for bifenthrin were estimated for the 17 GEMS/Food Consumption Cluster Diets using the STMR or STMR-P values estimated by the JMPR. The results are shown in Annex 3.

The IEDIs ranged from 10 to 40 percent of maximum ADI of 0.01 mg/kg bw. The meeting concluded that the long-term dietary exposure to residues of bifenthrin from uses considered by the current meeting is unlikely to present a public health concern.

Acute dietary exposure

The ARfD for bifenthrin is 0.01 mg/kg bw. The International Estimate of Short-Term Intakes (IESTIs) was calculated for food commodities and their processed commodities for which HRs/HR-Ps or STMRs/STMR-Ps were estimated by the present meeting and for which consumption data were available. The results are shown in Annex 4.

The IESTIs for bifenthrin ranged from 0 to 70 percent of the ARfD for children, and from 0 to 20 percent for the general population. The meeting concluded that the acute dietary exposure to residues of bifenthrin from uses considered by the current meeting is unlikely to present a public health concern.

5.6 Boscalid (221) (R)

Residue and analytical aspects

Boscalid is a systemic fungicide first evaluated by JMPR in 2006 for residues and toxicology as a new active substance, and multiple times afterwards for new MRLs (2008, 2009, 2010, Extra 2019, 2023). An ADI of 0–0.04 mg/kg bw was established for boscalid, while ARfD was considered unnecessary. The Extra 2019 JMPR concluded that the metabolite M510F47 should be assessed using the TTC approach (Cramer class III threshold of 1.5 µg/kg bw per day). Since this metabolite was not identified in food or feed commodities, the meeting concluded that it is unlikely to present a public health concern and will not be considered in future assessments.

Definition of the residue for compliance with the MRL in plant and animal commodities and for the estimation of the dietary intake in plant commodities: *boscalid*.

Definition of the residue for the estimation of the dietary intake in animal commodities: *sum of boscalid, 2-chloro-N-(4'-chloro-5-hydroxybiphenyl-2-yl)nicotinamide (M510F01) including its conjugate, expressed as boscalid.*

The residue is fat soluble.

Boscalid was scheduled by the 55th Session of the CCPR for the evaluation of additional uses by the 2025 JMPR meeting. The current meeting received new information on use patterns and supervised field trials for boscalid in Welsh onions from the Republic of Korea.

Methods of residue analysis

The current meeting received new information on a QuEChERS-like in-house analytical method for the analysis of Welsh onion matrices in supervised field trials. The method was demonstrated being fit-for-purpose with a LOQ of 0.01 mg/kg in fresh and dried Welsh onions.

Stability of pesticide residues in stored analytical samples

The current meeting received additional information on the storage stability of boscalid in Welsh onion matrices. Concurrent samples of fresh and dried Welsh onions were fortified with boscalid and stored for similar time periods as respective supervised field trial samples before analysis. For both matrices, stability of at least 3 month was demonstrated, which corresponds to the maximum storage interval of samples in the submitted supervised field trials submitted.

Results of supervised residue trials on crops

Welsh onions

The 2009 JMPR estimated a maximum residue level of 5 mg/kg and a STMR of 2.2 mg/kg for boscalid in bulb vegetables based on a critical use pattern from the United States (6 × 0.33 kg ai/ha, 7 days PHI). The 2009 meeting concluded that the uptake of boscalid from soil following application in previous years is insignificant compared to residue concentrations following direct treatment.

The current meeting received a new use pattern from the Republic of Korea, involving three foliar spray applications at 1500-fold dilution (equivalent to 0.033 kg ai/hL, WG formulation) applied at 7 days interval with a PHI of 14 days.

Supervised field trials conducted in the Republic of Korea approximated the cGAP. The meeting decided not to use the data, since the procedure for sampling of the raw commodity is not in line with the description in the Codex Classification for green onions (Subgroup 009B) and the FAO manual for sampling of green onions. For these reasons, the meeting could not estimate a maximum residue level for fresh Welsh onions.

Residues in processed commodities

The meeting received new information on the magnitude of residues following drying of Welsh onions. Welsh onions were air-dried until the moisture content was 8.1–19 percent. Prior to drying, fresh Welsh onions were trimmed (roots and outer layer removed), washed with water, and cut into slices. The meeting considered removal of the outer layer prior to drying appropriate as this is a common industrial procedure in the Republic of Korea.

The critical GAP is the boscalid use pattern for Welsh onions from the Republic of Korea, involving three foliar spray applications at 1500-fold dilution (equivalent to 0.033 kg ai/hL, WG formulation) applied at 7 days interval with a PHI of 14 days.

In five supervised field trials conducted in the Republic of Korea approximating the GAP, residues of boscalid in dried Welsh onions were (n = 3): 2.3, 3.1 and 3.7 mg/kg.

The meeting agreed that three trials are not enough to estimate a maximum residue level for boscalid in onions, Welsh, dried.

The meeting did not estimate processing factors, as outer leaves of fresh Welsh onions were removed and residues are therefore not representative (see residue trials section).

Residues in animal commodities

Farm animal feeding studies

The current meeting received no additional data. Farm animal feeding studies were assessed and summarized in the 2009 JMPR Report and metabolism study information on laying hens in the 2006 JMPR Report.

Farm animal dietary burden

No commodities evaluated by the current JMPR is utilized as animal feed. The current meeting updated the dietary burden of boscalid in livestock calculated by the 2009 JMPR using the diets listed in Appendix IX of the 2016 edition of the FAO manual. The data include data from Europe, North America and Canada, Australia and Japan for beef and dairy cattle, laying hens and broiler hens.

Dietary burdens for boscalid are presented in Annex 5 and summarized in Table 5.6.1 for all uses of boscalid on feed items evaluated by previous meetings.

Table 5.6.1 Animal dietary burden for boscalid

	Animal dietary burden, ppm of dry matter diet							
	United States/Canada		European Union		Australia		Japan	
	Max.	Mean	Max.	Mean	Max.	Mean	Max.	Mean
Beef cattle	12.4	4.6	66.1	13.1	34.9	11.8	1.96	0.78
Dairy cattle	25.6	8.5	66.2	13.2	98.3[a]	17.3[b]	10.5	3.3
Poultry – broiler	0.12	0.12	1.2	0.65	0.14	0.14	0.10	0.10
Poultry – layer	0.12	0.12	8.8[c]	3.2[d]	0.14	0.14	0.11	0.11

Notes:

[a] Highest maximum beef or dairy cattle dietary burden suitable for MRL estimates for mammalian tissues and milk.

[b] Highest mean dairy cattle dietary burden suitable for STMR estimates for mammalian tissues and mammalian milk.

[c] Highest maximum poultry dietary burden suitable for MRL estimates for poultry tissues and eggs.

[d] Highest mean poultry dietary burden suitable for STMR estimates for poultry tissues and eggs.

Animal commodity residue levels

Cattle (mammalian)

In 2010, the meeting recognized that residues found in tissues and milk found in the feeding study submitted in 2006 using a maximum dose level of 18 ppm were at higher levels than residues found in the 35.8 ppm or 116.3 ppm group of the study submitted in 2009. It was decided that the results obtained from the 18 ppm dose group should be extrapolated beyond the dose range of the study to the maximum dietary burdens estimated for beef and dairy cattle of 34.0 and 33.4 ppm to reflect the critical case of boscalid residues in animal tissues and milk.

Based on the higher current calculated dietary burden for cattle of 98.3 ppm, the 2025 meeting consider continuation of this approach as unrealistic in view of the resulting scaling factor. Following review on the two individual feeding studies submitted in 2006 and 2009, no reasons on questioning their validity were identified. The meeting noted that non-linear transfer of residues into animal commodities is not uncommon in livestock feeding studies and that differences can still be explained by variability in the animals, their housing conditions or by the analysis itself. Noting that the approach taken by the 2010 JMPR resulted in conservative estimates for animal commodities higher than all residues found in any of the two feedings studies, the meeting decided to confirm the previous maximum residue level estimates which cover the new dietary burden for beef and dairy cattle too.

For the purpose of estimating STMRs, the livestock feeding study with lower dose spacing was used, as shown in Table 5.6.2.

Table 5.6.2 STMR residue levels of boscalid (sum of boscalid and M510F01, calculated as boscalid) in cattle (mammalian) commodities

	Feed level (ppm) for milk residues	Total residues (mg/kg) in milk	Total residues (mg/kg) in cream	Feed level (ppm) for tissue residues	Total residues (mg/kg)			
					Muscle	Liver	Kidney	Fat
Feeding study	4.5 18	0.02 0.05	0.12 0.34	4.5 18	<0.05 0.053	0.057 0.177	0.074 0.236	0.105 0.268
Dietary burden and estimate of highest residue	17.3	0.049	0.33 (0.82 in milk fat, assuming 40% fat content in cream)	17.3	0.051	0.17	0.23	0.26

The meeting estimated a maximum residue level of 0.1 mg/kg and a STMR of 0.049 mg/kg for Group of milks (based on whole milk) and withdrew its previous recommendation of 0.1 mg/kg for milk.

The meeting estimated a maximum residue level of 2 mg/kg and a STMR of 0.82 mg/kg for the Group of Milk Fats and withdrew its previous recommendation of 2 mg/kg for milk fat.

The meeting estimated a maximum residue level of 0.07 mg/kg and a STMR of 0.051 mg/kg for the Group of muscle (from mammals other than marine mammals) and withdrew its previous recommendation of 0.7 (fat) mg/kg for meat (from mammals other than marine mammals).

The meeting estimated a maximum residue level of 0.7 mg/kg and a STMR of 0.26 mg/kg for Group of Mammalian fats (except milk fats) and withdrew its previous recommendation of 0.7 mg/kg for fat from mammals (other than marine mammals).

The meeting estimated a maximum residue level of 0.2 mg/kg for Group of Edible offal (mammalian) based on liver, estimated STMR values of 0.17 mg/kg for liver and 0.23 mg/kg for kidney and withdrew its previous recommendation of 0.2 mg/kg for edible offal (mammalian).

Poultry (avian)

Table 5.6.3 shows the estimations of residue levels of boscalid in poultry (avian) commodities.

Table 5.6.3 Maximum residue levels and STMR, and HR for boscalid (sum of boscalid and M510F01, calculated as boscalid) in poultry (avian) commodities

	Feed level (ppm) for eggs residues	Total residues (mg/kg) in eggs	Feed level (ppm) for tissue residues	Total residues (mg/kg)			
				Muscle	Liver	Kidney	Fat
Maximum residue level and HR							
Feeding study	12.5[a]	0.035	12.5[a]	0.005	0.005	NA	0.025
Dietary burden and estimate of highest residue	8.8	0.025	8.8	0.0035	0.0035	NA	0.014
STMR							
Feeding study	12.5[a]	0.035	12.5[a]	0.005	0.005	NA	0.025
Dietary burden and estimate of highest residue	3.2	0.009	3.2	0.001	0.001	NA	0.006

Note:

[a] Based on laying hens metabolism study reported by the 2006 JMPR.

The meeting estimated a maximum residue level of 0.02 mg/kg for the Group of avian edible offal and the Group of avian muscle with STMRs of 0.001 mg/kg for these commodities. For the Group of avian fats, the meeting estimated a maximum residue level of 0.02 mg/kg and an STMR of 0.006 mg/kg. For the Group of eggs, the meeting estimated a maximum residue level of 0.03 mg/kg and an STMR of 0.009 mg/kg.

The meeting withdrew its previous recommendations of 0.02 mg/kg for poultry meat, fat, edible offal and eggs.

Recommendations

On the basis of data obtained from supervised trials, the meeting concluded that the residue levels listed in Table 5.6.4 and in Annex 1 are suitable for establishing maximum residue limits and for estimating dietary intake. Table 5.6.5 shows the residues used for animal dietary burden calculation.

Definition of the residue for compliance with the MRL in plant and animal commodities and for the estimation of the dietary intake in plant commodities: *boscalid*.

Definition of the residue for the estimation of dietary intake in animal commodities: sum of boscalid, 2-chloro-N-(4'-chloro-5-hydroxybiphenyl-2-yl)nicotinamide (M510F01) including its conjugate, expressed as boscalid.

The residue is fat soluble.

Table 5.6.4 Residue levels suitable for establishing maximum residue limits and for estimation of dietary intake

Commodity		MRL, mg/kg		STMR or STMR-P, mg/kg
CCN	Name	New	Previous	
MO 0105	Edible offal (Mammalian)	W	0.2	–
PE 0112	Eggs	W	0.02	–
PO 0111	Group of avian, Edible offal	0.02	–	0.001
PF 0111	Group of avian fats	0.02	–	0.00
PM 0110	Group of avian muscle	0.02	–	0.001
MO 0105	Group of Edible offal (mammalian)	0.2	–	Liver: 0.17 Kidney: 0.23
PE 0112	Group of eggs	0.03	–	0.009
MF 0100	Group of Mammalian fats (except milk fats)	0.7	–	0.26
FM 0106	Group of Milk Fats[a]	2	–	0.82
ML 0106	Group of milks	0.1	–	0.049
MM 0095	Group of Muscle (from mammals other than marine mammals)	0.07	–	0.051
MF 0100	Mammalian fats (except milk fats)	W	0.7	–
MM 0095	Meat (from mammals other than marine mammals)	W	0.7 (f)	–
FM 0106	Milk fat	W	2	–
ML 0106	Milks	W	0.1	–
PF 0111	Poultry fats	W	0.02	–
PM 0110	Poultry meat	W	0.02	–
PO 0111	Poultry, edible offal of	W	0.02	–

Note:

[a] For monitoring and regulatory purposes, whole milk is to be analysed, and the result compared to the MRL for whole milk.

Table 5.6.5 Residue levels suitable for estimating the livestock animal dietary burden

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed	Comment
AM/AV	Almond, hulls	4.1	–	90	–
AB	Apple, pomace, wet	2.121	–	40	–
CM/CF	Barley, bran fractions	0.075	–	90	Based on barley grain STMR
GC	Barley, grain	0.075	–	88	–
AF/AS	Barley, hay	9	30.7	88	–
AF/AS	Barley, straw	9	30.7	89	–
VD	Bean, seed	0.12	–	88	–
AB	Beet, sugar, dried pulp	0.305	–	88	Based on root and tuber vegetable STMR
AB	Beet, sugar, ensiled pulp	0.305	–	15	Based on root and tuber vegetable STMR
DM	Beet, sugar, molasses	0.305	–	75	Based on root and tuber vegetable

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed	Comment
					STMR
SM	Brewer's grain, dried	0.075	–	92	Based on barley grain STMR
AM/AV	Cabbage, heads, leaves	1.52	2.7	15	–
SM	Canola, meal	0.145	–	88	Based on oilseeds STMR
VR	Carrot, culls	0.305	0.71	12	–
VR	Cassava/tapioca, roots	0.305	0.71	37	–
AB	Citrus, dried pulp	1.5	–	91	–
SM	Coconut, meal	0.05	–	91	Based on treenut STMR
CM/CF	Corn gluten, feed	0.05	–	40	Based on cereals other than barley, oats, rye or wheat STMR
CM/CF	Corn gluten, meal	0.05	–	40	Based on cereals other than barley, oats, rye or wheat STMR
CM/CF	Corn, field, asp gr fn	0.05	–	85	Based on cereals other than barley, oats, rye or wheat STMR
GC	Corn, field, grain	0.05	–	88	Based on cereals other than barley, oats, rye or wheat STMR
CM/CF	Corn, field, hominy meal	0.05	–	88	Based on cereals other than barley, oats, rye or wheat STMR
CM/CF	Corn, field, milled bypdts	0.05	–	85	Based on cereals other than barley, oats, rye or wheat STMR
GC	Corn, pop, grain	0.05	–	88	Based on cereals other than barley, oats, rye or wheat STMR
AF/AS	Corn, sweet, cannery waste	0.05	–	30	Based on cereals other than barley, oats, rye or wheat STMR
AM/AV	Cotton, gin by-products	0.145	–	90	Based on oilseeds STMR
SM	Cotton, hulls	0.145	–	90	Based on oilseeds STMR
SM	Cotton, meal	0.145	–	89	Based on oilseeds STMR
SO	Cotton, undelinted seed	0.145	–	88	Based on oilseeds STMR
AL	Cowpea, hay	9	29	86	Based on legume animal feeds residue
VD	Cowpea, seed	0.12	–	88	–
AL	Crown vetch, hay	9	29	90	Based on legume animal feeds median/highest residue
SM	Distiller's grain, dried	0.075	–	92	Based on barley grain STMR
SM	Flaxseed/linseed, meal	0.145	–	88	Based on oilseeds STMR
AB	Grape, pomace, wet	2.5	–	15	–
AM/AV	Kale, leaves	3.65	29	15	Based on leafy vegetable STMR and HR (lamb´s lettuce)
SM	Lupin seed, meal	0.12	–	85	Based on pulses STMR
VD	Lupin, seed	0.12	–	88	–
GC	Millet, grain	0.05	–	88	Based on cereals other than barley, oats, rye or wheat STMR
GC	Oat, grain	0.075	–	89	–
AF/AS	Oat, hay	9	30.7	90	–
AF/AS	Oat, straw	9	30.7	90	–
AL	Pea, hay	9	29	88	Based on legume animal feeds median/highest residue
VD	Pea, seed	0.12	–	90	–
AL	Peanut, hay	9	29	85	Based on legume animal feeds median/highest residue
SM	Peanut, meal	0.145	–	85	Based on oilseeds STMR
VR	Potato, culls	0.305	0.71	20	–
AB	Potato, dried pulp	0.305	–	88	Based on root and tuber vegetable STMR

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed	Comment
AB	Potato, process waste	0.305	–	12	Based on root and tuber vegetable STMR
SM	Rape, meal	0.145	–	88	Based on oilseeds STMR
CM/CF	Rice, bran/pollard	0.05	–	90	Based on cereals other than barley, oats, rye or wheat STMR
GC	Rice, grain	0.05	–	88	Based on cereals other than barley, oats, rye or wheat STMR
CM/CF	Rice, hulls	0.05	–	90	Based on cereals other than barley, oats, rye or wheat STMR
GC	Rye, grain	0.075	–	88	–
AF/AS	Rye, straw	9	30.7	88	–
SM	Safflower, meal	0.145	–	91	Based on oilseeds STMR
SM	Sesame seed, meal	0.145	–	90	Based on oilseeds STMR
CM/CF	Sorghum, grain, asp gr fn	0.05	–	85	Based on cereals other than barley, oats, rye or wheat STMR Based on cereals other than barley, oats, rye or wheat STMR
GC	Sorghum, grain, grain	0.05	–	86	Based on cereals other than barley, oats, rye or wheat STMR
SM	Soybean, asp gr fn	0.12	–	85	Based on oilseeds STMR
AL	Soybean, hay	9	29	85	–
SM	Soybean, hulls	1.74	–	90	–
SM	Soybean, meal	0.16	–	92	–
SM	Soybean, okara	0.12	–	92	Based on pulses STMR
VD	Soybean, seed	0.12	–	89	
SM	Sunflower, meal	0.145	–	92	Based on oilseeds STMR
VR	Swede, roots	0.305	0.71	10	–
AB	Tomato, pomace,wet	0.565	–	20	Based on fruiting vegetables, other than cucurbits STMR
AL	Trefoil, hay	9	29	85	Based on legume animal feeds median/highest residue
GC	Triticale, grain	0.075	–	89	–
AF/AS	Triticale, hay	9	30.7	88	–
AF/AS	Triticale, straw	9	30.7	90	–
VR	Turnip, roots	0.305	0.71	15	–
AL	Vetch, hay	9	29	85	Based on legume animal feeds median/highest residue
VD	Vetch, seed	0.12	–	89	–
CM/CF	Wheat gluten, meal	0.075	–	40	Based on wheat grain STMR
CM/CF	Wheat, asp gr fn	0.075	–	85	Based on wheat grain STMR
GC	Wheat, grain	0.075	–	89	–
AF/AS	Wheat, hay	9	30.7	88	–
CM/CF	Wheat, milled bypdts	0.075	–	88	Based on wheat grain STMR
AF/AS	Wheat, straw	9	30.7	88	–

Dietary risk assessment

Long-term dietary exposure

The ADI for boscalid is 0–0.04 mg/kg bw. The International Estimated Daily Intakes (IEDIs) for boscalid were estimated for the 17 GEMS/Food Consumption Cluster Diets using the STMR or STMR-P values estimated by the JMPR. The results are shown in Annex 3.

The IEDIs ranged from 10 to 60 percent of the maximum ADI. The meeting concluded that long-term dietary exposure to residues of boscalid from uses considered by the JMPR is unlikely to present a public health concern.

Acute dietary exposure

An ARfD for boscalid is unnecessary. The current meeting therefore concluded that the acute dietary exposure to residues of boscalid from the uses considered is unlikely to present a public health concern.

5.7 Broflanilide (326) (R)

Residue and analytical aspects

Broflanilide is a meta-diamide insecticide for the control of chewing-insect pests. It is the precursor to its active form desmethyl broflanilide, which acts by binding to the GABA receptor, resulting in a block of inhibitory neurotransmission and death of target insects. It was evaluated for the first time by the 2022 JMPR, where an ADI of 0–0.02 mg/kg bw was established and an acute reference dose (ARfD) was considered unnecessary.

The residue definition for compliance with MRL and for estimation of dietary intake for plant commodities, is *broflanilide*.

The residue definition for compliance with MRL and for estimation of dietary intake for animal commodities is the *sum of broflanilide plus 3-benzamido-N-[2-bromo-4-(perfluoropropan-2-yl)-6-(trifluoromethyl)phenyl]-2-fluorobenzamide (DM-8007), expressed as broflanilide*.

The residue is fat soluble.

Broflanilide was scheduled at the 55th Session of the CCPR for the evaluation of additional uses by the 2025 JMPR. The meeting received new information on analytical methods, supervised trials and processing.

Methods of analysis

Analytical methods were provided by the 2022 JMPR for the determination of broflanilide in plant matrices (high starch, high protein, high water, high acid and high fat) and for broflanilide and metabolite DM-8007 in animal matrices (milk, egg, liver, kidney, muscle, fat).

The current meeting received additional information on QuEChERS method for broflanilide and metabolites DM-8007 and S(PFP-OH)-8007 in dry soya and dry beans seeds. In brief, residues are extracted by shaking with water:acetonitrile (1:1) in the presence of QuEChERS salts and after phase separation, the acetonitrile phase was directly analysed (dry bean seeds) or cleaned-up by dispersive solid phase extraction (dSPE) with PSA (dry soya bean). Quantitation was accomplished by LC-MS/MS with an LOQ of 0.001 mg/kg.

The meeting concluded that the method was sufficiently validated and is suitable to measure broflanilide in dry soya bean seeds (high oil) and dry beans seeds (high protein).

Stability of residues in stored analytical samples

Data on the stability under frozen conditions of broflanilide in a variety of plant and animal matrices was provided by the 2022 JMPR. Residues of broflanilide were stable in high acid, high protein, high water, high starch and high oil matrices for at least 24 months.

All samples from field trials were analysed within the tested storage stability time.

Results of supervised residue trials on crops

Flowerhead Brassicas

The critical GAP for brassica vegetables (including broccoli, broccolini, Brussels sprouts, cabbage, cauliflower, kohlrabi) in Australia allows two foliar applications of broflanilide at 25 g ai/ha, with an retreatment interval (RTI) of 7 days and a PHI of 1 day.

Broccoli

Field trials conducted with broccoli in the United States, Canada and Australia were performed approximating GAP (±25 percent). The ranked order of broflanilide residues was 0.0042, 0.039, 0.048, 0.068, 0.075, 0.076, 0.078, 0.11, 0.13, 0.17, 0.22 and 0.44 mg/kg (n = 12).

The meeting estimated a maximum residue level of 0.6 mg/kg and an STMR of 0.076 mg/kg for broflanilide in broccoli (VB 0400).

Cauliflower

Field trials conducted with cauliflower in Australia were performed approximating GAP (±25 percent). The ranked order of broflanilide residues was (n = 2) 0.0067, 0.022 mg/kg.

The meeting concluded that the number of trials is insufficient to estimate maximum residue levels.

Cucumber

The critical GAP for cucumber in China allows two foliar applications of broflanilide indoors at 18.5 g ai/ha, with an RTI of 7 days and a PHI of 1 day.

In trials conducted with cucumber in China performed at 25 g ai/ha, the residues of broflanilide from indoor trials were <0.01 (6) mg/kg and from outdoor trials <0.01 (3), 0.046, 0.062 and 0.18 mg/kg. Since residue populations were not significantly different according to the Kruskal-Wallis H-test, the combined ranked order of broflanilide residues was <0.01 (9), 0.046, 0.062 and 0.18 mg/kg (n = 12). By applying a scaling factor of 0.74, residues were <u><0.01</u> (9), 0.034, 0.046 and 0.14 mg/kg.

The meeting estimated a maximum residue level of 0.2 mg/kg and an STMR of 0.01 mg/kg for broflanilide in cucumber (VC 0424).

Fruiting vegetables, other than cucurbits

A GAP for fruiting vegetables in Canada allows two foliar applications of broflanilide at 18.75 g ai/ha with an RTI of 7 days and a PHI of 1 day. However, a more critical GAP from India for tomato and chili peppers only, allows two foliar applications of broflanilide at 25.2 g ai/ha (RTI not stated) and a PHI of 1 day.

Tomato

Field trials with tomato (large and small variety) in the United States and Canada were already submitted for the 2022 JMPR, but no matching GAP was provided.

Using the Indian GAP, the ranked order of residues in field trials with tomatoes approximating the GAP (±25 percent) (a RTI of 7–10 days is considered commercial practice in India) was 0.0017, 0.0022, 0.0049, 0.0097, 0.011, 0.012, 0.014 (2), 0.015 (2), 0.018, 0.019, 0.023, 0.024, 0.031, 0.040 and 0.078 mg/kg (n = 17). For cherry tomatoes, the ranked order of residues was 0.026, 0.028 and 0.076 mg/kg (n = 3).

Since median residues were within a five-fold range, the meeting decided to combine the residue populations of tomatoes and cherry tomatoes. The ranked order of broflanilide residues was 0.0017, 0.0022, 0.0049, 0.0097, 0.011, 0.012, 0.014 (2), 0.015 (2), 0.018, 0.019, 0.023, 0.024, 0.026, 0.028, 0.031, 0.040, 0.076 and 0.078 mg/kg (n = 20).

The meeting estimated a maximum residue level of 0.15 mg/kg and an STMR of 0.0165 mg/kg for broflanilide in tomatoes (VO 0448) and cherry tomatoes (VO 2700).

Peppers, sweet

The critical GAP for fruiting vegetables in Canada allows two foliar applications of broflanilide at 18.75 g ai/ha with an RTI of 7 days and a PHI of 1 day.

In field trials conducted with peppers, sweet in the United States and Canada performed at 2 × 25 g ai/ha, the ranked order of broflanilide residues was 0.006, 0.0072, 0.0095, 0.012, 0.018, 0.020, 0.030, 0.037, 0.039 and 0.056 mg/kg (n = 10). By applying a scaling factor of 0.75, residues were (n = 10) 0.0045, 0.0054, 0.0071, 0.009, 0.014, 0.015, 0.023, 0.028, 0.029 and 0.042 mg/kg.

The meeting estimated a maximum residue level of 0.07 mg/kg and an STMR of 0.0145 mg/kg for broflanilide in peppers, sweet (VO 0445).

Eggplant

The critical GAP for eggplant in India allows two foliar applications of broflanilide at 25 g ai/ha without specified RTI and a PHI of 1 day.

As outlined in the JMPR Report 2018, the meeting decided to consider extrapolation of residue data from either tomato or pepper, sweet to eggplant, whichever leads to the higher maximum residue level estimate.

Supervised field trials from Canada and the United States were submitted for both crops approximated the critical GAP from India.

The ranked order of residues in tomatoes in field trial approaching the GAP (±25 percent) for estimating maximum residue levels and dietary risk assessment was 0.0017, 0.0022, 0.0049, 0.0097, 0.011, 0.012, 0.014 (2), 0.015 (2), 0.018, 0.019, 0.023, 0.024, 0.026, 0.028, 0.031, 0.040, 0.076, 0.078 mg/kg (n = 20).

The ranked order of residues in peppers, sweet, in field trial approaching the GAP (±25 percent) for estimating maximum residue levels and dietary risk assessment was 0.006, 0.0072, 0.0095, 0.012, 0.018, 0.020, 0.030, 0.037, 0.039, 0.056 mg/kg (n = 10).

The meeting estimated a maximum residue level of 0.15 mg/kg and an STMR of 0.019 mg/kg for broflanilide in the subgroup of eggplants (VO 2046), based on extrapolation from residue data on tomato.

Peppers, chili

The critical GAP for chili peppers in India allows two foliar applications of broflanilide at 25.2 g ai/ha (RTI not stated) and a PHI of 1 day.

In supervised trials conducted with chili peppers (protected and field) in the United States and China, performed according to the GAP (±25 percent) (a RTI of 7–10 days is considered commercial practice in India), the residues from indoor trials were 0.013, 0.032, 0.042, 0.056, 0.069 and 0.10 mg/kg (n = 6) and from outdoor trials 0.017, 0.035, 0.041, 0.054, 0.058, 0.11, 0.14 and 0.17 mg/kg (n = 8). Since residue populations were not significantly different according to the Kruskal-Wallis H-test, the residues were combined to give the following ranked order of broflanilide residues of 0.013, 0.017, 0.032, 0.035, 0.041, 0.042, 0.054, 0.056, 0.058, 0.069, 0.10, 0.11, 0.14, 0.17 mg/kg (n = 14).

The meeting estimated a maximum residue level of 0.3 mg/kg and an STMR of 0.055 mg/kg for broflanilide in peppers, chili (VO 0444).

For estimating residues in dried chili peppers, the meeting used the data from chili peppers and a default processing factor of 7. On that basis, the meeting estimated a maximum residue level of 3 mg/kg and an STMR of 0.385 mg/kg for broflanilide in peppers, chili, dried (HS 0444).

Leafy vegetables

The critical GAP for brassica leafy vegetables in Japan allows three foliar applications of broflanilide at 2.5 g ai/hL (RTI not stated) and a PHI of 1 day. No matching field trials were available.

Alternatively, a GAP for leafy vegetables in Canada allows two foliar applications of broflanilide at 12.5 g ai/ha with an RTI of 7 days and a PHI of 1 day.

Lettuce, head

In field trials conducted with lettuce, head in the United States and Australia performed at 2 × 25 g ai/ha, the ranked order of residues of broflanilide was 0.0062, 0.012, 0.11, 0.12, 0.14, 0.18, 0.25, 0.29, 0.32 and 1.04 mg/kg (n = 10). By applying the scaling factor of 0.5, residues were 0.0032, 0.006, 0.057, 0.060, 0.069, 0.091, 0.12, 0.15, 0.16 and 0.52 mg/kg.

Lettuce, leaf

In field trials conducted with lettuce, leaf in the United States, Canada and Australia performed at 2 × 25 g ai/ha, the ranked order of residues of broflanilide was 0.12, 0.36, 0.54, 0.58, 0.63, 0.64 (2), 0.70, 0.92 and 1.8 mg/kg (n = 10). By applying the scaling factor of 0.5, residues were 0.06, 0.18, 0.27, 0.29, 0.32 (3), 0.35, 0.46 and 0.91 mg/kg.

Spinach

In field trials conducted with spinach in the United States, Canada and Australia performed at 2 × 25 g ai/ha, the ranked order of broflanilide residues was 0.42, 0.60, 0.73, 0.86, 0.97, 1.1, 1.5, 1.6, 1.7, 1.8 (2) and 2.2 mg/kg (n = 12). By applying the scaling factor of 0.5, residues were 0.21, 0.30, 0.36, 0.43, 0.48, 0.52, 0.74, 0.82, 0.85, 0.90, 0.91 and 1.1 mg/kg.

The meeting noted that the use pattern covers the subgroup of leafy greens (VL 2050) and recognized that median residues are not within a five-fold interval and cannot be combined.

The meeting estimated a maximum residue level of 0.8 mg/kg and STMR of 0.08 mg/kg in lettuce, head (VL 0482), a maximum residue level of 1.5 mg/kg and STMR of 0.32 mg/kg in lettuce, leaf (VL 0483) and a maximum residue level of 2 mg/kg and an STMR of 0.63 mg/kg for broflanilide in spinach (VL 0502).

Subgroup of leaves of brassicaceae

The critical GAP for leafy vegetables in Canada, which includes the Subgroup of Leaves of Brassicaceae, allows two foliar applications of broflanilide at 12.5 g ai/ha with an RTI of 7 days and a PHI of 1 day.

In field trials conducted with mustard greens in the United States performed at 2 × 25 g ai/ha, the ranked order of broflanilide residues was 0.36, 0.46, 0.62, 0.68, 0.88, 1.2, 1.4 and 2.4 mg/kg (n = 8). By applying the scaling factor of 0.5, residues were 0.18, 0.23, 0.31, 0.34, 0.44, 0.63, 0.68 and 1.2 mg/kg.

The meeting noted that mustard greens are the representative commodity for the respective subgroup and extrapolated the residue data to estimate a maximum residue level of 2 mg/kg and an STMR of 0.39 mg/kg for broflanilide in the Subgroup of Leaves of Brassicaceae (VL 0054).

Pulses

Mung beans (dry)

The critical GAP for mung beans in Indonesia allows two foliar applications of broflanilide at 25 g ai/ha with an RTI of 7 days and a PHI of 14 days.

In field trials conducted with vigna beans spp. in Argentina and Brazil performed at 2 × 18 g ai/ha or 2 × 25 g ai/ha, the ranked order of broflanilide residues was 0.002, 0.004, 0.006 (2), 0.0077, 0.008, 0.009, 0.011, 0.013 and 0.017 mg/kg (n = 10). By applying the scaling factor of 1.4 to the trials performed at 18 g ai/ha, residues were 0.002, 0.004, 0.006, 0.008, 0.011 (2), 0.013 (2), 0.015 and 0.024 mg/kg.

The meeting estimated a maximum residue level of 0.04 mg/kg and an STMR of 0.011 mg/kg for broflanilide in mung bean (dry) (VD 0536).

Soya bean (dry)

The critical GAP for soya beans in Indonesia allows two foliar applications of broflanilide at 25 g ai/ha with an RTI of 7 days and a PHI of 14 days.

Field trials conducted with soya beans in the United States and Brazil were performed according to the GAP (±25 percent). The ranked order of broflanilide residues was <0.001, 0.0011, 0.002 (2), 0.0016, 0.0021, 0.0029, 0.003, 0.0034, 0.0037, 0.0048 (3), 0.0058, 0.0059, 0.0069, 0.0076, 0.0078, 0.0082, 0.011, 0.018, 0.037 and 0.052 mg/kg (n = 23).

The meeting estimated a maximum residue level of 0.06 mg/kg and an STMR of 0.0048 mg/kg for broflanilide in soya bean (dry) (VD 0541).

Subgroup of stems and petioles

The critical GAP for leaf petioles vegetables in Canada allows two foliar applications of broflanilide at 12.5 g ai/ha with an RTI of 7 days and a PHI of 1 day.

In field trials conducted with celery in the United States and Canada performed at 2x25 g ai/ha, the ranked order of broflanilide residues was 0.065, 0.11, 0.23, 0.25, 0.28, 0.35, 0.38, 0.57 and 1.0 mg/kg (n = 9). By applying the scaling factor of 0.5, residues were 0.032, 0.053, 0.12, 0.13, 0.14, 0.18, 0.19, 0.29 and 0.50 mg/kg.

The meeting noted that celery is the representative commodity for the respective subgroup and extrapolated the residue data to estimate a maximum residue level of 0.8 mg/kg and an STMR of 0.14 mg/kg for broflanilide in the subgroup of stems and petioles (VS 2080).

Animal feeds

Soya bean forage

The critical GAP for soya beans in Indonesia allows two foliar applications of broflanilide at 25 g ai/ha with an RTI of 7 days and a PHI of 14 days.

Field trials conducted with soya beans in the United States were performed according to the GAP (±25 percent). The ranked order of broflanilide residues in soya bean forage was 0.035, 0.036, 0.051, 0.064, 0.069, 0.076, 0.097, 0.13, 0.17, 0.18, 0.22 (2), 0.25, 0.27, 0.32, 0.39, 0.43, 0.45, 0.66 and 1.9 mg/kg (n = 20).

The meeting estimated a median residue of 0.2 mg/kg (as received) and a highest residue of 1.9 mg/kg (as received) for broflanilide in soya bean forage.

Soya bean hay

The critical GAP for soya beans in Indonesia allows two foliar applications of broflanilide at 25 g ai/ha with an RTI of 7 days and a PHI of 14 days.

Field trials conducted with soya beans in the United States were performed according to the GAP (±25 percent). The ranked order of broflanilide residues in soya bean forage was 0.24, 0.27, 0.30, 0.32, 0.36, 0.60, 0.72, 0.73, 0.78, 1.0, 1.1 (2), 1.5 (3), 1.6, 1.8, 1.9, 2.9 and 9.5 mg/kg (n = 20).

The meeting estimated a median residue of 1.05 mg/kg (as received), a highest residue of 9.5 mg/kg (as received), and a maximum residue level of 15 mg/kg (dw, based on 85 percent DM content) for broflanilide in soya bean hay.

Fate of residues during processing

Processing data on the fate of broflanilide residues in tomatoes was evaluated by the 2022 JMPR. In addition, the current meeting received new information on the fate of broflanilide residues during processing of soya bean. Estimated processing factors and maximum residue and STMR-P estimations are shown in Table 5.7.1.

Table 5.7.1 Summary of processing factors (PF) and estimated maximum residue level and STMR-P

Crop	Processed commodity	Individual PF	Median or best estimate PF	Residue (mg/kg) in processed commodity	
				Maximum residue level	STMR-P or median
Tomato Maximum residue level = 0.15 mg/kg STMR = 0.0165 mg/kg	Canned tomatoes	0.077, 0.12, 0.3	0.12	–	0.002
	Ketchup after pasteurization	0.38, 2.0, 2.3	2.0	0.3	0.033
	Paste	0.35, 2.2, 2.2	2.2	0.4	0.036
	Raw juice	0.086, 0.24, 0.66	0.24	–	0.004
	Sun-dried tomatoes	4.7, 6.8, 10.7	6.8	1	0.11
	Wet pomace	0.48, 2.8, 3.9	2.8	1.5	0.046
Soya bean MRL = 0.07 mg/kg STMR = 0.0048 mg/kg	Meal	0.03, 0.04, 0.06	0.04	–	0.0002
	Aspirated grain fractions	173, 276, 457	276	–	1.3 (median)
	Hulls	4.1, 4.1, 4.7	4.1	0.3	0.020 (median)
	Tofu	0.11, 0.11, 0.16	0.11	–	0.0005
	Soy sauce	<0.01, <0.02, <0.03	0.02	–	0.0001
	Pollards	0.30, 0.31, 0.51	0.31	–	0.0015
	Flour	0.02, 0.03, 0.06	0.03	–	0.0001
	Miso	0.08, 0.14, 0.15	0.14	–	0.0007
	Refined Oil	0.10, 0.11, 0.17	0.11	–	0.0005

Residues in animal commodities

Dietary burdens of livestock

Dietary burdens were calculated for beef cattle, dairy cattle, broilers and laying poultry based on feed items evaluated by the JMPR in 2023 and the current meeting. The dietary burdens, estimated using the OECD diets listed in Appendix IX of the 2016 edition of the FAO manual, are presented in Annex 5 and summarized in Table 5.7.2.

Table 5.7.2 Estimated livestock dietary burden for the broflanilide, ppm of dry matter diet

	United States/Canada		European Union		Australia		Japan	
	Max.	Mean	Max.	Mean	Max.	Mean	Max.	Mean
Beef cattle	0.13	0.083	1.3	0.26	9.6[a]	1.1[c]	0.002	0.002
Dairy cattle	2.3	0.25	1.3	0.26	4.5[b]	0.52[d]	0.002	0.002
Poultry – broiler	0.001	0	0.021	0.005	0.009	0.009	–	–
Poultry – layer	0.001	0.001	1.5[e, g]	0.19[f, h]	0.009	0.009	–	–

Notes:

[a] Highest maximum beef or dairy cattle dietary burden suitable for MRL estimates for mammalian tissues.

[b] Highest maximum dairy cattle dietary burden suitable for MRL estimates for mammalian milk.

[c] Highest mean beef or dairy cattle dietary burden suitable for STMR estimates for mammalian tissues.

[d] Highest mean dairy cattle dietary burden suitable for STMR estimates for milk.

[e] Highest maximum poultry dietary burden suitable for MRL estimates for poultry tissues.

[f] Highest mean poultry dietary burden suitable for STMR estimates for poultry tissues.

[g] Highest maximum poultry dietary burden suitable for MRL estimates for poultry eggs.

[h] Highest mean poultry dietary burden suitable for STMR estimates for poultry eggs.

Estimation of animal commodities residue levels

The estimated maximum and mean dietary burdens were 9.4 ppm and 1.1 ppm for beef cattle, and 4.5 ppm and 0.52 ppm for dairy cattle. The estimated dietary burdens are evaluated against a lactating cow feeding study from the 2022 JMPR conducted at treatment rates of 0.015, 0.15, 1.5 and 10 ppm (Table 5.7.3).

Table 5.7.3 Maximum residue level and STMR estimations of broflanilide in cattle commodities, sum of broflanilide + DM-8007

	Feed level (ppm) for milk/cream residues	Residues in milk (mg/kg)	Residues in cream (mg/kg)	Feed level (ppm) for tissue residues	Residues (mg/kg)			
					Liver	Kidney	Muscle	Fat
Maximum residue level, beef or dairy cattle								
Feeding study	1.5	0.012	0.015	1.5	0.023	<0.02	<0.02	0.17
	10	0.085	1.1	10	0.088	0.09	0.048	0.80
Dietary burden and highest residue	4.5	0.038	0.40	9.6	0.083	0.085	0.046	0.75
STMR, beef or dairy cattle								
Feeding study	0.15	0.003	0.021	0.15	<0.02	<0.02	<0.02	0.024
	1.5	0.012	0.153	1.5	0.02	<0.02	<0.02	0.13
Dietary burden and mean residue	0.52	0.005	0.057	1.1	0.02	<0.02	<0.02	0.099

For the Group of milks, the meeting estimated maximum residue levels of 0.05 mg/kg and a STMR of 0.005 mg/kg and withdrew its previous recommendation of 0.015 mg/kg for milks.

For the Group of milk fats, the meeting estimated maximum residue levels of 1 mg/kg and a STMR of 0.143 mg/kg (for both assuming 40 percent fat content in cream) and withdrew its previous recommendation of 0.4 mg/kg for milk fats.

For the Group of muscle (from mammals other than marine mammals), the meeting estimated a maximum residue level of 0.05 mg/kg and an STMR of 0.02 mg/kg, and withdrew its previous recommendation for a maximum residue level of 0.15 mg/kg for meat (from mammals other than marine mammals) (fat).

For the Group of mammalian fats (except milk fats), the meeting estimated a maximum residue level of 1 mg/kg and an STMR of 0.099 mg/kg and withdrew its previous recommendation of 0.15 mg/kg for mammalian fats.

For the Group of edible offal (mammalian), the meeting estimated a maximum residue level of 0.1 mg/kg and an STMR of 0.02 mg/kg and withdrew its previous recommendation for a maximum residue level of 0.03 mg/kg for edible offal (mammalian).

For broiler and laying poultry, a maximum and mean dietary burden of 1.5 ppm and 0.19 ppm were estimated, respectively. The meeting noted that the dietary burden exceeded the highest feed level of 0.5 ppm from a poultry feeding study, evaluated by the JMPR in 2023 and agreed to withdraw the previous maximum residue level recommendations of 0.03 mg/kg for eggs, 0.03 mg/kg for poultry edible offal, 0.02* mg/kg for poultry meat and 0.15 mg/kg for poultry fats.

Recommendations

On the basis of the data obtained from supervised trials, the meeting concluded that the residue levels listed in Table 5.7.4 and Annex 1 are suitable for establishing maximum residue limits and for estimation of dietary intake. Table 5.7.5 shows the residues used for dietary burden calculation.

Definition of the residue for compliance with the MRL and dietary risk assessment for plant commodities: *broflanilide.*

Definition of the residue for compliance with the MRL and dietary risk assessment for animal commodities: *Sum of broflanilide plus 3-benzamido-N-[2-bromo-4-(perfluoropropan-2-yl)-6-(trifluoromethyl)phenyl]-2-fluorobenzamide (DM-8007), expressed as broflanilide.*

The residue is fat soluble.

Table 5.7.4 Residue levels suitable for establishing maximum residue limits and for estimation of dietary intake

CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P mg/kg	Highest residue, mg/kg
		New	Previous		
VB 0400	Broccoli	0.6	–	0.076	–
VO 2700	Cherry tomato	0.15	–	0.0165	–
VC 0424	Cucumber	0.2	–	0.01	–
MO 0105	Edible offal (Mammalian)	W	0.03	–	–
PE 0112	Eggs	W	0.03	–	–
MO 0105	Group of edible offal (mammalian)	0.1	–	0.02	–
MF 0100	Group of mammalian fats (except milk fats)	1	–	0.099	–
ML 0106	Group of milks	0.05	–	0.005	–
MM 0095	Group of muscle (from mammals other than marine mammals)	0.05	–	0.02 (muscle) 0.099 (fat)	–
MF 0100	Mammalian fats	W	0.15	–	–
MM 0095	Meat (from mammals other than marine mammals)	W	0.15 (fat)	–	–
FM 0183	Group of Milk Fats[a]	1	–	0.143	–
VL 0482	Lettuce, head	0.8	–	0.08	–
VL 0483	Lettuce, leaf	1.5	–	0.32	–
FM 0106	Milk Fats	W	0.4	–	–
ML 0106	Milks	W	0.015	–	–
VD 0536	Mung bean (dry)	0.04	–	0.011	–
VO 0444	Peppers, chili	0.3	–	0.055	–
HS 0444	Peppers, chili, dried	3	–	0.385	–
VO 0445	Peppers, sweet	0.07	–	0.0145	–
PO 0111	Poultry, Edible offal of	W	0.03	–	–
PM 0110	Poultry meat	W	0.02	–	–
PF 0111	Poultry fats	W	0.15	–	–
–	Soya bean, aspirated grain fractions	–	–	1.3	–
VD 0541	Soya bean (dry)	0.06	–	0.0048	–
DM 0541	Soya bean, flour	–	–	0.0001	–
AL 1265	Soya bean, forage	–	–	0.2 (median)	1.9
AL 0541	Soya bean, hay and/or straw	15 (dw)	–	1.05 (median)	9.5
AL 3538	Soya bean, hulls	0.3	–	0.02	–
AL 3539	Soya bean, meal	–	–	0.0002	–
–	Soya bean, miso	–	–	0.0007	–
OR 0541	Soya bean oil, refined	–	–	0.0005	–
–	Soya bean, pollard	–	–	0.0015	–
–	Soya bean, tofu	–	–	0.0005	–
–	Soya bean, soy sauce	–	–	0.0001	–
VL 0502	Spinach	2	–	0.63	–
VO 2046	Subgroup of Eggplants	0.15	–	0.019	–
VL 0054	Subgroup of Leaves of Brassicaceae	2	–	0.39	–
VS 2080	Subgroup of Stems and Petioles	0.8	–	0.14	–
VO 0448	Tomato	0.15	–	0.0165	–
–	Tomato, canned	–	–	0.002	–
JF 0448	Tomato, juice	–	–	0.004	–
–	Tomato ketchup	0.3	–	0.033	–
DM 3525	Tomato, pomace	1.5	–	0.046	–
DM 0448	Tomato, puree	0.4	–	0.036	–
–	Tomato, sun-dried	1	–	0.11	–

Note:
[a] For monitoring and regulatory purposes, whole milk is to be analysed, and the result compared to the MRL for whole milk.

Table 5.7.5 Residue levels suitable for estimation of animal dietary burdens

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed
GC	Barley, grain	0	–	88
AF/AS	Barley, hay	0.001	0.0016	88
AF/AS	Barley, straw	0.001	0.0016	89
VD	Bean, seed	0.011	–	88
AM/AV	Cabbage, heads, leaves	0.19	0.95	15
CM/CF	Corn gluten, feed	0	–	40
CM/CF	Corn gluten, meal	0	–	40
AF/AS	Corn, field, forage/silage	0.001	0.001	40
GC	Corn, field, grain	0	–	88
CM/CF	Corn, field, hominy meal	0	–	88
CM/CF	Corn, field, milled bypdts	0	–	85
AF/AS	Corn, field, stover	0.001	0.0016	83
AF/AS	Corn, pop, stover	0.001	0.0016	85
AF/AS	Corn, sweet, cannery waste	0.001	0.001	30
GC	Millet, grain	0	–	88
AF/AS	Millet, hay	0.001	0.0016	85
AF/AS	Millet, straw	0.001	0.0016	90
GC	Oat, grain	0	–	89
AF/AS	Oat, hay	0.001	0.0016	90
AF/AS	Oat, straw	0.001	0.0016	90
VR	Potato, culls	0.00175	0.034	20
AB	Potato, dried pulp	0.0022	–	88
AB	Potato, process waste	0.0003	–	12
GC	Rye, grain	0	–	88
GC	Sorghum, grain, grain	0	–	86
AF/AS	Sorghum, grain, stover	0.001	0.0016	88
SM	Soybean, asp gr fn	1.3	–	85
AL	Soybean, forage	0.2	1.9	56
AL	Soybean, hay	1.05	9.5	85
SM	Soybean, hulls	0.02	–	90
SM	Soybean, meal	0.0002	–	92
SM	Soybean, pollard	0.0015	–	?
VD	Soybean, seed	0.0048	–	89
AB	Tomato, pomace, wet	0.046	–	20
GC	Triticale, grain	0	–	89
AF/AS	Triticale, hay	0.001	0.0016	88
AF/AS	Triticale, straw	0.001	0.0016	90
CM/CF	Wheat gluten, meal	0	–	40
AF/AS	Wheat, forage	0.001	0.001	25
GC	Wheat, grain	0	–	89
AF/AS	Wheat, hay	0.001	0.0016	88
CM/CF	Wheat, milled by-products	0	–	88
AF/AS	Wheat, straw	0.001	0.0016	88

Dietary risk assessment

Long-term dietary exposure

The ADI for broflanilide is 0–0.02 mg/kg bw. The IEDIs for broflanilide were estimated for the 17 GEMS/Food Consumption Cluster Diets using the STMR or STMR-P values estimated by the JMPR. The results are shown in Annex 3.

The IEDIs ranged from 0 to 3 percent of the maximum ADI. The meeting concluded that long-term dietary exposure to residues of broflanilide from uses considered by the JMPR is unlikely to present a public health concern.

Acute dietary exposure

An ARfD for broflanilide is unnecessary. The meeting therefore concluded that the acute dietary exposure to residues of broflanilide from uses considered is unlikely to present a public health concern.

5.8 Clothianidin (238) (R)

Residue and analytical aspects

Clothianidin (ISO common name) is a broad-spectrum, neonicotinoid insecticide with registered uses on multiple crops. It was evaluated for the first time by JMPR 2010, which established an ADI of 0–0.1 mg/kg bw and an ARfD of 0.6 mg/kg bw. Clothianidin underwent subsequent evaluations by the JMPR in 2011, 2012, 2014, 2021 (extra) and 2023 for residues only.

The definition of the residue for compliance with MRLs and for estimation of dietary intake for animal and plant commodities is clothianidin. The residue is not fat soluble.

Clothianidin is a registered active ingredient and a major metabolite of thiamethoxam. Thiamethoxam was scheduled at the 55th Session of the CCPR for the evaluation of additional uses by the 2025 JMPR: therefore, the meeting considered residues of clothianidin arising from the uses of thiamethoxam. The meeting received new information on thiamethoxam use patterns and supervised field trials in Welsh onions.

Methods of residue analysis

The meeting received new information on a QuEChERS-like LC-MS/MS method, where Welsh onions are extracted with acetonitrile with the addition of $MgSO_4$ and NaCl. The method was demonstrated being fit-for-purpose with a LOQ of 0.01 mg/kg for clothianidin in fresh and dried Welsh onions.

Stability of pesticide residues in stored analytical samples

The 2010 JMPR determined that residues of thiamethoxam and clothianidin are stable for 1–2 years under frozen conditions (–18 °C or lower) for a large range of commodities, including high-water and dried commodities considered by the current meeting.

The current meeting received additional information on the storage stability of thiamethoxam and clothianidin in fresh and dried Welsh onions. The data confirm that under frozen conditions thiamethoxam and clothianidin are stable for at least 110 days in fresh Welsh onions and 99 days in dried Welsh onions. Samples from the supervised residue trials were analysed within these demonstrated intervals. The stability of residues in fresh and dried Welsh onions is considered to be adequately demonstrated.

Results of supervised residue trials of crops

Welsh onion (fresh)

The critical GAP is the thiamethoxam use pattern for Welsh onions from the Republic of Korea, involving two foliar spray applications at 0.004 kg ai/hL with a 10-day retreatment interval and a PHI of 14 days. Six supervised field trials conducted in the Republic of Korea approximated the cGAP.

The meeting decided not to use the data, since the procedure for sampling of the raw commodity is not in line with the description in the Codex Classification for green onions (Subgroup 009B) and the FAO manual for sampling of green onions. For these reasons, the meeting could not estimate a maximum residue level for fresh Welsh onions.

Fate of residues during processing

The meeting received new information on the magnitude of residues following drying of Welsh onions. Welsh onions were air-dried until the moisture content was 8.1–19 percent. Prior to drying, fresh Welsh onions were trimmed (roots and outer layer removed), washed with water, and cut into slices. The meeting considered removal of the outer layer prior to drying appropriate as this is a common industrial procedure in the Republic of Korea.

The critical GAP is the thiamethoxam use pattern for Welsh onions from the Republic of Korea, involving two foliar spray applications at 0.004 kg ai/hL with a10-day retreatment interval and a PHI of 14 days.

Three supervised field trials conducted in the Republic of Korea (2 times 0.0034–0.0047 kg ai/hL, RTI 10 days and PHI 14 days) approximated the cGAP.

Residues of clothianidin in dried Welsh onion were (n = 3): 0.02, 0.04, 0.05 mg/kg.

The meeting did not estimate a maximum residue level for dried Welsh onions as three trials were not sufficient.

In addition, the meeting did not estimate processing factors because of lack of residue information in the fresh Welsh onions.

Residues in animal commodities

Farm animal feeding studies

No new farm animal feeding studies were submitted.

Farm animal dietary burden

No commodities evaluated by the current JMPR are utilized as animal feed. Using the latest version of the OECD feed calculator (2018, rev 5.1), the dietary burden estimates for thiamethoxam and for clothianidin (from combined thiamethoxam plus clothianidin use) differed from the 2021 JMPR (extra) dietary burden calculations. The results are shown in Table 5.8.1 and Table 5.8.2.

Table 5.8.1 Estimated maximum and mean dietary burdens for thiamethoxam in farm animals, thiamethoxam, ppm of dry matter diet

	United States/Canada		European Union		Australia		Japan	
	Max.	Mean	Max.	Mean	Max.	Mean	Max.	Mean
Beef cattle	6.89	5.56	8.22	1.66	18.3	17.3	2.72	2.40
Dairy cattle	9.96	7.19	9.43	3.86	22.6[a, b]	19.0[c, d]	1.83	1.26
Poultry – broiler	4.99	4.99	1.38	1.15	11.8	11.8	0.59	0.59
Poultry – layer	4.99	4.99	2.66	0.95	11.8[e, g]	11.8[f, h]	2.15	2.15

Notes:

[a] Highest maximum beef or dairy cattle dietary burden suitable for MRL estimates for mammalian tissues.

[b] Highest maximum dairy cattle dietary burden suitable for MRL estimates for mammalian milk.

[c] Highest mean beef or dairy cattle dietary burden suitable for STMR estimates for mammalian tissues.

[d] Highest mean dairy cattle dietary burden suitable for STMR estimates for milk.

[e] Highest maximum poultry dietary burden suitable for MRL estimates for poultry tissues.

[f] Highest mean poultry dietary burden suitable for STMR estimates for poultry tissues.

[g] Highest maximum poultry dietary burden suitable for MRL estimates for poultry eggs.

Table 5.8.2 Estimated maximum and mean dietary burdens of clothianidin for farm animals, ppm of dry matter diet

	United States/Canada		European Union		Australia		Japan	
	Max.	Mean	Max.	Mean	Max.	Mean	Max.	Mean
Beef cattle	0.497	0.267	2.368	1.229	2.440	1.693	0.150	0.089
Dairy cattle	1.419	0.836	1.831	0.947	2.880[a, b]	1.978[c, d]	0.385	0.270
Poultry – broiler	0.116	0.116	0.238	0.073	0.240	0.240	0.037	0.037
Poultry – layer	0.116	0.116	0.334[e, g]	0.139	0.240	0.240[f, h]	0.080	0.080

Notes:

[a] Highest maximum beef or dairy cattle dietary burden suitable for MRL estimates for mammalian tissues.

[b] Highest maximum dairy cattle dietary burden suitable for MRL estimates for mammalian milk.

[c] Highest mean beef or dairy cattle dietary burden suitable for STMR estimates for mammalian tissues.

[d] Highest mean dairy cattle dietary burden suitable for STMR estimates for milk.

[e] Highest maximum poultry dietary burden suitable for MRL estimates for poultry tissues.

[f] Highest mean poultry dietary burden suitable for STMR estimates for poultry tissues.

[g] Highest maximum poultry dietary burden suitable for MRL estimates for poultry eggs.

[h] Highest mean poultry dietary burden suitable for STMR estimates for poultry eggs.

Estimation of animal commodity maximum residue levels

Farm animal dietary burdens for thiamethoxam changed from 20.6 ppm (max) and 18.8 ppm (mean) estimated by the 2021 JMPR to 22.6 ppm (max) and 19.0 ppm (mean) for beef and dairy cattle at this meeting. Dietary burdens for broiler and layer poultry stayed the same (see section on thiamethoxam).

Farm animal dietary burdens for clothianidin changed from 1.184 ppm (max) and 0.883 ppm (mean) to 2.880 ppm (max) and 1.978 ppm (mean) for beef cattle; from 1.143 ppm (max) and 0.863 ppm (mean) to 2.880 ppm (max) and 1.978 ppm (mean) for dairy cattle; from 0.313 ppm (max) and 0.239 ppm (mean) to 0.334 ppm (max) and 0.240 ppm (mean) for broiler and layer poultry.

The thiamethoxam feeding study in lactating cows and the thiamethoxam metabolism study in laying hens resulted in higher clothianidin residues than the clothianidin feeding study in lactating cows and the clothianidin metabolism study in laying hens. Hence, the farm animal dietary burdens for thiamethoxam were the basis for the derivation of the maximum residue levels.

As the dietary burdens based on thiamethoxam are within 10 percent difference, the meeting did not derive new maximum residue levels for animal commodities.

Following the update of the Codex Classification and based on the dietary burden derived by the JMPR 2021 (extra) and based on the thiamethoxam feeding study for lactating cows, the meeting recommended a maximum residue level of 0.05 mg/kg and a STMR of 0.041 mg/kg for clothianidin in the Group of milks and withdrew its previous recommendation of 0.05 mg/kg for milk.

The meeting estimated a maximum residue level of 0.02* mg/kg and a STMR of 0.02 mg/kg and HR of 0.02 mg/kg for clothianidin in the Group of muscle (from mammals other than marine mammals) and withdrew its previous recommendation of 0.02* mg/kg for meat (from mammals other than marine mammals).

The meeting estimated a maximum residue level of 0.02* mg/kg and a STMR of 0.02 mg/kg and HR of 0.02 mg/kg for clothianidin in the Group of Mammalian fats (except milk fats) and withdrew its previous recommendation of 0.02* mg/kg for fat from mammals (other than marine mammals).

The meeting estimated a maximum residue level of 0.4 mg/kg for the Group of Edible offal (mammalian) and a STMR of 0.257 mg/kg and a HR of 0.39 mg/kg based on liver and withdrew its previous recommendation of 0.4 mg/kg for liver of cattle, goats, pigs and sheep and 0.02* mg/kg for edible offal (mammalian) except liver.

Following the update of the Codex Classification and based on the dietary burden derived by JMPR 2021 (extra) and based on the thiamethoxam metabolism study for laying hens, the meeting recommended a maximum residue level of 0.01* mg/kg and a STMR of 0.0062 mg/kg and a HR of 0.0062 mg/kg for the Group of eggs and withdrew its previous recommendation of 0.01* mg/kg for eggs.

The meeting estimated a maximum residue level of 0.01* mg/kg and a STMR of 0.0014 mg/kg and HR of 0.0014 mg/kg for the Group of avian muscle and withdrew its previous recommendation of 0.01* mg/kg for poultry meat.

The meeting estimated a maximum residue level of 0.01* mg/kg and a STMR of 0.0033 mg/kg and a HR of 0.0033 mg/kg for the Group of avian fats and withdrew its previous recommendation of 0.01* mg/kg for poultry fat.

The meeting estimated a maximum residue level of 0.4 mg/kg for the Group of avian edible offal based on liver and estimated an STMR of 0.37 mg/kg and an HR of 0.37 mg/kg and withdrew its previous recommendation of 0.4 mg/kg for poultry edible offal.

Recommendations

On the basis of the data obtained from supervised trials, the meeting concluded that the residue levels listed in Table 5.8.3 and Annex 1 are suitable for establishing maximum residue limits and estimation of dietary intake. Table 5.8.4 shows the residue values used in the dietary burden calculation.

Definition of the residue for compliance with the MRL and estimation of dietary intake for plant and animal commodities: *clothianidin.*

The residue is not fat soluble.

Table 5.8.3 Residue levels suitable for recommending maximum residue limits and dietary intake

CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
		New	Previous		
MO 0105	Edible offal (Mammalian) (except liver)	W	0.02* (c, T)	–	–
MO 0099	Liver of cattle, goats, pigs & sheep	W	0.4 (c, T)	–	–
PE 0112	Eggs	W	0.01* (c, T)	–	–
PF 0111	Group of avian fats	0.01* (c, T)	–	0.0033	0.0033
PM 0110	Group of avian muscle	0.01* (c, T)	–	0.0014	0.0014
PO 0111	Group of avian, Edible offal	0.4 (c, T)	–	0.37	0.37
MO 0105	Group of Edible offal (mammalian)	0.4 (c, T)	–	0.257	0.39
PE 0112	Group of eggs	0.01* (c, T)	–	0.0062	0.0062
MF 0100	Group of Mammalian fats (except milk fats)	0.02* (c, T)	–	0.02	0.02
ML 0106	Group of milks	0.05 (c, T)	–	0.041	–
MM 0095	Group of Muscle (from mammals other than marine mammals)	0.02* (c, T)	–	0.02	0.02
MF 0100	Mammalian fats (except milk fats)	W	0.02* (c, T)	–	–
MM 0095	Meat (from mammals other than marine mammals)	W	0.02* (c, T)	–	–
ML 0106	Milks	W	0.05 (c, T)	–	–
PF 0111	Poultry fats	W	0.01* (c, T)	–	–
PM 0110	Poultry meat	W	0.01* (c, T)	–	–
PO 0111	Poultry, edible offal of	W	0.4 (c, T)	–	–

Note: (c,T) = clothianidin derived from both clothianidin and thiamethoxam use, residues from thiamethoxam use are higher.

Table 5.8.4 Residue values for the dietary burden calculations for clothianidin (from clothianidin and/or thiamethoxam use

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed	Source
AL	Alfalfa, forage	0.01	0.025	35	JMPR 2010 – rotational crop residues Animal forage (AL, AF, AV)
AM/AV	Almond, hulls	0.02	–	90	JMPR 2023 – thiamethoxam use
AB	Apple, pomace, wet	0.024	–	40	JMPR 2010 – both uses
CM/CF	Barley, bran fractions	0.028	–	90	JMPR 2021e – thiamethoxam use
AF/AS	Barley, forage	0.06	0.21	30	JMPR 2021e – thiamethoxam use Extrapolated from wheat forage
GC	Barley, grain	0.015	–	88	JMPR 2021e – thiamethoxam use
AF/AS	Barley, hay	0.09	0.72	88	JMPR 2021e – thiamethoxam use Based on barley + wheat hay
AF/AS	Barley, straw	0.09	0.72	89	JMPR 2021e – thiamethoxam use Extrapolated from barley+wheat hay
VD	Bean, seed	0.02	–	88	JMPR 2010 – thiamethoxam use pulses
AL	Bean, vines	0.075	0.11	35	JMPR 2014 – thiamethoxam use Portuguese GAP for fresh beans Phaseolus beans only (VP 0061)
AM/AV	Beet, mangel, fodder	0.02	0.02	15	JMPR 2010 – both uses Sugar beet leaves and tops
AB	Beet, sugar, dried pulp	0.034	–	85	JMPR 2010 – both uses dm 85%

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed	Source
AB	Beet, sugar, ensiled pulp	0.02	–	15	JMPR 2010 – both uses root and tuber vegs RAC-STMR
DM	Beet, sugar, molasses	0.064	–	62	JMPR 2010 – both uses Dm 62%
AM/AV	Beet, sugar, tops	0.02	0.02	23	JMPR 2010 – both uses Sugar beet leaves and tops
SM	Brewer's grain, dried	0.015	–	92	JMPR 2021e – thiamethoxam use Barley RAC – STMR
AM/AV	Cabbage, heads, leaves	0.03	0.08	15	JMPR 2010 – both uses
SM	Canola, meal	0.02	–	88	JMPR 2010 – both uses Oilseed RAC – STMR
VR	Carrot, culls	0.02	0.15	12	JMPR 2010 – both uses root and tuber vegetables
VR	Cassava/tapioca, roots	0.02	0.15	37	JMPR 2010 – both uses
AB	Citrus, dried pulp	0.02	–	91	JMPR 2010 – thiamethoxam use Citrus fruit RAC – STMR
AL	Clover, forage	0.01	0.025	30	JMPR 2010 – rotational crop residues Animal forage (AL, AF, AV)
SM	Coconut, meal	0.01	–	91	JMPR 2023 – thiamethoxam use Tree nuts RAC – STMR
CM/CF	Corn gluten, feed	0.02	–	40	JMPR 2010 – both uses Maize grains RAC – STMR
CM/CF	Corn gluten, meal	0.02	–	40	JMPR 2010 – both uses Maize grains RAC-STMR

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed	Source
CM/CF	Corn, field, asp gr fn	0.02	–	85	JMPR 2010 – both uses Maize grains RAC – STMR
AF/AS	Corn, field, forage/silage	0.01	0.02	40	JMPR 2010 – thiamethoxam use Field corn forage (maize forage)
GC	Corn, field, grain	0.02	–	88	JMPR 2010 – both uses Maize grains
CM/CF	Corn, field, hominy meal	0.02	–	88	JMPR 2010 – both uses Maize grains RAC – STMR
CM/CF	Corn, field, milled bypdts	0.02	–	85	JMPR 2010 – both uses Maize grains RAC – STMR
AF/AS	Corn, field, stover	0.01	0.01	83	JMPR 2010 – thiamethoxam use Field corn stover (maize fodder)
GC	Corn, pop, grain	0.01	–	88	JMPR 2010 – both uses
AF/AS	Corn, pop, stover	0.01	0.01	85	JMPR 2010 – thiamethoxam use Popcorn stover (maize fodder)
AF/AS	Corn, sweet, cannery waste	0.01	0.01	30	JMPR 2021e – thiamethoxam use Subgroup of sweet corns RAC-STMR
AF/AS	Corn, sweet, forage	0.084	0.22	48	JMPR 2021e – thiamethoxam use
AF/AS	Corn, sweet, stover	0.01	0.021	83	JMPR 2021e – thiamethoxam use
AM/AV	Cotton, gin by-products	0.02	0.02	90	JMPR 2010 – both uses Oilseed RAC – STMR
SM	Cotton, hulls	0.015	–	88	JMPR 2010 – both uses Dm 88%

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed	Source
SM	Cotton, meal	0.002	–	96	JMPR 2010 – both uses Dm 96%
SO	Cotton, undelinted seed	0.02	–	88	JMPR 2010 – both uses Oilseed RAC – STMR
AL	Cowpea, forage	0.01	0.025	30	JMPR 2010: rotational crop residues Animal forage (AL, AF, AV)
VD	Cowpea, seed	0.02	–	88	JMPR 2010 – thiamethoxam use Pulses
AL	Crown vetch, forage	0.01	0.025	30	JMPR 2010: rotational crop residues Animal forage (AL, AF, AV)
SM	Distiller's grain, dried	0.015	–	92	JMPR 2021e – thiamethoxam use Barley RAC – STMR
SM	Flaxseed/linseed, meal	0.02	–	88	JMPR 2010 – both uses Oilseed RAC – STMR
AB	Grape, pomace, wet	0.23	–	15	JMPR 2010 – both uses
AF/AS	Grass, forage (fresh)	0.01	0.025	25	JMPR 2010 – rotational crop residues Animal forage (AL, AF, AV)
AM/AV	Kale, leaves	0.52	0.8	15	JMPR 2010 – both uses Leafy vegetables
AL	Lespedeza, forage	0.01	0.025	22	JMPR 2010: rotational crop residues Animal forage (AL, AF, AV)
SM	Lupin seed, meal	0.02	–	85	JMPR 2010 – both uses Oilseed RAC – STMR

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed	Source
VD	Lupin, seed	0.02	–	88	JMPR 2010 – thiamethoxam use Pulses
AF/AS	Millet, forage	0.01	0.025	30	JMPR 2010 – rotational crop residues Animal forage (AL, AF, AV)
AF/AS	Oat, forage	0.06	0.21	30	JMPR 2021e – thiamethoxam use Extrapolated from wheat forage
GC	Oat, grain	0.015	–	89	JMPR 2021e – thiamethoxam use Extrapolated from barley grain
AF/AS	Oat, hay	0.09	0.72	90	JMPR 2021e – thiamethoxam use Extrapolated from barley+wheat hay
AF/AS	Oat, straw	0.09	0.72	90	JMPR 2021e – thiamethoxam use Extrapolated from barley+wheat hay
SM	Palm, kernel meal	0.02	–	90	JMPR 2010 – both uses Oilseed RAC – STMR
AL	Pea, hay	0.05	0.1	88	JMPR 2010 – thiamethoxam use Pea fodder
VD	Pea, seed	0.02	–	90	JMPR 2010 – thiamethoxam use Pulses
AL	Pea, vines	0.05	0.05	25	JMPR 2010 – thiamethoxam use
SM	Peanut, meal	0.02	–	85	JMPR 2010 – both uses Oilseed RAC – STMR

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed	Source
AB	Pineapple, process waste	0	–	25	JMPR 2010 – thiamethoxam use Pineapple RAC – STMR
VR	Potato, culls	0.02	0.15	20	JMPR 2010 – both uses root and tuber vegetables
AB	Potato, dried pulp	0.02	–	88	JMPR 2010 – both uses root and tuber vegs RAC-STMR
AB	Potato, process waste	0.02	–	12	JMPR 2010 – both uses root and tuber vegs RAC-STMR
AM/AV	Rape, forage	0.02	0.027	30	JMPR 2010 – both uses Based on trials with lower LOQ
SM	Rape, meal	0.02	–	88	JMPR 2010 – both uses Oilseed RAC – STMR
CM/CF	Rice, bran/pollard	0.28	–	90	JMPR 2021e – thiamethoxam use
GC	Rice, grain	0.3	–	88	JMPR 2021e – thiamethoxam use Using reverse processing factors
CM/CF	Rice, hulls	1.1	–	90	JMPR 2021e – thiamethoxam use
AF/AS	Rice, straw	0.03	0.13	90	JMPR 2021e – thiamethoxam use
AF/AS	Rye, forage	0.01	0.025	30	JMPR 2010 – rotational crop residues Animal forage (AL, AF, AV)
SM	Safflower, meal	0.02	–	91	JMPR 2010 – both uses Oilseed RAC – STMR
SM	Sesame seed, meal	0.02	–	90	JMPR 2010 – both uses Oilseed RAC – STMR

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed	Source
CM/CF	Sorghum, grain, asp gr fn	0.227	–	85	JMPR 2021e – thiamethoxam use
AF/AS	Sorghum, grain, forage	0.19	0.29	35	JMPR 2021e – thiamethoxam use
GC	Sorghum, grain, grain	0.018	–	86	JMPR 2021e – thiamethoxam use
AF/AS	Sorghum, grain, stover	0.0885	0.46	88	JMPR 2021e – thiamethoxam use Sorghum straw & fodder, dry
SM	Soybean, asp gr fn	0.02	–	85	JMPR 2010 – thiamethoxam use Pulses RAC – STMR
AL	Soybean, forage	0.01	0.025	56	JMPR 2010 – rotational crop residues Animal forage (AL, AF, AV)
SM	Soybean, hulls	0.02	–	90	JMPR 2010 – thiamethoxam use Pulses RAC – STMR
SM	Soybean, meal	0.02	–	92	JMPR 2010 – thiamethoxam use Pulses RAC – STMR
SM	Soybean, okara	0.02	–	92	JMPR 2010 – thiamethoxam use Pulses RAC – STMR
VD	Soybean, seed	0.02	–	89	JMPR 2010 – thiamethoxam use Pulses
DM	Sugarcane, bagasse	0.03	–	32	JMPR 2010 – clothianidin use Sugarcane RAC – STMR
DM	Sugarcane, molasses	0.03	–	75	JMPR 2010 – clothianidin use Sugarcane RAC – STMR

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed	Source
AM/AV	Sugarcane, tops	0.19	0.27	25	JMPR 2010 – clothianidin use
SM	Sunflower, meal	0.02	–	92	JMPR 2010 – both uses Oilseed RAC – STMR
VR	Swede, roots	0.02	0.15	10	JMPR 2010 – both uses root and tuber vegetables
AB	Tomato, pomace,wet	0.02	–	20	JMPR 2010 – both uses Fruiting vegs – STMR
AL	Trefoil, forage	0.01	0.025	30	JMPR 2010 – rotational crop residues Animal forage (AL, AF, AV)
AF/AS	Triticale, forage	0.06	0.21	30	JMPR 2021e – thiamethoxam use Extrapolated from wheat forage
GC	Triticale, grain	0.01	–	89	JMPR 2021e– thiamethoxam use Extrapolated from wheat grain
AF/AS	Triticale, hay	0.09	0.72	88	JMPR 2021e – thiamethoxam use Extrapolated from barley+wheat hay
AF/AS	Triticale, straw	0.09	0.72	90	JMPR 2021e – thiamethoxam use Extrapolated from barley+wheat hay
VR	Turnip, roots	0.02	0.15	15	JMPR 2010 – both uses root and tuber vegetables
AM/AV	Turnip, tops (leaves)	0.52	0.8	30	JMPR 2010 – both uses Leafy vegetables
AL	Vetch, forage	0.01	0.025	30	JMPR 2010 – rotational crop residues Animal forage (AL, AF, AV)

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed	Source
VD	Vetch, seed	0.02	–	89	JMPR 2010 – thiamethoxam use Pulses
CM/CF	Wheat gluten, meal	0.01	–	40	JMPR 2021e – thiamethoxam use
CM/CF	Wheat, asp gr fn	0.069	–	85	JMPR 2021e – thiamethoxam use
AF/AS	Wheat, forage	0.06	0.21	25	JMPR 2021e – thiamethoxam use
GC	Wheat, grain	0.01	–	89	JMPR 2021e – thiamethoxam use
AF/AS	Wheat, hay	0.09	0.72	88	JMPR 2021e – thiamethoxam use based barley+wheat hay
CM/CF	Wheat, milled bypdts	0.0185	–	88	JMPR 2021e – thiamethoxam use Wheat bran processed
AF/AS	Wheat, straw	0.09	0.72	88	JMPR 2021e – thiamethoxam use Extrapolated from barley+wheat hay

Dietary risk assessment

The meeting did not change the previous recommendations for STMRs and HRs for animal commodities and therefore a new dietary risk assessment was not necessary.

5.9 Cyantraniliprole (263) (R)

Residue and analytical aspects

Cyantraniliprole is a diamide insecticide with a ryanodine receptor activation mode of action. The compound was evaluated for the first time in 2013 for toxicology and residue when an ADI of 0–0.03 mg/kg bw was established and an ARfD was considered unnecessary. Residue evaluations were subsequently performed by the 2015, 2018 and 2023 JMPR.

Residue definition for compliance with the MRL for plant and animal commodities: *cyantraniliprole.*

Residue definition for estimation of dietary intake for unprocessed plant commodities: *cyantraniliprole.*

Residue definition for estimation of dietary intake for processed plant commodities: *sum of cyantraniliprole and 2-[3-Bromo-1-(3-chloro-2-pyridinyl)-1H-pyrazol-5-yl]-3,4-dihydro-3,8-dimethyl-4-oxo-6- quinazolinecarbonitrile [IN-J9Z38], expressed as cyantraniliprole*.

Residue definition for estimation of dietary intake for animal commodities: *sum of cyantraniliprole, 2-[3-Bromo-1-(3-chloro-2-pyridinyl)-1H-pyrazol-5-yl]-3,4-dihydro-3,8-dimethyl-4-oxo-6- quinazolinecarbonitrile [IN-J9Z38], 2-[3-Bromo-1-(3-chloro-2-pyridinyl)-1Hpyrazol-5-yl]-1,4-dihydro-8-methyl-4-oxo-6-quinazoline carbonitrile [IN-MLA84], 3- Bromo-1-(3-chloro-2-pyridinyl)-N-[4-cyano-2-(hydroxymethyl)-6-[(methylamino) carbonyl]phenyl]-1H-pyrazole-5-carboxamide [IN-N7B69] and 3-Bromo-1-(3-chloro-2-pyridinyl)-N-[4-cyano-2[[(hydroxymethyl)amino]carbonyl] 6methylphenyl]-1H-pyrazole-5-carboxamide [IN-MYX98], expressed as cyantraniliprole.*

The residue is not fat soluble.

At the 55th CCPR (2024), cyantraniliprole was scheduled for the evaluation of additional uses by the 2025 JMPR. The meeting received new information on analytical method, storage stability, use patterns and supervised field trials for cyantraniliprole in papaya, Welsh onions, basil, dill, mint and hops.

Methods of residue analysis

The meeting received new analytical performance data for papaya, basil (fresh and dried), dill (fresh, dried, seeds and oil), mint (fresh, dried and oil) and hops based on an analytical method (DP-15736, 2011) previously evaluated by the 2013 JMPR. For the analysis of fresh and dried Welsh onion matrices, the meeting received an LC-MS/MS method with a QuEChERS-like sample preparation, i.e., samples were extracted with acetonitrile with the addition of $MgSO_4$ and NaCl, then cleaned up with C18 and PSA. The DP-15736 method for papaya, basil, dill, mint and hops as well as new method for Welsh onion samples were demonstrated being fit-for-purpose with a LOQ of 0.01 mg/kg.

Stability of pesticide residues in stored analytical samples

The JMPR 2013 evaluated the stability of residues of cyantraniliprole and its metabolites, IN-J9Z38, IN-MLA84, IN-MYX98 and IN-N7B69 in various matrices with a high-water content (apple), a high

starch content (potato), a high protein content (dry bean seed) and a high acid content (grape). The residues were stable for at least 24 months when stored in the dark at –20 ± 10 °C. It was however noted that, for the IN-N7B69 metabolite in high-oil commodity (peanut), reduced remaining residues were observed at all storage intervals.

The meeting received additional information on the storage stability of cyantraniliprole and its metabolite IN-J9Z38 in papaya, Welsh onion (fresh and dried), basil (fresh and dried), dill (fresh, dried, seeds and oil), mint (fresh, dried and oil). For all sample matrices, adequate stability compared to the maximum storage interval of samples in the submitted supervised field trials was demonstrated (70–110 percent), with the exception for fresh mint, for which the remaining residues and concurrent procedural recovery was found to be 67 and 82 percent, respectively. The borderline stability data of cyantraniliprole in fresh mint was considered acceptable by weighing the evidence of satisfactory stability of cyantraniliprole in dried mint, mint oil and other fresh herbs.

No specific stability testing data for dried hops were submitted. Given that all the frozen field-treated dried hops samples were tested within 161 days, the meeting concluded that the omission of the stability testing on dried hops was acceptable, considering the demonstrated long-term storage stability of cyantraniliprole and N-J9Z38 residues being at least 24 months for a wide range of commodities, as reviewed in JMPR 2013.

Results of supervised residue trials on crops

Papaya

The critical GAP from the United States is three foliar spray applications at 0.149 kg ai/ha, application retreatment interval (RTI) of 14 days and PHI of 1 day. Supervised field trials conducted at five sites in the United States approximated the critical GAP.

The residues of cyantraniliprole in papaya were (n = 5): 0.21, 0.22, 0.36, 0.52 and 0.56 mg/kg. The residues of cyantraniliprole in papaya pulp for dietary intake assessment (by applying a peeling factor of <0.045 obtained from one of the trials) were (n = 5): <0.0095, <0.01, <0.016, <0.024, and <0.025 mg/kg.

The meeting estimated a maximum residues level of 1.5 mg/kg and an STMR of 0.016 mg/kg for papaya (FI 0350).

Welsh onion

The meeting received a GAP for Welsh onion from the Republic of Korea, involving two foliar spray applications of WG formulation at 0.08 kg ai/ha (0.004 kg ai/hL), with an RTI of 10 days and PHI of 14 days.

The JMPR 2013 recommended a maximum residue level of 8 mg/kg for cyantraniliprole in Welsh onion, extrapolated from the recommendation for spring onions (green onions), which was based on a Canadian GAP involving three foliar applications of OD formulation at 0.15 kg ai/ha (totally 0.45 kg ai/ha per season) with an application interval of five days and a PHI of 1 day.

A total of four supervised field trials were conducted at four separate sites in the Republic of Korea, among which three trials approximated the Republic of Korea GAP, while the other trial was based on an exaggerated rate of 3-fold of GAP rate, with the rest parameters (application interval, PHI, trial dates and Welsh onion species) being the same as the other trial at the same site. Hence, the meeting considered only three out of the four trials being independent.

The fresh Welsh onion samples were prepared and tested with the removal of the outer layer, which is not in line with the description in the Codex Classification for green onions (Subgroup 009B) and the FAO manual for sampling of green onions. Hence, the meeting decided not to use the residues data submitted and could not estimate a maximum residue level for fresh Welsh onions, nor to derive processing factor from fresh to dried Welsh onion.

The meeting confirmed its previous recommendation for cyantraniliprole maximum residue level of 8 mg/kg for Welsh onion.

Subgroup of 027A, herbs (herbaceous plants)

The critical GAP for herbs in the United States involves three foliar spray applications at 0.149 kg ai/ha, RTI of 5 days and PHI of 1 day.

In trials approximating the critical GAP conducted in the country, residues of cyantraniliprole were (n = 6) 0.7, 4.2, 4.4, 4.7, 4.9 and 7.9 mg/kg in fresh basil, (n = 6) 1.4, 2.3, 3.7, 6.4, 8.1 and 10 mg/kg in fresh dill leaves and (n = 4): 6.7, 12, 14 and 20 mg/kg in fresh mint.

The GAP in the United States includes all members of the Herbs (subgroup 027A), and that the medians of the residue datasets differed by less than 5-fold. The Kruskal-Wallis H-test showed that the dataset for fresh mint vs the datasets for fresh basil and fresh dill were significantly different.

The meeting decided to use the dataset for fresh mint, which led to the highest residues, and estimated a maximum residue level of 40 mg/kg and an STMR of 13 mg/kg for subgroup 027A, Herbs (herbaceous plants) (HH 2095).

Subgroup of 028A, spices seeds

The critical GAP in the United States for dill seeds and a wide range of minor crops falling under subgroup 028A is three foliar spray applications at 0.149 kg ai/ha, RTI of 5 days and PHI of 1 day.

In trials approximating the critical GAP, residues of cyantraniliprole in dill seeds were (n = 6) 10, 12, 15, 23, 39 and 42 mg/kg. The meeting estimated a maximum residue level of 80 mg/kg and an STMR of 19 mg/kg for dill seeds (HS 0730), extrapolated to subgroup 028A, Spices, seeds (HS 0190).

Subgroup of 057A, dried herbs of herbaceous plants

The critical GAP from United States covers all members of the dried herbs (subgroup 057A) and involves three foliar spray applications at 0.149 kg ai/ha, RTI of 5 days and PHI of 1 day. The meeting noticed that the preparation of dried herbs in the supervised field trials involved drying at elevated temperatures, therefore the residues definition for processed plant commodities has to be applied for estimating STMR (total residues = sum of cyantraniliprole and IN-J9Z38, expressed as cyantraniliprole).

In the trials approximating the critical GAP, residues of cyantraniliprole in dried basil leaves were (n = 6): 11 (2), 14, 39, 41 and 65 mg/kg, in dried dillweed leaves were (n = 6): 4, 12 (2), 16, 52 and 64 mg/kg, and in dried mint leaves were (n = 4): 11, 17, 23, and 27 mg/kg.

The total in dried basil leaves were (n = 6) 11.2, 11.6, 14.2, 39.8, 42.1 and 66.4 mg/kg, in dried dill leaves were (n = 6) 4.9, 12.0, 12.3, 16.2, 57.4 and 64.5 mg/kg, and in dried mint leaves were (n = 4) 11.4, 17.1, 23.2 and 27.3 mg/kg.

The meeting found that for both the cyantraniliprole residues and the total residues, the medians of the residue datasets differed by less than 5-fold and the Kruskal-Wallis H-test showed that the datasets for dried basil leaves, dried dillweed leaves and dried mint leaves were not statistically different. The meeting therefore decided to combine the three datasets for cyantraniliprole residues as (n = 16): 4, 11 (3), 12 (2), 14, 16, 17, 23, 27, 39, 41, 52, 64 and 65 mg/kg for total residues as (n = 16) 4.9, 11.2, 11.4, 11.6, 12.0, 12.3, 14.2, 16.2, 17.1, 23.2, 27.3, 39.8, 42.1, 57.4, 64.5 and 66.4 mg/kg for STMR estimation.

The meeting estimated a maximum residue level of 150 mg/kg and an STMR of 16.65 mg/kg for subgroup 057A, Dried herbs.

Hops

The meeting received two GAPs for hops from the United States, one involving three foliar spray applications of an SE formulation at 0.149 kg ai/ha, RTI of 5 days and PHI of 1 day, while another GAP involving the use of an SC formulation for one soil-at-planting application or one drip chemigation at maximum application rate of 0.448 kg ai/ha with PHI of 7 days. Results from the supervised field trials conducted according to the above two GAPs showed that the foliar spray application gave higher residues, hence should be treated as the critical GAP. Furthermore, the preparation of dried hops samples involved drying at elevated temperatures, therefore the residues definition for processed plant commodities has to be applied for estimation of STMR.

In five trials in the United States and one trial in Canada approximating the critical GAP, the residues of cyantraniliprole in hops (dried cones) were (n = 6): 6.7, 12, 17 (2), 29 and 35 mg/kg, while the total residues were (n = 6) 6.7, 12.1, 17.0, 17.4, 29.1 and 35.2 mg/kg.

The meeting estimated a maximum residue level of 70 mg/kg and an STMR of 17.2 mg/kg for hops, dried (MU 1100).

Residues in processed commodities

The meeting received new information on the magnitude of cyantraniliprole residues from processing studies conducted on dill and mint. The processing studies and the estimates for STRM-P (in form of total cyantraniliprole residues) and process factors are summarized in Table 5.9.1.

Table 5.9.1 Summary of processing factors and residue estimates for cyantraniliprole

RAC (STMR)	Processed commodity	Processing factors [best estimate]	STMR-P (mg/kg)
Dill hay for processing (3.3 mg/kg)	Dill oil	<0.0061	0.02
Mint hay for processing (12.6 mg/kg)	Mint oil	<0.0016	0.02

Residues in animal commodities

Farm animal dietary burden

The maximum and mean dietary burden for cyantraniliprole residues in farm animals were initially estimated in 2015 JMPR, which were further updated by the 2018 and 2023 JMPR. None of the commodities (papaya, herbs, dill seeds, dried herbs and dried hops) evaluated by the meeting is utilized as animal feed. Using the latest version of the OECD feed calculator (2018, rev 5.1), the dietary burden for cyantraniliprole residues in farmed animals are re-calculated, which shows no change in the dietary burden for farm animals in all regions. The estimated dietary burden is shown in Annex 5 and summarized in the Table 5.9.2.

Table 5.9.2 Estimated maximum and mean dietary burdens for cyantraniliprole in farm animals, ppm of dry matter diet

	United States/Canada		European Union		Australia		Japan	
	Max	Mean	Max	Mean	Max	Mean	Max	Mean
Beef cattle	0.668	0.472	12.63	3.38	46.8[a]	15.6[c]	0.534	0.062
Dairy cattle	9.85	3.41	14.07	3.82	35.95[b]	13.58[d]	0.460	0.043
Poultry – boiler	0.010	0.010	0.064	0.036	0.013	0.013	0.00	0.00
Poultry – layer	0.014	0.014	5.16[e]	1.78[f]	0.013	0.013	0.00	0.00

Notes:

[a] Highest maximum beef cattle dietary burden suitable for MRL estimates for mammalian tissues.

[b] Highest maximum dairy cattle dietary burden suitable for MRL estimates for mammalian milk.

[c] Highest mean beef cattle dietary burden suitable for STMR estimates for mammalian tissues.

[d] Highest mean dairy cattle dietary burden suitable for STMR estimates for milk.

[e] Highest maximum poultry dietary burden suitable for MRL estimates for poultry tissues.

[f] Highest mean poultry dietary burden suitable for STMR estimates for poultry tissues.

Estimation of residues in animal commodities

Cyantraniliprole residues in animal commodities were initially estimated by JMPR in 2015 and again in 2023. For transition to the newly established Codex Classification for animal commodities, the meeting estimated the following maximum residue levels of cyantraniliprole: 0.15 mg/kg for Group of Avian, edible offal, 0.04 mg/kg for Group of Avian fats, 0.02 mg/kg for Group of Avian muscle, 1.5 mg/kg for Group of Edible offal (mammalian), 0.3 mg/kg for Group of Eggs, 0.5 mg/kg for Group of Mammalian fats (except milk fats), 0.6 mg/kg for Group of Milks, and 0.2 mg/kg for Group of Muscle (from mammals other than marine mammals), with consequential withdrawal of the previous recommendations.

Recommendations

On the basis of the data obtained from supervised trials, the meeting concluded that the residue levels listed in Table 5.9.3 and in Annex 1 are suitable for establishing maximum residue limits and for estimation of dietary intake. Table 5.9.4 shows the residues used for dietary burden calculation.

Residue definition for compliance with the MRL for plant and animal commodities: *cyantraniliprole.*

Residue definition for estimation of dietary intake for unprocessed plant commodities: *cyantraniliprole*.

Residue definition for estimation of dietary intake for processed plant commodities: *sum of cyantraniliprole and 2-[3-Bromo-1-(3-chloro-2-pyridinyl)-1H-pyrazol-5-yl]-3,4-dihydro-3,8-dimethyl-4-oxo-6- quinazolinecarbonitrile [IN-J9Z38], expressed as cyantraniliprole*.

Residue definition for dietary risk assessment for animal commodities: *sum of cyantraniliprole, 2-[3-Bromo-1-(3-chloro-2-pyridinyl)-1H-pyrazol-5-yl]-3,4-dihydro-3,8-dimethyl-4-oxo-6- quinazolinecarbonitrile [IN-J9Z38], 2-[3-Bromo-1-(3-chloro-2-pyridinyl)-1Hpyrazol-5-yl]-1,4-dihydro-8-methyl-4-oxo-6-quinazoline carbonitrile [IN-MLA84], 3- Bromo-1-(3-chloro-2-pyridinyl)-N-[4-cyano-2-(hydroxymethyl)-6-[(methylamino) carbonyl]phenyl]-1H-pyrazole-5-carboxamide [IN-N7B69] and 3-Bromo-1-(3- chloro-2-pyridinyl)-N-[4-cyano-2[[(hydroxymethyl)amino]carbonyl]-6-methylphenyl]-1 H-pyrazole-5-carboxamide [IN-MYX98], expressed as cyantraniliprole.*

The residue is not fat soluble.

Table 5.9.3 Residue levels suitable for establishing maximum residue limits and for dietary intake

Commodity		Recommended maximum residue level, mg/kg		STMR or STMR-P, mg/kg
CCN	Name	New	Previous	
MO 0105	Edible offal (mammalian)	W	1.5	–
PE 0112	Eggs	W	0.3	–
PF 0111	Group of Avian fats	0.04	–	0.009
PM 0110	Group of Avian muscle	0.02	–	0.004
PO 0111	Group of avian, Edible offal	0.15	–	0.036
MO 0105	Group of Edible offal (mammalian)	1.5	–	0.38
PE 0112	Group of Eggs	0.3	–	0.048
MF 0100	Group of Mammalian fats (except milk fats)	0.5	–	0.1
ML 0106	Group of Milks	0.6	–	0.21
MM 0095	Group of Muscle (from mammals other than marine mammals)	0.2	–	0.041
MU 1100	Hops, dried	70	–	17.2
MF 0100	Mammalian fats (except milk fats)	W	0.5	–
ML 0106	Milks	W	0.6	–
MM 0095	Meat (from mammals other than marine mammals)	W	0.2	–
FI 0350	Papaya	1.5	–	0.016 (for pulp)
PF 0111	Poultry fats	W	0.04	–
PM 0110	Poultry meat	W	0.02	–
PO 0111	Poultry, edible offal	W	0.15	–
HS 0190	Spices, seeds (subgroup)	80	–	19
HH 2095	Subgroup of Herbs (herbaceous plants)	40	–	13
DH 2095	Subgroup of Dried herbs of herbaceous plants	150	–	16.65

Table 5.9.4 Residue levels for animal dietary burden calculations

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed
AL	Alfalfa, forage	0.01	0.14	35
AL	Alfalfa, hay	0.017	0.58	89
AM/AV	Almond, hulls	1.9	4.6	90
AB	Apple, pomace, wet	0.16	–	40
AF/AS	Barley, forage	0.01	0.053	30
AF/AS	Barley, hay	0.01	0.14	88
AF/AS	Barley, straw	0.01	0.14	89
AL	Bean, vines	9.58	19.07	100

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed
AM/AV	Beet, mangel, fodder	0.01	0.021	15
AM/AV	Beet, sugar, tops	0.01	0.021	23
AM/AV	Cabbage, heads, leaves	0.56	1.1	15
VR	Carrot, culls	0.01	0.014	12
VR	Cassava/tapioca, roots	0.01	0.014	37
AB	Citrus, dried pulp	0.066	–	91
AL	Clover, forage	0.01	0.14	30
AL	Clover, hay	0.017	0.58	89
CM/CF	Corn, field, aspirated grain fraction	1.76	–	85
AF/AS	Corn, field, forage/silage	0.01	0.053	40
CM/CF	Corn, field, milled by products	0.0033	–	85
AF/AS	Corn, field, stover	0.01	0.14	83
AF/AS	Corn, sweet, forage	0.01	0.053	48
AM/AV	Cotton, gin by-products	3.1	5	90
SM	Cotton, hulls	0.054	–	90
SM	Cotton, meal	0.014	–	89
AL	Cowpea, forage	0.01	0.14	30
AL	Cowpea, hay	0.017	0.58	86
AL	Crown vetch, forage	0.01	0.14	30
AL	Crown vetch, hay	0.017	0.58	90
AB	Grape, pomace, wet	2.6	–	15
AF/AS	Grass, forage (fresh)	0.01	0.053	25
AF/AS	Grass, hay	0.01	0.14	88
AM/AV	Kale, leaves	0.01	0.021	15
AL	Lespedeza, forage	0.01	0.14	22
AL	Lespedeza, hay	0.017	0.58	88
AF/AS	Millet, forage	0.01	0.053	30
AF/AS	Millet, hay	0.01	0.14	85
AF/AS	Millet, straw	0.01	0.14	90
AF/AS	Oat, forage	0.01	0.053	30
AF/AS	Oat, hay	0.01	0.14	90
AF/AS	Oat, straw	0.01	0.14	90
AL	Pea, hay	9.69	28.54	100
AL	Pea, vines	9	47.07	100
AL	Peanut, hay	0.017	0.58	85
VR	Potato, culls	0.046	0.1	20
AB	Potato, process waste	0.046	–	12
AM/AV	Rape, forage	0.01	0.021	30
GC	Rice, grain	0.01	–	88
CM/CF	Rice, hulls	0.54	–	100
AF/AS	Rice, straw	0.099	0.84	100
AF/AS	Rye, forage	0.01	0.053	30
AF/AS	Rye, straw	0.01	0.14	88
AF/AS	Sorghum, grain, forage	0.01	0.053	35
AF/AS	Sorghum, grain, stover	0.01	0.14	88
AL	Soybean, forage	15.59	45.32	100
AL	Soybean, hay	13.69	46.39	100

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed
VD	Soybean, seed	0.033	–	89
VR	Swede, roots	0.01	0.014	10
AB	Tomato, pomace, wet	0.08	–	20
AL	Trefoil, forage	0.01	0.14	30
AL	Trefoil, hay	0.017	0.58	85
AF/AS	Triticale, forage	0.01	0.053	30
AF/AS	Triticale, hay	0.01	0.14	88
AF/AS	Triticale, straw	0.01	0.14	90
VR	Turnip, roots	0.01	0.014	15
AM/AV	Turnip, tops (leaves)	0.01	0.021	30
AL	Vetch, forage	0.01	0.14	30
AL	Vetch, hay	0.017	0.58	85
AF/AS	Wheat, forage	0.01	0.053	25
AF/AS	Wheat, hay	0.01	0.14	88
AF/AS	Wheat, straw	0.01	0.14	88

Dietary risk assessment

Long-term dietary exposure

The ADI for cyantraniliprole is 0–0.03 mg/kg bw. The International Estimated Daily Intakes (IEDIs) for cyantraniliprole were estimated for the 17 GEMS/Food Consumption Cluster Diets using the STMR or STMR-P values estimated by the JMPR. The results are shown in Annex 3.

The IEDIs ranged from 5 to 50 percent of the maximum ADI. The meeting concluded that the long-term dietary exposure to residues of cyantraniliprole from uses considered by the JMPR is unlikely to present a public health concern.

Acute dietary exposure

An ARfD for cyantraniliprole is unnecessary. The meeting concluded that the acute dietary exposure to residues of cyantraniliprole from the uses considered is unlikely to present a public health concern.

5.10 Cyfluthrin (157)/Beta-Cyfluthrin (228) (R)

Residue and analytical aspects

Cyfluthrin and beta-cyfluthrin are pyrethroid insecticides and exert their effects by preventing the closure of neuronal sodium channels. Cyfluthrin was first evaluated for residues by the JMPR in 1992 and for toxicology in 2006, when an ADI and an ARfD of 0–0.04 mg/kg bw and 0.04 mg/kg bw were established. The compounds were evaluated again in 2007 and 2012 for residues only.

Cyfluthrin is a mixture of eight stereoisomeric esters and beta-cyfluthrin is an enriched isomeric form, comprising two biologically active diastereoisomeric pairs. The 2007 JMPR considered beta-cyfluthrin as a new compound, and it was evaluated together with cyfluthrin. The JMPR concluded that the health-based guidance values (HBGVs) for cyfluthrin also apply to beta-cyfluthrin. Furthermore, the meeting established residue definitions that apply to both compounds.

The residue definition for compliance with MRL and for estimating dietary intake is cyfluthrin, expressed as the sum of isomers. The residues are fat soluble.

Beta-cyfluthrin was scheduled for evaluation of additional uses by the 56th Session of the CCPR to be conducted at the 2025 JMPR. The meeting received information on analytical methods, storage stability, use patterns, supervised field trials, and residue after processing for grapes and wheat.

Methods of residue analysis

The meeting received new information on analytical methods for determining cyfluthrin in plant matrices using method 01379. Sample extraction was performed using acetone:water (2:1), followed by partitioning with dichloromethane, subsequent clean-up on magnesium silicate, and reconstitution with acetonitrile:water before LC-MS/MS analysis. The method achieved a LOQ of 0.01 mg/kg in high water, high acid, high oil, high starch, and high protein commodities. The meeting concluded that the analytical method was sufficiently validated and suitable for quantifying residues of cyfluthrin (as the sum of its isomers) in plant commodities.

Stability of residues in stored analytical samples

The meeting received new information on frozen storage stability. Cyfluthrin was stable for at least 24 months in high water, high acid, high oil, high starch, and high protein commodities. The meeting concluded that the storage-stability data sufficiently cover the maximum sample storage period in the supervised trials in grape and wheat.

Residues resulting from supervised trials on crops

Grapes

The critical GAP for beta-cyfluthrin in grapes from the United States is four foliar applications at 0.028 kg ai/ha, with a 14-day RTI and a PHI of 3 days. Eight supervised field trials on grapes were conducted in the country approximating the critical GAP.

Residues of beta-cyfluthrin as cyfluthrin in grapes were (n = 8) 0.028, 0.051, 0.077, 0.082, 0.151, 0.160, 0.194 and 0.223 mg/kg.

The meeting estimated a maximum residue level of 0.4 mg/kg, an STMR of 0.1165 mg/kg, and an HR of 0.223 mg/kg for cyfluthrin in grapes (FB 0269).

Wheat and triticale

The critical GAP for beta-cyfluthrin in barley, buckwheat, millet (pearl and proso), oat, rye, triticale, and wheat from the United States is two foliar applications at 0.021 kg ai/ha, with a 3-day RTI and a PHI of 30 days. Eight supervised field trials on wheat were conducted in the country approximating the critical GAP.

Residues of beta-cyfluthrin as cyfluthrin in wheat grain were (n = 8): <0.010 (2), 0.012, 0.013, 0.015 (2), 0.019, 0.031 mg/kg.

The meeting estimated a maximum residue level of 0.05 mg/kg and an STMR of 0.014 mg/kg for cyfluthrin in wheat (GC 0654) and decided to extrapolate this estimation to triticale (GC 0653).

Residue in processed commodities

The meeting received new information on the fate of beta-cyfluthrin residues during processing in grapes and wheat. A summary of processing factors and residue estimates is found in Table 5.10.1.

Table 5.10.1 Grape and wheat processed commodities with individual processing factors and estimated maximum residue levels of cyfluthrin

Raw commodity	Processed commodity	Individual processing factors (median)	STMR-P (mg/kg)	HR-P (mg/kg)	Estimated maximum residue level (mg/kg)
Grapes (STMR: 0.1165 mg/kg, HR: 0.223 mg/kg, MRL: 0.4 mg/kg)	Juice[a]	0.05, 0.084, 0.11, 0.17 (0.097)	0.0113	–	–
	Raisin	3.5, 3.5, 3.8, 4.0 (3.7)	0.431	0.82	1.5
	Pomace, wet	5.0, 5.1, 5.2, 6.2 (5.2)	0.606	–	15 (dw)[b]
	Must	1.2, 1.3, 1.3, 1.7 (1.3)	0.15	–	–
	Wine	0.018, 0.018, 0.024, 0.026 (0.021)	0.0024	–	–
Wheat grain (STMR: 0.014 mg/kg, HR: 0.03, MRL: 0.05 mg/kg)	Bran	0.33, 1.9 (1.11)	0.0156	–	–
	Flour (white)	0.3, 0.4 (0.35)	0.0049	–	–
	Germ	0.66, 0.88 (0.77)	0.0108	–	–
	Gluten	0.93, 2.3 (1.61)	0.023	–	0.08
	Starch	0.19, 0.22 (0.205)	0.0029	–	–
	Wholemeal flour	0.7, 0.82(0.76)	0.0106	–	–
	Wholemeal bread	0.6, 0.79 (0.695)	0.0097	–	–

Notes:

[a] Based on raw juice.

[b] Dry weight basis corrected based on 15 percent dry matter content in grape pomace wet.

Using the values of the estimated maximum residues in the corresponding raw agricultural commodities and multiplying by the median processing factors, the meeting estimated for cyfluthrin maximum residue levels of 1.5 mg/kg in grape, dried (DF 0269), of 15 mg/kg (dw) in grape pomace dried (AB 0269), and of 0.08 mg/kg in wheat gluten meal (CF 3522).

Residues in animal commodities

Livestock feeding studies

The 2007 JMPR reviewed feeding studies with cyfluthrin on lactating dairy cows and laying hens, which were used to estimate residue levels of cyfluthrin milk, eggs, and livestock tissues. The maximum and mean residues identified by the 2007 JMPR in milk, fat, and muscle following 28 daily doses of cyfluthrin corresponding to 4.5 ppm in the diet, and in liver and kidney from animals in the 40 ppm dose group, were used to estimate transfer of residues to livestock tissues and milk. The animal commodity maximum residue levels were calculated by extrapolating the maximum and mean dietary burden of 2.43 ppm and 1.22 ppm, respectively.

Farm animal dietary burdens

The dietary burdens estimated using the OECD diets listed in Appendix IX of the 2016 edition of the FAO manual (OECD 2018 feed calculator, version October 2019) are presented in Annex 5 of the 2025 JMPR Report and summarized in Table 5.10.2.

Table 5.10.2 Livestock dietary burdens to cyfluthrin (ppm diet dry matter)

Region	United States/ Canada		Europe		Australia		Japan	
	Max	Mean	Max	Mean	Max	Mean	Max	Mean
Beef cattle	1.354	1.354	0.3306	0.249	2.879[a]	1.890[c]	0.0218	0.0218
Dairy cattle	0.734	0.44	0.293	0.22	2.297[b]	1.62[d]	0.0251	0.030
Broiler poultry	0.016	0.016	0.0195	0.0195	0.0176	0.0176	0.0085	0.0085
Laying poultry	0.016	0.016	0.393[g, e]	0.225[h, f]	0.0169	0.0169	0.0149	0.0149

Notes:

[a] Highest maximum beef or dairy cattle dietary burden suitable for MRL estimates for mammalian tissues.

[b] Highest maximum dairy cattle dietary burden suitable for MRL estimates for mammalian milk.

[c] Highest mean beef or dairy cattle dietary burden suitable for STMR estimates for mammalian tissues.

[d] Highest mean dairy cattle dietary burden suitable for STMR estimates for milk.

[e] Highest maximum poultry dietary burden suitable for MRL estimates for poultry tissues.

[f] Highest mean poultry dietary burden suitable for STMR estimates for poultry tissues.

[g] Highest maximum poultry dietary burden suitable for MRL estimates for poultry eggs.

[h] Highest mean poultry dietary burden suitable for STMR estimates for poultry eggs.

Estimation of animal commodities residue levels

Cattle

Maximum and mean residues expected in milk and tissues were obtained by using the residue transfer factors estimated by the 2007 JMPR in relation to the maximum and mean dietary burdens calculated by the meeting for beef cattle (2.88 ppm /1.89 ppm) and dairy cattle (2.30 ppm / 1.62 ppm). The results are shown in Table 5.10.3.

Table 5.10.3 Maximum residue levels of cyfluthrin in cattle commodities

	Feed level (ppm) for milk residues	Residues (mg/kg) in milk	Feed level (ppm) for tissue residues	Residues (mg/kg)			
				Muscle	Liver	Kidney	Fat
HR and maximum residue level (beef or dairy cattle)							
Feeding study	4.5	0.02	4.5	<0.01			0.3
			40[a]		0.14	0.18	
Dietary burden and estimate of highest residue	2.30	0.01	2.879	<0.01	0.010	0.013	0.19
STMR (beef or dairy cattle)							
Feeding study	4.5	0.02	4.5	<0.01			0.25
			40†		0.133	0.166	
Dietary burden and estimate of the highest residue	1.62	0.007	1.89	<0.01	0.006	0.008	0.11

Note:

[a] Residue values for kidney and liver were obtained from the dosing level equivalent to 40 ppm in the feed as only these samples were subject to reanalysis using a stronger extraction process, and no residues were detected in liver or kidney in the initial extract.

The meeting estimated maximum residue levels of 0.01* mg/kg for the group of muscle (from mammals other than marine mammals), of 0.2 mg/kg for the group of mammalian fats (except milk fats), of 0.02 mg/kg for the group of edible offal (mammalian), based on kidney, and of 0.01 mg/kg for the group of milks. In addition, the meeting estimated a maximum residue level of 0.3 mg/kg for the group of milk fats, considering an average milk-fat content of 4 percent in whole milk.

The meeting withdraws its previous recommendations of 0.2 (fat) mg/kg for meat (from mammals other than marine mammals), of 0.02 mg/kg for edible offal (mammalian), and of 0.01 mg/kg for milk.

For the calculation of the dietary exposure, the meeting estimated STMR/HR values of 0.01/0.01 mg/kg for the group of muscle (from mammals other than marine mammals), of 0.11/0.19 mg/kg for the group of mammalian fats (except milk fats), of 0.006/0.01 mg/kg for liver and of 0.008/0.013 for kidney. For the group of milks, the meeting estimated an STMR of 0.007 mg/kg. Taking into account an average milk-fat content of 4 percent in whole milk, a STMR of 0.175 mg/kg was estimated for the group of milk fats.

Poultry

The highest maximum and the mean dietary burdens for poultry are 0.40 ppm and 0.23 ppm, respectively. No residues above the LOQ of the analytical method (0.01 mg/kg) used were observed in the feeding study for laying hens at the lowest dose level equivalent to 2 ppm in the diet (approximately five times higher than the maximum burden in poultry).

The meeting estimated maximum residue levels of 0.01* mg/kg for the group of avian muscle, group of avian, edible offal, group of avian fats, and group of eggs.

The meeting withdraws its previous maximum residue level recommendations of 0.01* (fat) mg/kg for poultry meat; 0.01* mg/kg for poultry, edible offal of; and 0.01* mg/kg for eggs.

For the calculation of the dietary exposure, the meeting estimated STMR/HR values of 0 for the group of avian muscle, the group of avian, edible offal, group of avian fats, and group of eggs.

Recommendations

Based on the data received from supervised trials, the meeting concluded that the residue concentrations listed in Table 5.10.4 and Annex 1 are suitable for establishing maximum residue limits and for estimation of dietary intake. Table 5.10.5 shows the commodities and their residue values for calculating livestock dietary burden.

The definition of the residue for compliance with MRL and estimation of dietary intake for plant and animal commodities is cyfluthrin (sum of isomers).

The residue is fat soluble.

Table 5.10.4 Residue levels suitable for establishing maximum residue limits and for estimation of dietary intake

Codex code	Commodity	Recommended maximum residue levels (mg/kg)		STMR (mg/kg)	HR (mg/kg)
		New	Previous		
MO 0105	Edible offal (mammalian)	W	0.02	–	–
PE 0269	Eggs	W	0.01*	0	0
FB 0269	Grapes	0.4	–	0.12	0.22
DF 0269	Grape, dried	1.5	–	0.43	0.81
JF 0269	Grape, Juice	–	–	0.011	–
–	Grape, must	–	–	0.15	–
AB0269	Grape pomace dried	15	–	–	–
PO 0111	Group of avian edible offal	0.01*	–	0	0
PF 0111	Group of avian fats	0.01*	–	0	0
PM 0110	Group of avian muscle	0.01*	–	Kidney: 0.008	Kidney: 0.013
MO 0105	Group of edible offal (mammalian)	0.02	–	Liver: 0.006	Liver: 0.01
PE 0269	Group of eggs	0.01*	–	0	0
MF 0100	Group of mammalian fats (except milk fats)	0.2	–	0.11	0.19

Codex code	Commodity	Recommended maximum residue levels (mg/kg)		STMR (mg/kg)	HR (mg/kg)
		New	Previous		
Fm0106	Group of milk fats [a]	0.3	–	0.18	–
MM 0095	Group of muscle (from mammals other than marine mammals)	0.01*	–	0.01	0.01
MM 0095	Mammalian meat (from mammals other than marine mammals)	W	0.2 (fat)	–	–
ML 0106	Group of milks	0.01	–	0.007	–
ML 0106	Milks	W	0.01	–	–
PO 0111	Poultry edible offal	W	0.01*	–	–
PM 0110	Poultry meat	W	0.01* (fat)	–	–
GC 0654	Wheat	0.05	–	0.014	–
CF 0654	Wheat, Bran	–	–	0.016	–
CF 1211	Wheat, flour	–	–	0.0049	–
CF 1210	Wheat, germ	–	–	0.011	–
CF 3522	Wheat, gluten	0.08	–	0.023	–
–	Wheat, starch	–	–	0.0029	–
CF 1212	Wheat, wholemeal bread	–	–	0.0097	–
–	Wheat, wholemeal flour	–	–	0.0106	–
GC 0653	Triticale	0.05	–	0.014	–

Note:

[a] For monitoring and regulatory purposes, whole milk is to be analysed, and the result compared to the MRL for whole milk.

Table 5.10.5 Residue levels for dietary burden calculation

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed
AB	Apple, pomace, wet	0.32	–	40
AM/AV	Cabbage, heads, leaves	0.01	0.05	15
SM	Canola, meal	0.01	–	88
AB	Citrus, dried pulp	0.318	–	91
SM	Cotton, hulls	0.19	–	90
SM	Cotton, meal	0.008	–	89
SO	Cotton, undelinted seed	0.1	–	88
AB	Grape, pomace, wet	0.606	–	15
VR	Potato, culls	0	0	20
AB	Potato, dried pulp	0	–	88
AB	Potato, process waste	0	–	12
AM/AV	Rape, forage	0.205	0.34	30
SM	Rape, meal	0.05	–	88
SM	Soybean, asp gr fn	22	–	85
AL	Soybean, forage	0.4	1	56
AL	Soybean, hay	1.15	2.2	85
SM	Soybean, hulls	0.01	–	90
SM	Soybean, meal	0.01	–	92
SM	Soybean, okara	0.01	–	92
VD	Soybean, seed	0.01	–	89
AB	Tomato, pomace,wet	0.455	–	20
GC	Triticale, grain	0.014	–	89
CM/CF	Wheat gluten, meal	0.023	–	40
CM/CF	Wheat, asp gr fn	0.014	–	85

GC	Wheat, grain	0.014	–	89
CM/CF	Wheat, milled bypdts	0.014	–	88

Dietary risk assessment

Long-term dietary exposure

The ADI for cyfluthrin is 0–0.04 mg/kg bw. The IEDIs for cyfluthrin were estimated for the 17 GEMS/Food Consumption Cluster Diets using the STMR or STMR-P values estimated by the JMPR. The results are shown in Annex 3.

The IEDIs ranged from 0 to 3 percent of the maximum ADI. The meeting concluded that long-term dietary exposure to residues of cyfluthrin from uses considered by the JMPR is unlikely to present a public health concern.

Acute dietary exposure

The ARfD for cyfluthrin is 0.04 mg/kg bw. The International Estimate of Short-Term Intakes (IESTIs) for cyfluthrin were calculated for all commodities and their processed foods for which STMRs and STMR-Ps were estimated by the current meeting. The results are shown in Annex 4.

The IESTIs varied from 40 percent of the ARfD for children and 20 percent of the ARfD for the general population. The meeting concluded that acute dietary exposure to residues of cyfluthrin from uses considered by the present meeting is unlikely to present a public health concern.

5.11 Cyprodinil (207) (T, R)

Toxicology

Cyprodinil is the common name approved by the International Organization for Standardization (ISO) for 4-cyclopropyl-6-methyl-*N*-phenylpyrimidin-2-amine (International Union of Pure and Applied Chemistry [IUPAC]), for which the Chemical Abstracts Service (CAS) number is 121552-61-21.

Cyprodinil was evaluated by the Joint FAO/WHO meeting on Pesticide Residues (JMPR) in 2003 and 2019. In 2003 an acceptable daily intake (ADI) of 0–0.03 mg/kg bw was established. The meeting concluded that it was not necessary to establish an acute reference dose (ARfD) for cyprodinil. In a follow-up evaluation in 2019, the meeting confirmed the conclusions from the 2003 JMPR. Cyprodinil is a systemic fungicide that acts by inhibiting the biosynthesis of methionine.

Cyprodinil was placed on the agenda of the present meeting at the request of the Codex Committee on Pesticide Residues (CCPR) for additional maximum residue limits (MRLs) on mango and papaya. For the present meeting, one study on reproductive toxicity and four studies on the endocrine-disrupting potential of cyprodinil were submitted. In addition, five genotoxicity studies with the metabolites CGA321185, CGA232449 and NOA422054 of cyprodinil were submitted. The studies with the parent compound cyprodinil were assessed, and it was concluded that they would not affect the current ADI and ARfD. These studies will be reviewed as part of a periodic re-evaluation in the future.

As the studies on the genotoxic potential of the metabolites may support the establishment of new MRLs, these studies were evaluated, and a monograph addendum was prepared.

All critical studies contained statements of compliance with good laboratory practice (GLP) and were conducted in accordance with relevant national or international test guidelines.

The metabolites CGA321185 and CGA232449 showed negative results in gene mutation and micronucleus assays *in vitro*. The metabolite NOA422054 was negative in the gene mutation assay in V79 cells at the HPRT locus. In the 2019 JMPR evaluation, NOA422054 was shown to be negative in a gene mutation assay in Chinese hamster lung cells and an *in vitro* micronucleus test using human lymphocytes.

It was concluded that the metabolites CGA321185, CGA232449 and NOA422054 of cyprodinil are unlikely to be genotoxic.

The meeting concluded that the threshold of toxicological concern (TTC) Cramer class III approach for chronic exposure (1.5 µg/kg bw per day) and for acute exposure (5 µg/kg bw) should be considered in the dietary risk assessment, if necessary.

A toxicological monograph addendum was prepared.

Table 5.11.1 Critical end-points for setting guidance values for exposure to cyprodinil

Studies on toxicologically relevant metabolites	
CGA321185	Not genotoxic (Ames, micronucleus *in vitro*)
CGA232449	Not genotoxic (Ames, micronucleus *in vitro*)
NOA422054	Not genotoxic (gene mutation in mammalian cell, micronucleus *in vitro*)

Residue and analytical aspects

Cyprodinil is a broad-spectrum fungicide belonging to the anilinopyridine group used to control a range of pathogens including *Tapesia yallundae*, *Botrytis spp.*, *Alternaria spp.*, and *Rhynchospium secalis*. Cyprodinil was first evaluated by the JMPR in 2003 when an ADI of 0–0.03 mg/kg bw was established and an ARfD was considered unnecessary. Cyprodinil was evaluated for additional residues in 2013, 2017, 2018, 2019, and 2021 and for toxicology in 2019. The 2025 meeting reaffirmed the established ADI and confirmed that an ARfD was unnecessary.

Definition of the residue for compliance with MRL and for estimation of dietary intake for plant and animal commodities is cyprodinil. The residue is fat soluble.

Cyprodinil was scheduled at the 55th Session of the CCPR for evaluation of additional uses by the 2025 JMPR. The meeting received new information on analytical methods, use patterns, and supervised field trials in mango and papaya.

Methods of residue analysis

The 2025 meeting received additional method validation data based for the method GRM010.02A, which was previously evaluated by the 2017 JMPR. The LOQ was 0.01 mg/kg for both mango and papaya.

The meeting concluded that the methods were sufficiently validated and are suitable to measure residues of cyprodinil in mango and papaya.

Stability of pesticides in stored samples

The stability of residues of cyprodinil in stored frozen samples was evaluated by the 2003, 2013, 2015, and 2017 JMPR. Stability for at least 2 years has been demonstrated for high-water, high-starch, and high-acid commodities and for at least 9 months in high-oil commodities.

The meeting concluded that the storage stability data previously evaluated by the JMPR is sufficient to cover the maximum storage period for residues in supervised field trials provided to the meeting.

Results of supervised residue trials on crops

Mango

The critical GAP for cyprodinil in mango in Brazil is four foliar applications at 563 g ai/ha with a retreatment interval (RTI) of 14 days and a preharvest interval (PHI) of 7 days.

Five supervised field trials on mango fruit were conducted in Brazil in 2002 approximating the critical GAP. Residues of cyprodinil in mango (whole fruit without stone), reconstituted from residues in pulp and peel, were (n = 5): 0.10, 0.15, 0.19, 0.27 and 0.29 mg/kg. Residues of cyprodinil in mango pulp were (n = 5): <0.01(2), 0.01, 0.02(2).

The meeting estimated a maximum residue level of 0.6 mg/kg (whole fruit) and an STMR of 0.01 mg/kg (mango pulp) for cyprodinil in mango (FI 0345).

Papaya

The critical GAP for cyprodinil in papaya in Brazil is four foliar applications at 563 g ai/ha with a RTI of 14 days and a PHI of 7 days.

Five supervised field trials on papaya fruit were conducted in Brazil in 2002 approximating the critical GAP. Residues of cyprodinil in papaya (whole fruit with seeds), reconstituted from residues in pulp and peel, were (n = 5): 0.02, 0.04, 0.08, 0.09, and 0.25 mg/kg. Residues of cyprodinil in papaya pulp were (n = 5): <0.01, 0.01, 0.02 (2), and 0.04 mg/kg.

The meeting estimated a maximum residue level of 0.5 mg/kg (whole fruit) and an STMR of 0.02 mg/kg (papaya pulp) for cyprodinil in papaya (FI 0350).

Residues in animal commodities

Farm animal dietary burdens

Mango and papaya are not livestock feed commodities, however, the meeting recalculated estimated residues for cattle and poultry commodities at the request of CCPR. The potential dietary burdens of cyprodinil in livestock diets were calculated from the highest and median residue levels of animal feeds, using OECD diets listed in Appendix IX of the 2016 edition of the FAO manual (OECD 2018 feed calculator, version October 2019). Calculations were made of maximum dietary burdens for each geographic region (Europe, North America and Canada, Australia and Japan) and for beef and dairy cattle, laying hens and broiler hens.

Of the crops considered by the previous JMPR, bean and pea vines, dry bean and pea seeds, and bean and pea hay and straw may form part of livestock diets, however, the critical GAP was for protected legume crops. As such, these commodities are unlikely to be grazed or hay/straw fed to livestock. Therefore, the meeting decided not to include these in the animal dietary burdens. The meeting confirmed this approach.

Dietary burdens for cyprodinil are presented in Annex 5 and summarized in Table 5.11.2.

Table 5.11.2 Livestock dietary burdens to cyprodinil (ppm)

	United States/Canada		European Union		Australia		Japan	
	Max	Mean	Max	Mean	Max	Mean	Max	Mean
Beef cattle	1.113	0.499	14.89	1.934[b]	13.76	8.976	0.702	0.702
Dairy cattle	2.327	1.042	14.50	1.529	32.43[a]	9.699[c]	0.385	0.385
Poultry – broiler	0.690	0.690	1.371	0.700	0.204	0.204	0.110	0.110
Poultry – layer	0.554	0.554	2.107[d]	0.756[e]	0.204	0.204	0.184	0.184

Notes:

[a] Highest maximum beef or dairy cattle dietary burden used for mammalian milk and tissue MRL calculations.

[b] Highest mean beef or dairy cattle dietary burden used for mammalian tissue STMR estimates.

[c] Highest mean dairy cattle dietary burden used for mammalian milk STMR estimates.

[d] Highest maximum poultry dietary burden used for poultry tissue and egg MRL calculations.

[e] Highest mean poultry dietary burden used for poultry tissue and egg STMR estimates.

The 2015 JMPR estimated maximum residue levels and STMR for poultry and ruminant commodities. The current meeting concluded that while the animal dietary burden changed since that time, residues of cyprodinil were below the LOQ (0.01 mg/kg) in the milk, kidney or fat of cows from the highest dose group (50 ppm), any im muscle from any group. Cyprodinil was present in liver (highest residue 0.013 mg/kg, median residue of 0.011 mg/kg) from the highest dose group only.

Furthermore, the meeting noted that in the metabolism studies on laying hens cyprodinil was not detected in the tissues (except in kidney at 0.001 mg/kg) even at the high feeding levels of 215 and 226 ppm and, as such, the meeting agreed that the expected level of cyprodinil residues in poultry tissues and eggs is negligible.

The meeting concluded that no quantitative changes are necessary in the maximum residue levels and STMRs for poultry and ruminant commodities other mammalian edible offal. However, new estimations were made according to the new Codex classification for animal commodities.

As cyprodinil is fat soluble, previous recommendations for residues in muscle were made on the basis of residues in the fat. The current meeting used evaluations of residues in muscle made by previous meetings to make estimations in muscle and fat, separately.

The meeting withdrew its previous maximum residue level recommendations for milk, meat (from mammals other than marine mammals), edible offal (mammalian), poultry meat, poultry edible offal, and eggs.

The meeting estimated a maximum residue level of 0.01* mg/kg for group of muscle (from mammals other than marine mammals) and the group of mammalian fats (except milk fats). The meeting also estimated a STMR of 0 mg/kg for all groups.

The meeting estimated a maximum residue level of 0.02 mg/kg and a STMR of 0.011 mg/kg for the group of edible offal (mammalian).

The meeting estimated a maximum residue level of 0.02* mg/kg for group of milks, and of 0.02* mg/kg for group of milk fats. The meeting also estimated a STMR of 0 mg/kg for all groups.

The meeting estimated a maximum residue level of 0.01* mg/kg for the group of avian muscle, group of avian fats, group of avian edible offal, and group of eggs. The meeting also estimated a STMR of 0 mg/kg for all groups.

Recommendations

On the basis of the data from supervised trials, the meeting concluded that the residue concentrations listed in Table 5.11.3 and Annex 1 are suitable for establishing maximum residue limits and for estimation of dietary intake. Table 5.11.4 shows the commodities and residues used in dietary burden calculation.

Definition of the residue for compliance with the MRL and dietary risk assessment for plant and animal commodities: cyprodinil.

The residue is fat soluble.

Table 5.11.3 Residue levels suitable for establishing maximum residue limits and for dietary exposure assessments

CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P mg/kg
		New	Previous	
MO 0105	Edible offal (Mammalian)	W	0.01*	–
PE 0112	Eggs	W	0.01*	–
PO 0111	Group of avian, edible offal of	0.01*	–	0
PF 0111	Group of avian fats	0.01*	–	0
PM 0110	Group of avian muscle	0.01*	–	0
MO 0105	Group of edible offal (Mammalian)	0.02	–	0.011
PE 0112	Group of eggs	0.01*	–	0
MF 0100	Group of mammalian fats (except milk fats)	0.01*	–	0
FM 0106	Group of milk fats [a]	0.01*	–	0
ML 0106	Group of milks	0.02*	–	0
MM 0095	Group of muscle (from mammals other than marine mammals)	0.01*	–	0
ML 0106	Milk	W	0.0004*	–
FI 0345	Mango	0.6	–	0.01 (pulp)
MM 0095	Meat (from mammals other than marine mammals)	W	0.01*	–
FI 0350	Papaya	0.5	–	0.02 (pulp)
PO 0111	Poultry edible offal	W	0.01*	–
PM 0110	Poultry meat	W	0.01*	–

Notes:

[a] For monitoring and regulatory purposes, whole milk is to be analysed, and the result compared to the MRL for whole milk.

Table 5.11.4 Residue levels used for animal dietary burden calculation

Codex group	Feed commodity	Median or STMR(-P) (mg/kg)	Highest or HR(-P) (mg/kg)	% DM assumed
AM/AV	Almond, hulls	0.05	–	90
AB	Apple, pomace, wet	1.8	–	40
CM/CF	Barley, bran fractions	1.74	–	90
GC	Barley, grain	0.58	–	88
AF/AS	Barley, straw	0.395	5.8	89
AM/AV	Cabbage, heads, leaves	0.03	0.36	15
VR	Carrot, culls	0.195	1	12
AB	Grape, pomace, wet	42	–	100
AM/AV	Kale, leaves	0.37	8	15
VR	Potato, culls	0.01	0.01	20
SM	Rape, meal	0.02	–	88
SM	Soybean, asp gr fn	0.085	–	85
SM	Soybean, hulls	0.085	–	90
SM	Soybean, meal	0.085	–	92
SM	Soybean, okara	0.085	–	92
VD	Soybean, seed	0.085	–	89
AB	Tomato, pomace,wet	0.13	–	20
GC	Triticale, grain	0.07	–	89
AF/AS	Triticale, straw	0.395	5.8	90
CM/CF	Wheat gluten, meal	0.21	–	40
CM/CF	Wheat, asp gr fn	0.21	–	85
GC	Wheat, grain	0.07	–	89
CM/CF	Wheat, milled bypdts	0.21	–	88
AF/AS	Wheat, straw	0.395	5.8	88

Dietary risk assessment

Long-term dietary exposure

The ADI for cyprodinil is 0–0.03 mg/kg bw. The IEDIs for cyprodinil were estimated for the 17 GEMS/Food Consumption Cluster Diets using the STMR or STMR-P values estimated by the JMPR. The results are shown in Annex 3.

The IEDIs ranged from 8 to 80 percent of the maximum ADI. The meeting concluded that long-term dietary exposure to residues of cyfluthrin from uses considered by the JMPR is unlikely to present a public health concern.

Acute dietary exposure

An ARfD for cyprodinil is unnecessary. Therefore, the meeting concluded that the acute dietary exposure to residues of cyprodinil from the uses considered is unlikely to present a public health concern.

5.12 Difenoconazole (224) (R)

Residue and analytical aspects

Difenoconazole is a systemic triazole fungicide and acts by inhibition of demethylation during ergosterol synthesis. It is applied by foliar spray or seed treatment and controls a broad spectrum of foliar, seed and soil-borne diseases caused by Ascomycetes, Basidiomycetes, and Deuteromycetes, on a variety of crops. Difenoconazole was evaluated by the JMPR for the first time in 2007 when an ADI of 0–0.01 mg/kg bw and an ARfD of 0.3 mg/kg bw were established. In 2007, 2010, 2013, 2015, 2017, 2021, 2022 and 2023 the JMPR evaluated for residues only.

The definition of the residue for compliance with MRL and for estimation of dietary intake for plant commodities: difenoconazole.

The definition of the residue for compliance with MRL and for estimation of dietary intake for animal commodities: sum of difenoconazole and 1-[2-chloro-4-(4-chloro-phenoxy)-phenyl]-2-(1,2,4-triazol)-1-yl-ethanol (CGA205375), expressed as difenoconazole. The residue is fat soluble.

The 36th Session of the CCPR decided to schedule the JMPR to review the monitoring data available for the elaboration of MRLs on spices for pesticides already in the Codex system. The Committee also recommended that governments and the spice trade industry continue to collect monitoring data for pesticides on spices on a regular basis, following agreed criteria and other JMPR guidelines on the conduct of selective surveys, in order to keep the database updated for future review.

General principles for the evaluation of monitoring data for recommending maximum residue levels, medium and high residues for spices were developed by the JMPR in 2004.

The 55th Session of the CCPR scheduled the evaluation of monitoring data in support of maximum residue levels in spices by the 2025 JMPR.

Principles of evaluation of residues derived from monitoring programmes

- It is assumed that the laboratories reported only valid results. Therefore, all residue data are taken into account without excluding any values as outliers.
- When residues were reported as <LOQ it does not necessarily mean that the sampled commodity was not treated with or exposed to the pesticide. While it is unlikely that all the samples will have been treated with the pesticides looked for within the monitoring data, it cannot be assumed that a residue reported as <LOQ is a “nil” residue situation.
- Distribution free statistics were used to estimate the maximum residue level, covering the 95th percentile of the residue population at the 95th confidence level. Thus, the estimated maximum residue level encompasses at least 95 percent of the residues with 95 percent probability (in 95 percent of cases). To satisfy this requirement, a minimum of 58–59 samples are required. In such cases the uncertainty derived from the limited number of data points are taken into account in recommending the maximum residue level.

- When there are >120 samples containing detected residues, the sample size is sufficiently large to calculate the upper 95 percent one tailed confidence limit of the 95th percentile of the population of residues, which can therefore be used to estimate the maximum residue level after rounding up to the next value of the scale of expressing residues according to the OECD MRL calculator.
- Monitoring results are not used for estimating maximum residue levels that reflect post-harvest uses.

Agricultural practices

Cumin seeds are grown throughout India and are susceptible to a number of pests and diseases. No information was provided on registered uses of difenoconazole on cumin seed.

Sampling and residue analysis

The residues determined in cumin seed comply with the residue definitions outlined previously for difenoconazole.

India submitted monitoring data for difenoconazole residues in cumin seed. Samples were collected from market and retail outlets.

The residues were extracted from the cumin seeds using acetonitrile and water; the phases were partitioned with salts and the organic phase was collected. The extracts were purified with final identification and quantification by GC-MS/MS or LC-MS/MS. The recovery data were acceptable and the supported LOQ was 0.1 mg/kg.

A total of 1319 cumin samples were analysed for residues of difenoconazole. Of the 1319 samples analysed, 92 were found to contain residues of difenoconazole above 0.1 mg/kg. In rank order, the residues were: 0.11 (12), 0.12 (9), 0.13 (10), 0.14 (6), 0.15 (7), 0.16 (4), 0.17 (5), 0.18 (2), 0.19 (2), 0.20 (2), 0.21, 0.23 (2), 0.24 (4), 0.28, 0.29 (2), 0.30 (2), 0.31 (2), 0.32 (2), 0.38, 0.39, 0.42, 0.45, 0.48, 0.50, 0.60, 0.68, 0.82, 0.83, 0.84, 0.85, 0.87, 1.04, 1.11, 1.74, 1.89 mg/kg.

Less than 120 samples contained detected residues and the upper 95 percent one tailed confidence limit of the 95th percentile cannot be estimated. The data are sufficient to estimate the 95th percentile at the 95th confidence interval, which is 0.859 mg/kg.

The meeting estimated a maximum residue level of 0.9 mg/kg, a STMR of 0.16 mg/kg, and an HR of 0.86 mg/kg; this correlates with a compliance rate of 99.7 percent. Any of the commodities included in the Subgroup spices, seeds, can be regarded as a representative commodity. The meeting therefore agreed to extrapolate the estimates to the Subgroup of spices, seeds.

Recommendations

On the basis of the monitoring data submitted the meeting concluded that the residue levels listed in Table 5.12.1 and Annex 1 are appropriate for establishing maximum residue levels and for estimation of dietary intake.

Definition of the residue for compliance with the MRL and for estimation of dietary intake for plant commodities: *difenoconazole.*

Definition of the residue for compliance with the MRL and for estimation of dietary intake for animal commodities: *sum of difenoconazole and 1-[2-chloro-4-(4-chloro-phenoxy)-phenyl]-2-(1,2,4-triazol)-1-yl-ethanol (CGA205375), expressed as difenoconazole.*

The residue is fat soluble.

Table 5.12.1 Residue levels of difenoconazole suitable for establishing maximum residue limits and for estimation of dietary intake

CCN	Commodity name	Recommended maximum residue level, mg/kg		STMR or STMR-P, mg/kg	HR or HR-P, mg/kg
		New	Previous		
HS 0190	Subgroup of spices, seeds	0.9	–	0.16	0.86C

Dietary risk assessment

Long-term dietary exposure

The ADI for difenoconazole is 0–0.01 mg/kg bw/day. The International Estimated Daily Intakes (IEDIs) for difenoconazole were estimated for the 17 GEMS/Food Consumption Cluster Diets using the STMR or STMR-P values estimated by the JMPR. The results are shown in Annex 3.

The IEDIs ranged from 10 to 100 percent of the maximum ADI. The meeting concluded that long-term dietary exposure to residues of difenoconazole from the use on seed spices does not affect the previous conclusion that it is unlikely to present a public health concern.

Acute dietary exposure

The ARfD for difenoconazole is 0.3 mg/kg bw. The International Estimate of Short Term Intakes (IESTIs) for difenoconazole were calculated for the Subgroup of spices for which STMR was estimated by the current meeting. The results are shown in Annex 4.

The IESTI was 0 percent the ARfD for children and 0 percent for the general population. The meeting concluded that acute dietary exposure to residues of difenoconazole from uses considered by the current meeting is unlikely to present a public health concern.

5.13 Dimethoate (27) (T)

Toxicology

Following discussion by the Codex Committee on Pesticide Residues (CCPR) on the possibility of extending the maximum residue limits (MRLs) for dimethoate, the sponsor indicated that new toxicological information was available for review in relation to possible refinement of the dietary risk assessment. Subsequently, CCPR referred the matter to JMPR for further consideration.

A summary report on physiologically based pharmacokinetic (PBPK) modelling to support the use of chemical-specific adjustment factors for dimethoate was submitted by the sponsor for assessment by the JMPR. The Joint FAO/WHO Meeting on Pesticide Residues concluded that the arguments presented were insufficiently robust due to concerns related to data quality. The Joint FAO/WHO Meeting on Pesticide Residues also noted concerns about applying a PBPK model to dimethoate, since this model was originally developed and validated for chlorpyrifos, but lacked sufficient chemical-specific validation for application to dimethoate.

JMPR notes that flow-limited PBPK models of the same general structure have been widely, and validly, used for a range of chemicals. However, without adequate chemical-specific validation, the results of such models are often highly uncertain. This uncertainty does not allow a suitable justification for the derivation of chemical-specific adjustment factors for dimethoate at this time.

5.14 Dimpropyridaz (344) (T, R)*

Toxicology

Dimpropyridaz is the common name approved by the International Organization for Standardization (ISO) for N-ethyl-5-methyl-1-[(2*RS*)-3-methylbutan-2-yl]-*N*-(pyridazin-4-yl)-1H-pyrazole-4-carboxamide (International Union of Pure and Applied Chemistry [IUPAC]), for which the Chemical Abstracts Service (CAS) number is 1403615-77-9. Dimpropyridaz is a pyrazole carboxamide insecticide which acts on chordotonal organs, which are important mechanosensors in insects.

Dimpropyridaz has not previously been evaluated by the Joint FAO/WHO Meeting on Pesticide Residues (JMPR) and was reviewed by the present meeting at the request of the Codex Committee on Pesticide Residues (CCPR). All critical studies contained statements of compliance with good laboratory practice (GLP) and were conducted in accordance with internationally recognized test guidelines, unless otherwise specified. No additional information from a literature search was identified that complemented the toxicological information submitted for the current assessment.

Dimpropyridaz exists as a stereoisomer. There is no evidence for a preferred metabolization of one parent stereoisomer. Throughout the toxicological evaluation of this compound, qualitative and quantitative differences depending on the ratio were not identified toxicologically.

Biochemical aspects

In the toxicokinetic studies, dimpropyridaz was absorbed rapidly and reached maximum plasma concentrations between one and two hours after dosing. Absorption of dimpropyridaz ranged from 83 to 91 percent of the applied dose, and it was independent of label, dose and gender. Dimpropyridaz was widely distributed between tissues and organs in both pyridazine and pyrazole radiolabels, with higher distribution in the liver, kidney and thyroid than in other organs. The main metabolites of dimpropyridaz identified in urine, bile, liver or kidney were M550I015 and its precursor M550I002. Metabolite M550I004 was also considered to be a major metabolite due to the identification of close to 10 percent of the administered dose (AD) of dimpropyridaz in urine at low doses and more than 10 percent of AD at high doses. Minor amounts were detected as mono- or dihydroxylated parent compound with or without initial cleavage of the ethyl group. Similar in urine, faeces and bile, sulfate-conjugated metabolites were predominantly recovered in samples from female rats. Dimpropyridaz was rapidly and extensively metabolized through the following biotransformation steps: mono- or dihydroxylation followed by oxidation or conjugation (sulfate or glucuronic acid), dealkylation, cleavage of the carboxamide bridge between the pyrazole and the pyridazine moieties causing the formation of M550I010 (with pyridazine label) and M550I006 (with pyrazole label) and cleavage of the isopentyl moiety. No unique human metabolite was detected based on the results of comparative *in vitro* metabolism investigations in human, rat, rabbit and mouse primary hepatocyte cultures. Dimpropyridaz was excreted rapidly, with most of the radiolabelled dimpropyridaz excreted within 48 hours. There was no evidence of tissue accumulation.

Toxicological data

The acute oral median lethal dose (LD_{50}) for dimpropyridaz was between 300 and 500 mg/kg bw and the dermal LD_{50} was greater than 2000 mg/kg bw. The inhalation median lethal concentration (LC_{50}) of dimpropyridaz was greater than 5.6 mg/L. Dimpropyridaz was not irritating to rabbit skin, and showed a slight irritating effect on rabbit eyes. Dimpropyridaz was not skin sensitizing in the Guinea pig maximization test.

In repeated-dose toxicity studies in mice, rats and rabbits, the main toxic effects were on decreased body weights and food intakes, in rodents also on liver and on kidney in dogs.

In a 90-day dietary toxicity study in mice, dimpropyridaz was administered at dietary concentrations of 0, 300, 1000 or 5000 ppm (equal to 0, 68, 250 and 1301 mg/kg bw per day for males, and 0, 97, 312, and 1641 mg/kg bw per day for females) for 90 days. The no-observed-adverse-effect level (NOAEL) was 300 ppm, (equal to 68 mg/kg bw per day) based on the decreased body weights and reduced overall body weight gains in males at 1000 ppm (equal to 250 mg/kg bw per day).

In a 90-day oral toxicity study in rats, dimpropyridaz was administered at dietary concentrations of 0, 250, 1000, 4000 or 9000 ppm (equal to 0, 17 and 72 mg/kg bw per day and estimated because of food spillage as 270 and 607 mg/kg bw per day for males, equal to 0, 19, 80; estimated because of food spillage as 310 and 699 mg/kg bw per day for females). The NOAEL was 1000 ppm (equal to 80 mg/kg bw per day), based on liver hypertrophy and increased alkaline phosphatase and triglyceride levels in females at 4000 ppm (estimated as 310 mg/kg bw per day).

In a 90-day oral toxicity study in dogs, dimpropyridaz was administered by capsule at doses of 0, 10, 30, or 90 mg/kg bw per day. The NOAEL was 30 mg/kg bw per day based on effects on the kidney observed in blood biochemistry and urinalysis in males at 90 mg/kg bw per day.

In a carcinogenicity study in mice, dimpropyridaz was administered at dietary concentrations of 0, 150, 750, 2500 or 5000 ppm (equal to 0, 21, 121, 429 and 855 mg/kg bw per day for males, and 0, 24, 141, 499 and 977 mg/kg bw per day for females) for 18 months. The NOAEL for toxicity was 750 ppm (equal to 121 mg/kg bw per day) based on decreased body weights in both sexes and increased incidence of oval cell hyperplasia in the liver in females at 2500 ppm (equal to 429 mg/kg bw per day). The NOAEL for carcinogenicity was 5000 ppm (equal to 855 mg/kg bw per day), the highest dose tested.

In a combined chronic toxicity and carcinogenicity study in rats, dimpropyridaz was administered for 24 months at dietary concentrations of 0, 70, 350, 1400 and 4000 ppm (equal to 0, 2.9, 15 mg/kg bw per day and estimated because of food spillage as 62 and 178 mg/kg bw per day for males and equal to 0, 3.8, 21 mg/kg bw per day and estimated because of food spillage as 88 and 250 mg/kg bw per day for females) for 24 months. The NOAEL for systemic toxicity over long-term treatment was 350 ppm (equal to 21 mg/kg bw per day), based on the decreased body weights in females at 1400 ppm (estimated as 88 mg/kg bw per day). The NOAEL for carcinogenicity was 4000 ppm (estimated as 178 mg/kg bw per day), the highest dose tested.

The meeting concluded that dimpropyridaz is not carcinogenic in mice or rats.

Dampropyridaz was tested for genotoxicity in an adequate range of studies. No evidence of genotoxicity was found.

The meeting concluded that dimpropyridaz is unlikely to be genotoxic.

In view of the lack of genotoxicity and the absence of carcinogenicity in mice and rats, the meeting concluded that dimpropyridaz is unlikely to pose a carcinogenic risk to humans.

In a two-generation reproductive toxicity study in rats, dimpropyridaz was administered at dietary doses of 0, 20, 60 or 200 mg/kg bw per day. The NOAEL for parental toxicity was 60 mg/kg bw per day, based on decreased body weights (both sexes), reduced body weight gains (both sexes), and decreased food and water intake (females) at 200 mg/kg bw per day. The NOAEL for reproductive and offspring toxicity was 200 mg/kg bw per day, the highest dose tested.

In a developmental toxicity study in rats, dimpropyridaz was administered by gavage at dose levels of 0, 20, 60, or 200 mg/kg bw per day from gestation day (GD) 6 to 19. The NOAEL for maternal and embryo/fetal toxicity was 200 mg/kg bw per day, the highest dose tested.

In a developmental toxicity study in rabbits, dimpropyridaz was administered by gavage at dose levels of 0, 15, 50 or 150 mg/kg bw per day from GD 6 to 28. The NOAEL for maternal toxicity was 50 mg/kg bw per day based on reduced body weight gains, and reduced food and water consumption at 150 mg/kg bw per day. The NOAEL for embryo/fetal toxicity was 150 mg/kg bw per day, the highest dose tested.

The meeting concluded that dimpropyridaz is not a developmental toxicant.

In an acute oral neurotoxicity study in rats, dimpropyridaz was administered by gavage at dose levels of 0, 120, 400, or 1200 mg/kg bw, in males and 0, 40, 120, 400 mg/kg bw in females. The NOAEL for systemic toxicity was 120 mg/kg bw, based on non-specific clinical signs and changes in motor activity and rearing on the first day in females at 400 mg/kg bw. The NOAEL for acute neurotoxicity was 400 mg/kg bw per day, the highest dose tested in females.

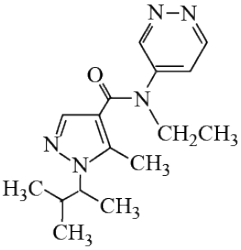
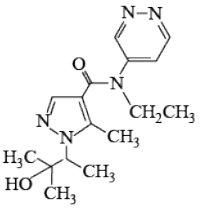
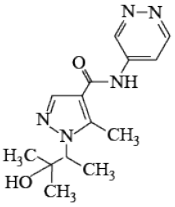
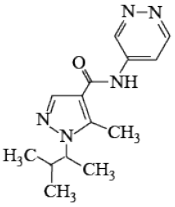
No signs of neurotoxicity were seen in any of the routine repeat-dose toxicological studies. The meeting concluded that dimpropyridaz is not neurotoxic.

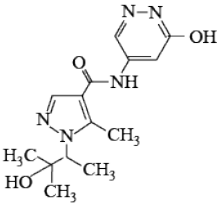
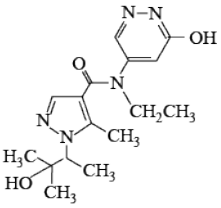
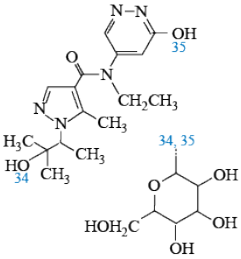
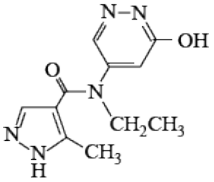
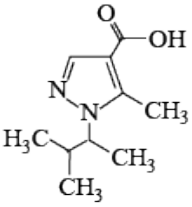
No specific data were submitted for immunotoxicity, but no evidence of immunotoxicity was reported in routine toxicological studies with dimpropyridaz. The meeting concluded that dimpropyridaz is unlikely to be immunotoxic.

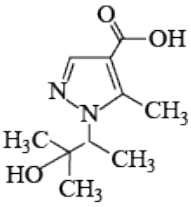
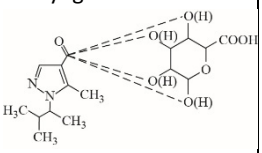
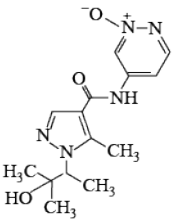
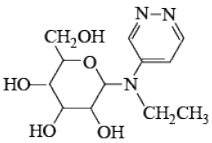
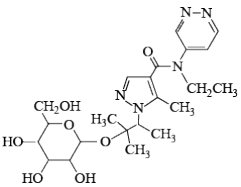
Toxicological data on metabolites and/or degradates

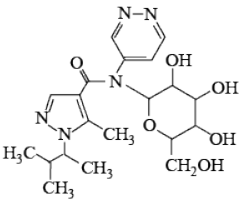
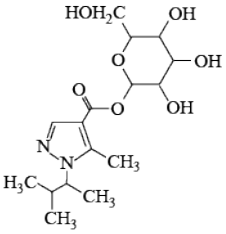
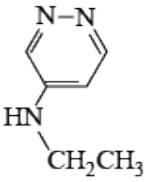
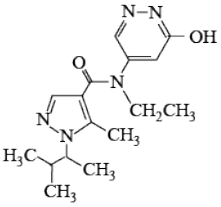
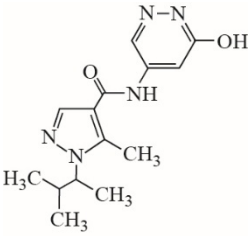
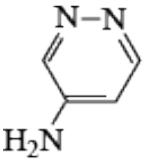
A toxicological evaluation of the following metabolites was performed. The following table shows an overall summary of the toxicological characterization of the plant/livestock metabolites for potential inclusion in the residue definition.

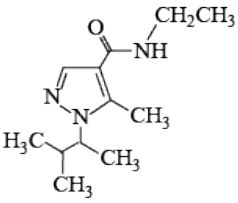
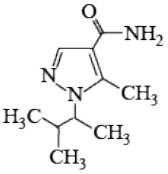
Table 5.14.1 Summary overview of toxicological characterization of plant/livestock metabolites of dimpropyridaz

Compound code (other names) and structure	Major rat metabolite (>10% AD)	Genotoxicity assessment (data, QSAR, read-across)	General toxicity	Reference value for dietary risk assessment
Dimpropyridaz BAS 550 I Reg. No.5845955 	Parent	Not genotoxic by data and QSAR	Full dataset	ADI: 0–0.2 mg/kg bw ARfD: 1 mg/kg bw
Metabolites categorized as major metabolites in plants and livestock*				
M550I004 	Yes	Not mutagenic (covered by parent and QSAR)	Covered by parent	Parent’s HBGVs
M550I015 Reg. No.5933696 	Yes	Not mutagenic (covered by parent and QSAR)	Covered by parent	Parent's HBGVs
M550I002 Reg. No.5845952 	Yes Precursor of M550I015	Not mutagenic (covered by parent and QSAR)	Covered by parent	Parent's HBGVs

Compound code (other names) and structure	Major rat metabolite (>10% AD)	Genotoxicity assessment (data, QSAR, read-across)	General toxicity	Reference value for dietary risk assessment
M550I014 Reg. No.6127201 	No	Not mutagenic (QSAR)	Covered by M550I015 based on structural similarity	Parent's HBGVs
M550I005 Reg. No.6056644 	No	Not mutagenic (data and QSAR)	NOAEL of 1054 mg/kg bw per day (highest dose tested) at 28-day rat dietary study	No toxicological concern
M550I049 	No	Not mutagenic (cleaved to M550I005)	Not toxic (cleaved to M550I005)	No toxicological concern
M550I009 Reg. No.6058328 	No	Not mutagenic (data and QSAR)	NOAEL of 1027 mg/kg bw per day (highest dose tested) at 28-day rat dietary study	No toxicological concern
M550I006 Reg. No.5956504 	No	Not mutagenic (data and QSAR)	Similar toxicity to the parent based on 28-day rat dietary study	Parent's HBGVs

Compound code (other names) and structure	Major rat metabolite (>10% AD)	Genotoxicity assessment (data, QSAR, read-across)	General toxicity	Reference value for dietary risk assessment
M550I051 Reg. No.6125508 	No	Not mutagenic (QSAR)	Based on structural similarity to M550I006	Parent's HBGVs
M550I052 O-acyl-glucuronide 	No	Not mutagenic (cleaved to M550I006 and QSAR)	Based on structural similarity to M550I006	Parent's HBGVs
M550I028 Reg. No.6123132 	No	Not mutagenic (QSAR)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
M550I042 N-glycoside 	No	Not mutagenic (cleaved to M550I040)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
Metabolites categorized as minor metabolites in plants/livestock*				
M550I048 	No	Not mutagenic (cleaved to M550I004, which is a major rat metabolite)	Covered by parent (cleaved to M550I004)	NA

Compound code (other names) and structure	Major rat metabolite (>10% AD)	Genotoxicity assessment (data, QSAR, read-across)	General toxicity	Reference value for dietary risk assessment
M550I050 	No	Not mutagenic (cleaved to M550I002)	Covered by parent (cleaved to M550I002)	NA
M550I043 	No	Not mutagenic (cleaved to M550I006)	Read-across to M550I006	NA
M550I040 Reg. No.5960609 	No	Not mutagenic (data and QSAR)	No information	NA
M550I001 	No	Not mutagenic (QSAR)	No information	NA
M550I003 Reg. No. 6010354 	No	Not mutagenic (QSAR)	No information	NA
M550I010 	No	Not mutagenic (data and QSAR)	No information	NA

Compound code (other names) and structure	Major rat metabolite (>10% AD)	Genotoxicity assessment (data, QSAR, read-across)	General toxicity	Reference value for dietary risk assessment
M550I044 	No	Not mutagenic (QSAR)	No information	NA
M550I045 	No	Not mutagenic (QSAR)	No information	NA

Notes: NA: Not applicable; TTC: threshold of toxicological concern; HBGVs: health-based guidance values.
* Major metabolites in plants/livestock are metabolites or degradates that contribute to 10% or more of the total radioactive residue (TRR) in metabolism studies in plants, livestock or rotational crops. Minor metabolites in plants/livestock are metabolites or degradates that comprise less than 10% of the TRR. The information was obtained from FAO.

Microbiological aspects

There was no information available in the public domain, and no experimental data was submitted, which addressed the possible impact of dimpropyridaz residues on the human intestinal microbiome.

Human data

In the literature search on toxicology on dimpropyridaz there were no publications on human data identified, which are relevant for human health assessment.

The meeting concluded that the existing database on dimpropyridaz was adequate to characterize the potential hazards to the general population, including fetuses, infants and children.

Toxicological evaluation

The meeting established an acceptable daily intake (ADI) of 0–0.2 mg/kg bw, based on the NOAEL of 21 mg/kg bw per day in the long-term study in rats using a safety factor of 100. This ADI applies to metabolites M550I002, M550I004, M550I006, M550I014, M550I015, M550I051, and M550I052.

The meeting established an acute reference dose (ARfD) of 1 mg/kg bw, on the basis of the NOAEL of 120 mg/kg bw in the acute neurotoxicity study in rats using a safety factor of 100. This ARfD applies to metabolites M550I002, M550I004, M550I006, M550I014, M550I015, M550I051, and M550I052.

The meeting concluded that the threshold of toxicological concern (TTC) Cramer class III approach for chronic exposure (1.5 µg/kg bw per day) and for acute exposure (5 µg/kg bw) should be considered in the dietary risk assessment for metabolites M550I028 and M550I042, if necessary.

A toxicological monograph was prepared.

Table 5.14.2 Levels relevant to risk assessment of dimpropyridaz

Species	Study	Effect	NOAEL	LOAEL
Dimpropridaz				
Mouse	13-week study of toxicity[a]	Toxicity	300 ppm, equal to 68 mg/kg bw per day	1000 ppm, equal to 250 mg/kg bw per day
	78-week study of toxicity and carcinogenicity[a]	Toxicity	750 ppm, equal to 121 mg/kg bw per day	2500 ppm, equal to 429 mg/kg bw per day
		Carcinogenicity	5000 ppm, equal to 855 mg/kg bw per day[c]	–
Rat	Acute neurotoxicity study[b]	Toxicity (systemic)	120 mg/kg bw	400 mg/kg bw per day
	13-week study of toxicity[a]	Toxicity	1000 ppm, equal to 80 mg/kg bw per day	4000 ppm, estimated as 310 mg/kg bw per day
	Two-year studies of toxicity and carcinogenicity[a]	Toxicity	350 ppm, equal to 21 mg/kg bw per day	1400 ppm, estimated as 88 mg/kg bw per day
		Carcinogenicity	4000 ppm, estimated as 178 mg/kg bw per day[c]	–
	Two-generation study of reproductive toxicity[a]	Reproductive toxicity	200 mg/kg bw per day[c]	–
		Parental toxicity	60 mg/kg bw per day[c]	200 mg/kg bw per day
		Offspring toxicity	200 mg/kg bw per day[c]	–
	Developmental toxicity study[b]	Maternal toxicity	200 mg/kg bw per day[c]	–
		Embryo/fetal toxicity	200 mg/kg bw per day[c]	–
Rabbit	Developmental toxicity study[b]	Maternal toxicity	50 mg/kg bw per day	150 mg/kg bw per day
		Embryo/fetal toxicity	150 mg/kg bw per day[c]	–
Dog	13-week study of toxicity[d]	Toxicity	30 mg/kg bw per day	90 mg/kg bw per day
Studies on toxicologically relevant metabolites				
Metabolite M550I005				
Rat	Four-week study of toxicity[a]	Toxicity	12 000 ppm, equal to 1054 mg/kg bw per day[c]	–

Species	Study	Effect	NOAEL	LOAEL
Metabolite M550I006				
Rat	Four-week study of toxicity[a]	Toxicity	3000 ppm, equal to 257 mg/kg bw pe day	9000 ppm, equal to 784 mg/kg bw per day
Metabolite M550I009				
	Four-week study of toxicity[a]	Toxicity	12 000 ppm, equal to 1027 mg/kg bw per day[c]	–

Notes:
[a] Dietary administration.
[b] Gavage administration.
[c] Highest dose tested.
[d] Capsule administration.

Acceptable daily intake (ADI) for dimpropyridaz:*

0–0.2 mg/kg bw

Acute reference dose (ARfD) applies to dimpropyridaz:*

1 mg/kg bw

*Applies to metabolites M550I002, M550I004, M550I006, M550I014, M550I015, M550I051 and M550I052 expressed as dimpropyridaz.

Information that would be useful for the continued evaluation of the compound

Results from epidemiological, occupational health and other such observational studies of human exposure.

Table 5.14.3 Critical end-points for setting guidance values for exposure to dimpropyridaz

Absorption, distribution, excretion and metabolism in mammals	
Rate and extent of oral absorption	Rapid; extensive (83 to 91% of the applied dose)
Dermal absorption	No data
Distribution	Wide, higher in the liver, kidney and thyroid than in other organs
Potential for accumulation	No evidence of accumulation
Rate and extent of excretion	Rapid within 48 hours
Metabolism in animals	Mono- or dihydroxylation followed by oxidation or conjugation, dealkylation, cleavage of the carboxamide bridge between the pyrazole and the pyridazine moieties, and cleavage of the isopentyl moiety

Toxicologically significant compounds in animals and plants	Dimpropyridaz, M550I002, M550I004, M550I006, M550I014, M550I015, M550I028, M550I042, M550I051 and M550I052
Acute toxicity	
Rat, LD_{50}, oral	300–500 mg/kg bw
Rat, LD_{50}, dermal	>2000 mg/kg bw
Rat, LC_{50}, inhalation	>5.6 mg/L
Rabbit, dermal irritation	Not irritating
Rabbit, ocular irritation	Mildly irritating
Guinea pig, dermal sensitization	Not sensitizing (Magnusson & Kligman)
Short-term studies of toxicity	
Target/critical effect	Kidney/increase in creatinine, urea (dog)
Lowest relevant oral NOAEL	30 mg/kg bw per day (dog)
Lowest relevant dermal NOAEL	No data
Lowest relevant inhalation NOAEC	No data
Long-term studies of toxicity and carcinogenicity	
Target/critical effect	Body weight/decrease (rat)
Lowest relevant NOAEL	21 mg/kg bw per day (rat)
Carcinogenicity	Not carcinogenic
Genotoxicity	Unlikely to be genotoxic[a]
Reproductive toxicity	
Target/critical effect	Body weight, body weight gain, food intake, water intake/decrease for parent (rat)
Lowest relevant parental NOAEL	60 mg/kg bw per day (rat)
Lowest relevant offspring NOAEL	200 mg/kg bw per day, highest dose tested (rat),
Lowest relevant reproductive NOAEL	200 mg/kg bw per day, highest dose tested (rat)
Developmental toxicity	
Target/critical effect	Body weight gain, food intake/decrease (rabbit)
Lowest relevant maternal NOAEL	50 mg/kg bw per day (rabbit)
Lowest relevant embryo/fetal NOAEL	150 mg/kg bw per day, highest dose tested (rabbit)

Neurotoxicity	
Acute neurotoxicity NOAEL	400 mg/kg bw, highest dose tested (rat)
Subchronic neurotoxicity NOAEL	No evidence from routine studies
Developmental neurotoxicity NOAEL	No data
General toxicity in acute neurotoxicity study	
Target/critical effect	Clinical sign/closed eyelid; motor activity, rearing/decrease
NOAEL for general toxicity	120 mg/kg bw (rat)
Other toxicological studies	
Immunotoxicity	No evidence from routine studies
Studies on toxicologically relevant metabolites	
M550I001	Not genotoxic (Ames, gene mutation, micronucleus *in vitro*)
M550I005	28-day NOAEL: 1054 mg/kg bw per day, highest dose tested (rat) Not genotoxic (Ames, gene mutation, micronucleus *in vitro*)
M550I006	Acute oral LD_{50}: 300–2000 mg/kg bw (rat) 28-day NOAEL: 257 mg/kg bw per day (rat) Not genotoxic (Ames, micronucleus *in vitro*)
M550I007	Not genotoxic (Ames, gene mutation, micronucleus *in vitro*)
M550I009	28-day NOAEL: 1027 mg/kg bw per day, highest dose tested (rat) Not genotoxic (Ames, gene mutation, micronucleus *in vitro*)
M550I028	Not genotoxic (Ames, micronucleus *in vitro*)
M550I010	Not genotoxic (Ames)
M550I040	Not genotoxic (Ames)
QSAR prediction of mutagenicity	
M550I001, M550I002, M550I003, M550I004, M550I005, M550I006, M550I007, M550I010, M550I013, M550I014, M550I015, M550I016, M550I028, M550I040, M550I044, M550I045, M550I051, M550I052	Not mutagenic

Read-across for structural similarity	
M550I001, M550I002, M550I004, M550I005, M550I007, M550I014, M550I015	Similar structure to the parent
M550I006, M550I009	Judgment based on the 28-day study and Ames test
Microbiological data	Not applicable
Human data	No clinical cases or poisoning incidents have been recorded

Notes:
[a] Unlikely to pose a carcinogenic risk to humans via exposure from the diet.

Table 5.14.4 Summary

	Value	Study	Safety factor
ADI	0–0.2 mg/kg bw[a]	Two-year study of toxicity and carcinogenicity (rat)	100
ARfD	1 mg/kg bw[a]	Acute neurotoxicity study (rat)	100

Note:
[a] Applies to dimpropyridaz, M550I002, M550I004, M550I006, M550I014, M550I015, M550I051 and M550I052 expressed as dimpropyridaz.

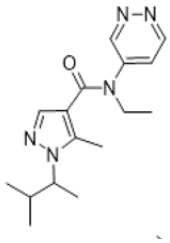
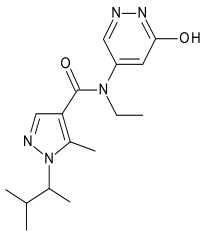
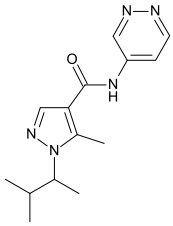
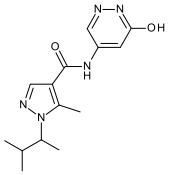
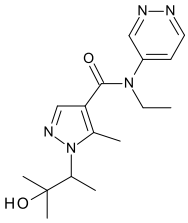
Residue and analytical aspects

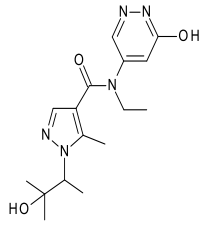
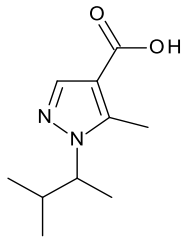
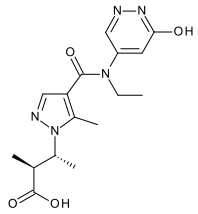
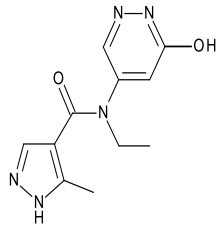
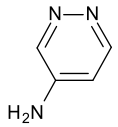
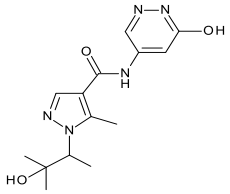
Dimpropyridaz (IUPAC name: *N*-ethyl-5-methyl-1-(3-methylbutan-2-yl)-*N*-pyridazin-4-ylpyrazole-4-carboxamide) is a pyrazole carboxamide insecticide which acts on chordotonal organs, which are important mechanosensors in insects. The compound was scheduled at the 55th Session of the CCPR (2024) for toxicology and residue evaluation as a new compound by the 2025 JMPR.

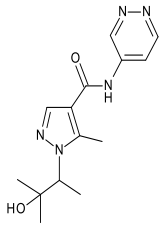
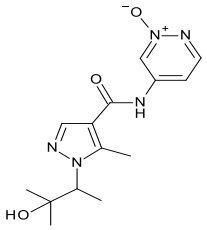
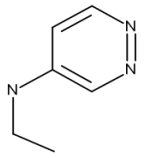
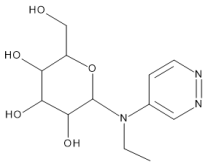
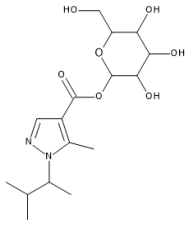
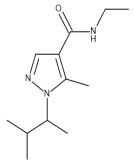
The meeting received information on identity, physical-chemical properties, plant and animal metabolism, analytical methods, storage stability, use patterns, residues resulting from supervised trials, fate of residues in succeeding crops, fate of residues during processing and livestock feeding studies.

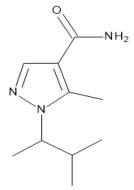
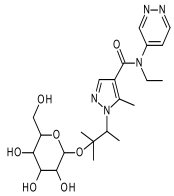
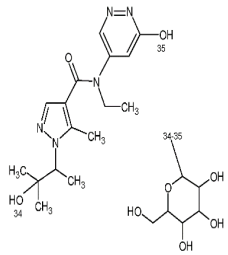
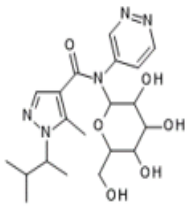
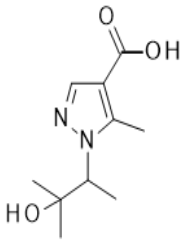
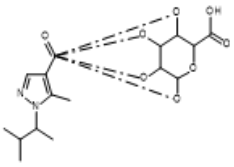
Dimpropyridaz is the ISO-approved common name for *N*-ethyl-5-methyl-1-[(2RS)-3-methylbutan-2-yl]-*N*-(pyridazin-4-yl)-1H-pyrazole-4-carboxamide. The abbreviations, chemical names, and structures of the parent and of metabolites discussed in the appraisal are summarized in Table 5.14.5.

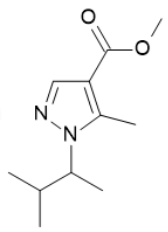
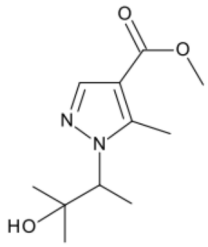
Table 5.14.5 Abbreviations for the relevant compounds referred to in this document

Compound code	Chemical name	Structure
Dimpropyridaz	N-ethyl-5-methyl-1-[(2RS)-3-methylbutan-2-yl]-N-(pyridazin-4-yl)-1H-pyrazole-4-carboxamide	
M550I001	N-ethyl-N-(6-hydroxypyridazin-4-yl)-5-methyl-1-(3-methylbutan-2-yl)-1H-pyrazole-4-carboxamide	
M550I002	5-methyl-1- (3-methylbutan-2-yl)-N-(pyridazin-4-yl)-1H-pyrazole-4-carboxamide	
M550I003	N-(6-hydroxypyridazin-4-yl)-5-methyl-1-(3-methylbutan-2-yl)-1H-pyrazole-4-carboxamide	
M550I004	N-ethyl-1-(3-hydroxy-3-methylbutan-2-yl)-5-methyl-N-(pyridazin-4-yl)-1H-pyrazole-4-carboxamide	

Compound code	Chemical name	Structure
M550I005	N-ethyl-1-(3-hydroxy-3-methylbutan-2-yl)-N-(6-hydroxypyridazin-4-yl)-5-methyl-1H-pyrazole-4-carboxamide	
M550I006	5-methyl-1-(3-methylbutan-2-yl)-1H-pyrazole-4-carboxylic acid	
M550I007	rac-(2R,3S)-3-{4-[ethyl(6-hydroxypyridazin-4-yl)carbamoyl]-5-methyl-1H-pyrazol-1-yl}-2-methylbutanoic acid	
M550I009	N-ethyl-N-(6-hydroxypyridazin-4-yl)-5-methyl-1H-pyrazole-4-carboxamide	
M550I010	Pyridazin-4-amine	
M550I014	1-(3-hydroxy-3-methylbutan-2-yl)-N-(6-hydroxypyridazin-4-yl)-5-methyl-1H-pyrazole-4-carboxamide	

Compound code	Chemical name	Structure
M550I015	1-(3-hydroxy-3-methylbutan-2-yl)-5-methyl-N-(pyridazin-4-yl)-1H-pyrazole-4-carboxamide	
M550I028	1-(3-hydroxy-3-methylbutan-2-yl)-5-methyl-N-(2-oxo-2λ5-pyridazin-4-yl)-1H-pyrazole-4-carboxamide	
M550I040	N-ethylpyridazin-4-amine	
M550I042	N-ethyl-N-pyridazin-4-ylhexopyranosylamine	
M550I043	1-O-[5-methyl-1-(3-methylbutan-2-yl)-1H-pyrazole-4-carbonyl] hexopyranose	
M550I044	N-ethyl-5-methyl-1-(3-methylbutan-2-yl)-1H-pyrazole-4-carboxamide	

Compound code	Chemical name	Structure
M550I045	5-methyl-1-(3-methylbutan-2-yl)-1H-pyrazole-4-carboxamide	
M550I048	N-ethyl-1-[3-(hexopyranosyloxy)-3-methylbutan-2-yl]-5-methyl-N-(pyridazin-4-yl)-1H-pyrazole-4-carboxamide	
M550I049	Not applicable – generic structure	
M550I050	N-(β-D-Glucopyranosyl)-5-methyl-1-(3-methylbutan-2-yl)-N-(pyridazin-4-yl)-1H-pyrazole-4-carboxamide	
M550I051	1-(3-hydroxy-3-methylbutan-2-yl)-5-methyl-1H-pyrazole-4-carboxylic acid	
M550I052	Not applicable – generic structure	

Compound code	Chemical name	Structure
Reg. No. 6065040	methyl 5-methyl-1-(3-methylbutan-2-yl)-1H-pyrazole-4-carboxylate (*Reg. No. 6065040 is formed by parent Dimpropyridaz, M550I002 and M550I006*)	
Reg. No. 6123135	methyl 1-(3-hydroxy-3-methylbutan-2-yl)-5-methyl-1H-pyrazole-4-carboxylate (*Reg. No. 6123135 is formed by M550I004*)	

Physical-chemical properties

Based on its physical–chemical properties, dimpropyridaz is highly soluble in water (approximately 29–35 g/L at 20 °C across pH 4–9) and has low lipophilicity (log Pow = 1.1). It has very low vapour pressure (8.7×10^{-6} Pa at 20 °C; 1.71×10^{-5} Pa at 25 °C) and Henry's constant (7.6×10^{-8} Pa·m³ mol⁻¹), indicating negligible volatilization. No dissociation was observed between pH 3.5 and 10.9. In sterile aqueous photolysis (pH 7), degradation was moderate ($DegT_{50}$ = 46.8 d), with M550I041 the principal product (≤16.7 percent of applied radioactivity). Collectively, these data indicate that dimpropyridaz has a low potential for accumulation in fatty matrices and low volatility under field conditions.

Plant metabolism

Metabolism studies were provided for tomato, lettuce (foliar and drench), and soybean. Studies were conducted with dimpropyridaz radiolabelled in the 4 carbon of the pyrazole ring (^{14}C-pyrazolyl-labelled dimpropyridaz or [^{13}C]-dimpropyridaz (Pyrazolyl Label) or the 4 and 5 carbon of the pyridazine ring (^{14}C-pyridazinyl-labelled dimpropyridaz).

Tomatoes

Tomato plants were grown in a climatic chamber and received two foliar applications of dimpropyridaz (^14C–pyrazolyl C-4 and ^14C–pyridazinyl C-4/5) at 120 g ai/ha, applied 7 and 1 days before harvest. Plants were harvested 1 day after the second application and separated into ripe fruits and leaves.

Total radioactive residues (TRR) were low in fruits at 0.080–0.097 mg eq/kg and higher in leaves at 3.382–3.771 mg eq/kg. Methanol and water gave high extractability in fruits (89.5–92.0 percent TRR) and moderate extractability in leaves (62.4–69.8 percent TRR). The remaining 9.0–11.1 percent TRR (0.009 mg eq/kg) in fruits and 31.8–37.9 percent TRR (1.20–1.28 mg eq/kg) in leaves represented bound residues that were only partly released by subsequent ammonia, enzyme and simulated digestion steps. The remaining residues, accounting for 4.5–5.8 percent TRR (0.171–0.196 mg eq/kg) in leaves and about 5–8 percent TRR (0.004–0.007 mg eq/kg) in fruits, were not released by artificial gastric and intestinal fluids.

Parent dimpropyridaz was the only identified component, accounting for 77.2–84.7 percent TRR (0.068–0.074 mg eq/kg) and 39.1–44.0 percent TRR (1.47–1.49 mg eq/kg) in fruits and leaves, respectively.

No metabolites were detected in fruits. In leaves, M550I004 accounted for 16.3–22.2 percent TRR (0.550–0.838 mg eq/kg), corresponding to about 40–60 percent compared to parent. M550I002 was present at 6.3–9.9 percent TRR (0.237–0.336 mg eq/kg), corresponding to 15–25 percent compared to parent, and M550I015 at 3.0–3.8 percent TRR (0.115–0.128 mg eq/kg), corresponding to 7–10 percent compared to parent. M550I006 reached 7.1 percent TRR (0.269 mg eq/kg) in leaves, corresponding to 15–20 percent compared to parent and M550I045 contributed 1.7 percent TRR (0.064 mg eq/kg), corresponding to 4 percent compared to parent.

Overall, 83.8–93.4 percent of the TRR in tomato fruits and leaves was identified or characterized.

Lettuce – foliar application (leafy crops)

Lettuce received two foliar applications at 8-days interval of dimpropyridaz at 120 g ai/ha (labels: ^14C–pyrazolyl C-4 or ^14C–pyridazinyl C-4/5), and plants were harvested 1 day after the second application (BBCH 49).

TRR in leaves was 5.1–5.6 mg/kg (pyrazolyl and pyridazinyl label). Sequential extraction with methanol followed by water gave good extractability (74 percent TRR in both labels), with methanol as the major extracting solvent (66–68 percent TRR). Residues remaining after solvent extraction (25.6–26.0 percent TRR) were partly solubilized by ammonia and enzymes, while only 4.4–7.0 percent TRR was released by artificial gastric and intestinal fluids; the residues remaining after digestion (3.5–4.6 percent TRR) are considered not bioavailable and were largely released only under harsh alkaline conditions.

Parent dimpropyridaz was the major component in lettuce leaves, accounting for 44.5–46.9 percent TRR, (2.3–2.6 mg eq/kg). M550I006 was present at about 33–34 percent of the parent TRR (15.3 percent TRR; 0.78 mg eq/kg), M550I002 accounted for about 18–21 percent of the parent TRR (8.4–9.2 percent TRR; 0.43–0.52 mg eq/kg), M550I042 for about 13–14 percent of the parent TRR (6.1 percent TRR; 0.34 mg eq/kg) and M550I004 contributed about 4–7 percent of the parent TRR (1.9–2.9 percent TRR; 0.11–0.15 mg eq/kg). Additional metabolites (M550I043, M550I044, M550I045 and Reg. No. 6065040) each contributed up to 4–11 percent of the parent TRR (1.8–5.1 percent TRR; ≤0.26 mg eq/kg).

Overall, 97.3–98.5 percent TRR in lettuce leaves was identified or characterized.

Lettuce – drench application (leafy crops)

Lettuce was grown in a climatic chamber and received a single soil drench application of dimpropyridaz at 300 g ai/ha (labels: ^{14}C–pyrazolyl C-4 or ^{14}C–pyridazinyl C-4/5) at BBCH 13–14, and was harvested at two growth stages: immature leaves 14 days after application (BBCH 15–19) and mature leaves 42 days after application (BBCH 49).

TRR in lettuce leaves were 1.39–1.96 mg eq/kg in immature leaves and 0.149–0.172 mg eq/kg in mature leaves. Sequential extraction with methanol and water recovered 56.3–65.9 percent TRR, leaving 34.1–43.7 percent TRR as residual radioactive residue. Subsequent ammonia/enzyme and simulated gastric/intestinal treatments released a further 9.6–15.2 percent TRR, while the remaining 19.6–29.3 percent TRR was only solubilized under strong alkaline conditions. The final non-solubilized residues (1.4–3.0 percent TRR, 0.004–0.032 mg eq/kg) are therefore considered not bioavailable.

Parent dimpropyridaz was a major component in both immature and mature leaves, accounting for 13.9–15.2 percent TRR (0.192–0.298 mg/kg) and 7.4 percent TRR (0.011–0.013 mg/kg), respectively.

The predominant metabolite in leaves was M550I002, accounting for 21.5–27.1 percent TRR (0.376–0.442 mg eq/kg) in immature leaves and 24.7–26.3 percent TRR (0.037–0.045 mg eq/kg) in mature leaves, corresponding to about 140–350 percent compared to parent.

Other metabolites identified in leaves were M550I003, M550I004, M550I006, M550I015, M550I042 (pyridazinyl only), M550I043, M550I044, M550I045, M550I050 and Reg. No. 6065040, generally each up to about 6.5–6.7 percent TRR (≤0.090 mg eq/kg in immature and ≤0.010 mg eq/kg in mature leaves).

Overall, 93–100 percent of the TRR in immature and mature leaves was identified or characterized.

Soybeans (pulses and oilseeds)

Soybean plants were grown under controlled (climatic chamber) conditions and received two foliar applications of dimpropyridaz (labels: ^{14}C–pyrazolyl C-4 and ^{14}C–pyridazinyl C-4/5) at 120 g ai/ha, applied 23 and 16 days before harvest (7-day interval). Plants were harvested 16 days after the second application and separated into straw, hulls and seeds.

TRR were highest in straw at 37.0–60.0 mg eq/kg, intermediate in hulls at 6.32–6.37 mg eq/kg, and lowest in seeds at 0.35–0.83 mg eq/kg. Extraction with methanol (three times) followed by water (twice) resulted in 61.1–63.6 percent TRR in straw, 37.4–48.7 percent TRR in hulls, and 75.4–81.8 percent TRR in seeds. The remaining residual radioactive residues accounted for 36.4–38.9 percent TRR (straw), 51.3–62.6 percent TRR (hulls), and 18.2–24.6 percent TRR (seeds). Enzyme digestion and simulated gastrointestinal fluids released only small amounts of RRR, while the majority of the bound residues were liberated only under harsh alkaline conditions, indicating limited bioavailability.

Parent dimpropyridaz was present in straw at 7.6–8.2 percent TRR (3.03–4.59 mg/kg), in hulls at 8.0–8.1 percent TRR (0.508–0.511 mg/kg), and in seeds of the pyrazolyl label only at 8.1 percent TRR (0.028 mg/kg).

In straw and hulls, M550I002 was the predominant metabolite, present at 13.5–17.6 percent TRR (0.862–10.570 mg eq/kg), corresponding to approximately 165–230 percent compared to parent. M550I006 accounted for 8.5–9.7 percent TRR (0.034–5.106 mg eq/kg), about 105–130 percent compared to parent. M550I042 accounted for 10.4 percent TRR (3.866 mg eq/kg) in straw and 0.6 percent TRR (0.036 mg eq/kg) in hulls, representing up to 125 percent compared to parent in straw. M550I048 reached 1.6–5.9 percent TRR (0.95–2.20 mg eq/kg) in straw, corresponding to approximately 20–75 percent compared to parent, whereas in hulls was 0.2 percent TRR (0.012 mg eq/kg) about 2–3 percent compared to parent. M550I015 contributed 0.7–2.4 percent TRR (0.045–0.947 mg eq/kg) in straw and hulls, about 9–30 percent compared to parent. All remaining metabolites in straw and hulls, including M550I004, M550I040, M550I043, M550I044, M550I045 and Reg. No. 6065040, contributed each with ≤3.6–4.3 percent TRR (≤2.18 mg eq/kg), corresponding to ≤50 percent compared to parent.

In seeds (pyrazolyl label), M550I006 was the major component at 9.7 percent TRR (0.034 mg eq/kg), corresponding to about 120 percent compared to parent. M550I004 and M550I045 were present at 3.5 percent TRR (0.012 mg eq/kg) and 2.3 percent TRR (0.008 mg eq/kg), respectively, ≤45 percent compared to parent. In seeds of the pyridazinyl label, no individual metabolites were identified; the main polar fraction consisted of multiple unresolved components, each ≤1.8 percent TRR (≤0.05 mg eq/kg), below the parent level observed in pyrazolyl-labelled seeds.

Overall, 88.8–97.0 percent of the TRR in soybean straw, hulls and seeds was identified or characterized.

Stereoisomer analysis

Dimpropyridaz was administered as a racemate (R and S enantiomers) in a series of plant metabolism studies using mixtures of radiolabelled and unlabelled test items. Selected plant extracts (tomato leaves; soya bean seeds, straw, hulls; lettuce leaves; rotational crops: immature spinach and wheat forage) were fractionated, metabolites in the collected fractions were confirmed by HPLC–MS/MS, and purified fractions were analysed by chiral HPLC.

In tomato leaves, the hydroxylated metabolite M550I004 showed an enantiomeric ratio of 56:44 (R:S). In soybean, the ratios were 32:68 (R:S) for M550I006 in seeds, 37:63 (R:S) for M550I002 in straw, and 44:56 (R:S) for M550I002 in hulls. In lettuce leaves, M550I002 and M550I006 were 48:52 and 56:44 (R:S), respectively. In the rotational crops, M550I014 in immature spinach was 71:29 (R:S), and M550I005 in wheat forage was 57:43 (R:S).

Across the plant matrices examined, the parent remained racemic (~50:50 R:S) in the fractions assigned to dimpropyridaz. The observed enantiomeric excesses are metabolite- and matrix-specific and do not indicate a consistent directional bias across crops.

Summary of plant metabolism

Metabolic pathways were qualitatively similar across crops, dominated by amide N-dealkylation, hydroxylation of the isopentyl side chain and, to a lesser extent, pyridazine ring hydroxylation, cleavage of the amide bond and conjugation.

TRR in edible matrices were low to moderate (tomato fruits 0.080–0.097 mg eq/kg, lettuce leaves 5.1–5.6 mg eq/kg, soybean seeds 0.35–0.83 mg eq/kg), and about 84–99 percent of the TRR was identified or characterized across all crops. Parent dimpropyridaz was the predominant residue in all matrices except soybean seed and lettuce following drench application. The metabolites identified in all or in part of the primary crops were M550I004, M550I002 M550I006, M550I015 and M550I042, M550I045 M550I048.

Environmental fate

Hydrolysis

The hydrolytic stability of dimpropyridaz was investigated in aqueous buffer solutions at pH 4, 5, 7 and 9 at 25 °C over 30 days. Dimpropyridaz was stable at pH 4–9, with a DT_{50} >100 days. The major hydrolysis product was M550I006, reaching 9.7 percent of the applied radioactivity (AR) at pH 9 after 30 days.

Photolysis

The soil photodegradation of dimpropyridaz was investigated in a sandy loam soil (22 °C; pF 2.0–2.5) following a single application at 120 g ai/ha (0.236 mg/kg dry soil), under continuous irradiation for 15 days and in parallel dark incubation for the same period. Parent dimpropyridaz declined to 45.3 percent AR under irradiation and 40.8 percent AR in the dark, giving DT_{50} values of 12.5 and 11.8 days, respectively.

The meeting concludes that no degradation due to photolysis was observed and the compound is stable.

Aerobic soil metabolism

The aerobic degradation of dimpropyridaz was investigated in eight soils (sand, sandy loam, loamy fine sand, silt loam, loam, sandy clay loam and clay loam) at an application rate equivalent to 0.5 mg ai/kg dry soil. Dimpropyridaz degraded primarily through oxidative hydroxylation and further oxidation, forming M550I001 (up to 59.6 percent AR), M550I004 (10.5 percent AR), M550I005 (27.0 percent AR), M550I007 (8.7 percent AR) and M550I009 (17.3 percent AR), which together represent the major metabolic route, while M550I006 was minor (≤9.0 percent AR in one soil). Mineralization to CO_2 was low (≤3.3 percent AR), and non-extracted residues reached up to 36.8 percent AR.

Based on laboratory DT_{50} values (6.3–85.5 days; geometric mean 17.6 days), dimpropyridaz is overall non-persistent in soil (DT_{50} < 30 days). The S-enantiomer is non-persistent (DT_{50} geo-mean 15.4 days) and the R-enantiomer moderately persistent (DT_{50} geo-mean 30.7 days).

Among the metabolites, M550I004 and M550I006 are non-persistent (DT_{50} geo-means 17.4 and 11.5 days), M550I009 is moderately persistent (DT_{50} geo-mean 92.3 days), and M550I001, M550I005 and M550I007 are persistent in soil (DT_{50} geo-means 140.2, 166.7 and 319.9 days, respectively, with some DT_{50} values extending up to 1000 days).

Soil degradation (field studies)

Field dissipation of dimpropyridaz was investigated in bare soil at six sites in Europe and four in the United States, with the parent applied once at a rate of 227–520 g ai/ha. Soil samples were collected and analysed for parent and metabolites (M550I001, M550I004, M550I005, M550I006, M550I007, M550I009).

Best-fit DT_{50} values for dimpropyridaz in soil ranged from 6.3 to 32.5 days (geometric mean 16.2 days), indicating non-persistent behaviour under field conditions.

Parent degraded in the field mainly to metabolites M550I001, M550I005 and M550I009, which reached maximum levels of about 15–52 percent of applied parent, depending on site, whereas metabolites M550I004, M550I006 and M550I007 remained below 5 percent of applied parent and were considered of minor importance. DT_{50} geometric means of metabolites were 43.7 days for M550I001, 50.5 days for M550I005, 22.2 days for M550I007 and 182.2 days for M550I009.

Residues in succeeding or rotational crop

The meeting received one confined rotational crop metabolism study and two field rotational crop residue studies for dimpropyridaz.

Based on the maximum seasonal use patterns submitted to the current meeting, the worst-case soil load for dimpropyridaz would originate from the Australian GAP for cotton or/and fruiting vegetables (4x120 g ai/ha). The confined and field rotational crop studies were conducted with a bare soil application of 300 g ai/ha, which is below the worst-case soil load. Accumulation of dimpropyridaz in soil is not expected, thus plateau levels do not have to be considered.

Confined rotational crop studies

A confined rotational crop metabolism study was conducted with ^{14}C-dimpropyridaz (pyrazolyl- and pyridazinyl-labels) applied once to bare soil at 300 g ai/ha. Spinach (leafy), radish (root/tuber) and wheat (cereal) were planted at 30, 120 and 365 plant-back intervals (PBI); both immature and mature stages were sampled.

TRR were 0.009–0.082 mg eq/kg in spinach, 0.001–0.012 mg eq/kg in radish roots, 0.027–0.068 mg eq/kg in radish leaves, 0.015–0.096 mg eq/kg in wheat grain, 0.009–0.095 mg eq/kg in forage and 0.049–0.630 mg eq/kg in wheat hay/straw. Extractability of residues using with methanol/water removed most of the radioactivity from rotational crops, with extracted residues of about 90–94 percent TRR in immature and mature spinach, 76–87 percent TRR in radish leaves, and 57–71 percent TRR in wheat forage, 54–69 percent TRR in hay and 41–56 percent TRR in straw over the 30–365 days PBI. In wheat grain, extractability with solvents was only about 21 percent TRR.

Dimpropyridaz was not detected in any rotational crop commodity at any PBI. The metabolites identified in all or in part of the rotational crops were M550I001, M550I005 and M550I009 (also soil metabolites) and M550I014, M550I044 and M550I049 (also minor plant metabolites).

M550I001 was found in wheat hay at 2.7 percent TRR (0.017 mg eq/kg) at 30-days PBI, and in wheat straw at 1.8 percent TRR (0.004 mg eq/kg) at 120-days PBI.

M550I005 was detected in radish leaves and in all wheat feed matrices, accounting for 13–17 percent TRR (≤0.009 mg eq/kg) in radish leaves (30, 120d PBI) and for up to 30.7 percent TRR (0.006–0.193 mg eq/kg) in wheat forage, hay and straw over (30, 120, 365d PBI). M550I005 was not identified in wheat grain.

M550I009 was detected in immature spinach leaves, radish leaves and wheat fodder. It accounted for 6.6–7.0 percent TRR (0.002–0.003 mg eq/kg) in immature spinach leaves, 11.4–15.0 percent TRR (0.003–0.004 mg eq/kg) in radish leaves, and 1.8–18.4 percent TRR (0.001–0.050 mg eq/kg) in wheat forage, hay and straw over 30–365 days PBI. M550I009 was not detected in radish roots or wheat grain.

M550I014 was the predominant metabolite in spinach and an important component in radish leaves. It accounted for 24.8–50.8 percent TRR (0.007–0.042 mg eq/kg) in immature and mature spinach leaves and 8.9–19.3 percent TRR (0.003–0.013 mg eq/kg) in radish leaves over the 30–365 days PBI. M550I014 was not detected in radish roots or in any wheat matrices (fodder or grain).

M550I044 was only found in wheat straw as part of a co-eluting M550I001/M550I044 fraction, which accounted for 1.0 percent TRR (0.006 mg eq/kg). M550I044 was not detected in spinach or radish matrices, nor in wheat forage, hay or grain.

M550I049 was an important plant-specific metabolite in radish leaves and a minor component in wheat straw. It accounted for about 14.8–23.2 percent TRR (0.004–0.016 mg eq/kg) in radish leaves and 2.7–11.4 percent TRR (0.010–0.065 mg eq/kg) in wheat straw over the 30–365 days PBI. M550I049 was not detected in spinach leaves, radish roots, wheat forage, wheat hay or wheat grain.

Field rotational crop studies

In the rotational crops studies conducted in 2018–2019 in Europe (Germany, France, Italy, Spain), dimpropyridaz was applied once to bare soil at 300 g ai/ha; wheat, carrot/radish, cauliflower, spinach/lettuce and tomato were planted after 30, 120 and 365 days.

Samples were analysed for dimpropyridaz, M550I002, M550I004, M550I005, M550I006, Reg. No. 6065040, Reg. No. 6123135. Maximum storage intervals before analysis were up to 26 months.

Dimpropyridaz was detected only in wheat straw at 0.01 mg/kg at the 30-day PBI. M550I005 occurred only at the 30-day PBI, at 0.010–0.015 mg/kg in wheat forage and hay, 0.020 mg/kg in radish whole plants with roots, 0.031 mg/kg in radish tops, 0.029 mg/kg in cauliflower whole plants without roots, and <0.01–0.020 mg/kg in wheat straw. All other metabolites were not detected (<0.01 mg/kg) in any rotational crop commodity at any PBI.

In the rotational crop study conducted in 2021 in Europe (Germany/France/Italy/Spain), dimpropyridaz was applied once to bare soil at 350 kg ai/ha with spinach and lettuce at 30 days PBI.

Samples were analysed for dimpropyridaz, M550I002, M550I004, M550I005, M550I006, M550I014 (not analysed in the first study), Reg. No. 6065040, Reg. No. 6123135. Maximum storage intervals before analysis were up to 26 months.

Dimpropyridaz was not detected in any rotational crop commodity at any PBI. In lettuce leaves no metabolites were detected in any rotational crop commodity at any PBI. In spinach leaves, only M550I014 and Reg. No. 6123135 were found at <0.01–0.02 mg/kg and <0.01–0.039 mg/kg, respectively.

Summary of environmental fate

Dimpropyridaz shows limited persistence and predictable degradation. It is hydrolytically stable at pH 7. Photolysis is not a major degradation pathway and under aerobic conditions, dimpropyridaz was overall not persistent. The metabolites identified in soil from field dissipation studies were M550I001, M550I005, M550I009 in major levels and M550I004, M550I006, M550I007 at minor levels.

Confined and field rotational crop studies showed low transfer of dimpropyridaz residues to succeeding crops. In the confined study, residues in edible parts were low and parent dimpropyridaz was not detected in any crop. M550I014 was the predominant residue in spinach, M550I005 and M550I049 were main components in radish leaves, and M550I005, M550I009 in wheat fodder. In the field trials, dimpropyridaz was found only in wheat straw, M550I005 was detected in wheat fodder and M550I014 and Reg. No. 6123135 were detected in spinach.

Animal metabolism

The meeting received metabolism studies of dimpropyridaz was in rats, goats and hens. The rat studies were reviewed in the framework of the toxicological evaluation by the WHO Core Assessment Group.

Lactating goats (dimpropyridaz)

Lactating goats were dosed daily with dimpropyridaz (labels: ^{14}C–pyrazolyl C-4 or ^{14}C–pyridazinyl C-4/5) at actual feed concentrations of 11.8 and 12.0 ppm (pyridazinyl; 0.35 and 0.21 mg/kg bw per day) and 12.0 and 12.1 ppm (pyrazolyl; 0.32 and 0.35 mg/kg bw per day) for 8–9 days. Goats (two per label) were sacrificed 2 hours after the final dose. By sacrifice, cumulative excretion accounted for 90.1–93.8 percent AR; retention in edible portions (milk + tissues) was low (≤3.6 percent AR).

TRR were 0.21–0.22 mg eq/kg in milk, 2.00–2.35 mg eq/kg in liver, 0.86–0.88 mg eq/kg in kidney, 0.12 mg eq/kg in muscle and 0.02–0.03 mg eq/kg in fat. Extraction with methanol and water gave high recoveries in all matrices (about 98–100 percent TRR). Liver and kidney contained the highest residues; transfer to milk, muscle and fat was limited, and plateau in milk was reached by day 5.

Parent dimpropyridaz was present in all edible tissues, with the highest proportion in liver and fat. It accounted for 1.7 percent TRR (0.004 mg/kg) in milk, 8.6 percent TRR (0.010 mg/kg) in muscle, 26.4 percent TRR (0.006 mg/kg) in fat, 32.5 percent TRR (0.764 mg/kg) in liver and 5.5 percent TRR (0.049 mg/kg) in kidney.

The following metabolites were identified: M550I002, M550I004, M550I005, M550I010, M550I014, M550I015 and M550I028.

M550I004 was one of the most prominent metabolites in tissues, reaching 4.3–40.6 percent TRR. It was present at 4.3 percent TRR (0.010 mg eq/kg; about 250 percent of the parent TRR) in milk, 40.6 percent TRR (0.048 mg eq/kg; about 470 percent of parent) in muscle, 33.4 percent TRR (0.007 mg eq/kg; about 130 percent of parent) in fat, 14.9 percent TRR (0.350 mg eq/kg; about 45 percent of parent) in liver and 25.2 percent TRR (0.223 mg eq/kg; about 460 percent of parent) in kidney.

M550I015 was the major residue in milk and kidney and an important component in all tissues. It accounted for 53.8 percent TRR (0.119 mg eq/kg; about 3200 percent of parent TRR) in milk, 15.3 percent TRR (0.018 mg eq/kg; about 180 percent of parent) in muscle, 13.8 percent TRR (0.003 mg eq/kg; about 50 percent of parent) in fat, 10.9 percent TRR (0.257 mg eq/kg; about 35 percent of parent) in liver and 31.2 percent TRR (0.276 mg eq/kg; about 570 percent of parent) in kidney.

M550I002 represented 1.6 percent TRR (0.003 mg eq/kg; about 95 percent of parent TRR) in milk, 13.5 percent TRR (0.016 mg eq/kg; about 160 percent of parent) in muscle, 23.1 percent TRR (0.005 mg eq/kg; about 90 percent of parent) in fat, 20.1 percent TRR (0.473 mg eq/kg; about 60 percent of parent) in liver and 14.9 percent TRR (0.132 mg eq/kg; about 270 percent of parent) in kidney.

M550I005 was not detected in milk and accounted for 3.9 percent TRR (0.005 mg eq/kg; about 45 percent of parent TRR) in muscle, 9.7 percent TRR (0.002 mg eq/kg; about 40 percent of parent) in fat, 10.0 percent TRR (0.236 mg eq/kg; about 30 percent of parent) in liver and 16.2 percent TRR (0.143 mg eq/kg; about 300 percent of parent) in kidney.

M550I014 occurred mainly in milk and kidney, representing 12.0 percent TRR (0.027 mg eq/kg; about 700 percent of the parent TRR) and 4.9 percent TRR (0.044 mg eq/kg; about 90 percent of parent), respectively. It was not detected in muscle, fat or liver.

M550I028 was only found in milk, where it contributed 10.3 percent TRR (0.023 mg eq/kg), corresponding to about 600 percent of the parent TRR in milk.

M550I010 was a minor liver metabolite, present at 0.7 percent TRR (0.016 mg eq/kg), corresponding to about 2 percent of the parent TRR in liver. It was not reported in milk, muscle, fat or kidney.

Lactating goats (M550I006)

Lactating goats (two animals) received ^{14}C-M550I006 (pyrazole label) in feed for 7 consecutive days at 11.8–11.9 ppm feed (dry matter), corresponding to 0.29–0.31 mg/kg bw per day. Goats were sacrificed 1 hour after the final dose.

Cumulative excretion accounted for at least 87 percent AR. Milk and tissues together contained at most 0.4 percent of the AR, indicating very limited retention. TRR in edible matrices were low: 0.004–0.010 mg eq/kg in milk, 0.015–0.033 mg eq/kg in muscle, 0.031–0.033 mg eq/kg in fat, 0.243–0.252 mg eq/kg in liver and 2.11–2.20 mg eq/kg in kidney. Extraction with methanol (muscle, liver, kidney) or acetonitrile/isohexane plus water (fat) gave 92–100 percent TRR, indicating residues were largely solvent-extracted.

The dosed compound M550I006 was present in all tissues, accounting for 45.8 percent TRR (0.116 mg/kg) in liver, 42.6 percent TRR (0.013 mg/kg) in fat, 29.6 percent TRR (0.651 mg/kg) in kidney and 5.7–14.3 percent TRR (0.002 mg/kg) in muscle. Plateau in milk was reached by Day 3. Due to low levels of ^{14}C, residues in milk were not characterized.

M550I051 occurred in liver and kidney at 8.3 percent TRR (0.021 mg eq/kg; about 20 percent M550I006) and 6.2 percent TRR (0.137 mg eq/kg; about 20 percent of M550I006), respectively.

M550I052, a glucuronide conjugate of M550I051, was important part of the residues in muscle and kidney, accounting for 0.005–0.008 mg eq/kg (27.6–40.1 percent TRR; about 200–700 percent of M550I006 in muscle) and 0.529–0.587 mg eq/kg (24.0–26.7 percent TRR; about 80–90 percent of M550I006) respectively, and minor in liver and fat (about 3–14 percent TRR and about 10 percent of M550I006).

Compared with the dimpropyridaz goat study, M550I006 shows similarly rapid excretion and low tissue retention but a much simpler residue profile. Dimpropyridaz formed several major metabolites (M550I015, M550I004, M550I002, M550I005) in milk and tissues, whereas M550I006 remained the dominant residue in liver, fat and kidney and only one hydroxylated metabolite (M550I051) and its glucuronide conjugates (M550I052) were identified.

Laying hens (dimpropyridaz)

Laying hens (two groups of 10; one per label) received dimpropyridaz (^{14}C–pyridazinyl or ^{14}C–pyrazolyl) once daily for 10 days at actual dietary concentrations of 11.97 and 12.01 ppm feed (dry matter) corresponding to 0.86 and 0.84 mg/kg bw per day. Hens were sacrificed 3–6 hours after the final dose.

Elimination was rapid, with 95.8–96.2 percent AR recovered in excreta and cage rinses and ≤0.1 percent AR retained in all edible matrices combined.

TRR were 0.051–0.053 mg eq/kg in egg yolk, 0.023–0.025 mg eq/kg in egg white and 0.013–0.039 mg eq/kg in whole egg over the dosing period. Whole egg residues reached a plateau at 4–5 days (0.031–0.036 mg eq/kg). Muscle contained 0.018–0.040 mg eq/kg, liver 0.170–0.303 mg eq/kg and fat 0.012–0.036 mg eq/kg. Extraction with methanol (egg yolk, egg white, muscle, liver) or acetonitrile with iso-hexane/water partitioning (fat), gave extractability about 92–100 percent TRR.

Parent dimpropyridaz was not detected in any matrix. M550I015 was the major metabolite in most matrices, accounting for 0.013–0.014 mg eq/kg (24.6–26.2 percent TRR) in egg yolk and for 0.011 mg eq/kg (45.5–48.8 percent TRR) in egg white. In muscle, M550I015 accounted for 0.012–0.024 mg eq/kg (61.0–66.7 percent TRR), and in liver 0.096–0.156 mg eq/kg (52.1–56.6 percent TRR). It was the only identified metabolite in fat, at 0.005–0.010 mg eq/kg (26.8–38.4 percent TRR).

M550I002 was found in eggs and tissues but always at low levels. It accounted for 0.021–0.024 mg eq/kg (38.6–47.3 percent TRR) in egg yolk, 0.006–0.007 mg eq/kg (25.2–29.5 percent TRR) in egg white, 0.003–0.007 mg eq/kg (17.3–17.8 percent TRR) in muscle, and 0.037–0.056 mg eq/kg (18.4–21.9 percent TRR) in liver. M550I002 was not detected in fat.

Laying hens (M550I006)

Laying hens (ten birds) received ^{14}C-M550I006 (pyrazole label) in feed once daily for 12 consecutive days at an actual concentration of 12.68 ppm in feed (dry matter), corresponding to about 0.77 mg/kg bw per day. Hens were sacrificed 1 hour after the final dose.

Elimination was rapid, with 98.6 percent AR recovered in excreta and cage washes/rinses and ≤0.4 percent AR retained in all edible matrices combined.

TRR in edible matrices were: egg white and egg yolk at 0.031–0.038 mg eq/kg, muscle at 0.122–0.132 mg eq/kg, liverat 0.331–0.339 mg eq/kg, subcutaneous fat with skin at 0.168–0.170 mg eq/kg and omental fat at 0.032–0.040 mg eq/kg. Whole-egg residues reached a plateau at 7–9 days (0.031–0.033 mg eq/kg). Extraction with methanol/water (egg white, muscle, liver, subcutaneous fat) and with isohexane–acetonitrile or acetone–isopropanol–isohexane (omental fat, egg yolk) gave overall solvent extractability of about 85–98 percent TRR, with residual non-extracted residues at <0.010 mg eq/kg in all matrices.

M550I006 was the main component of the residue in all matrices. It accounted for 11.6 percent TRR (0.004 mg/kg) in egg yolk, 62.8 percent TRR (0.020 mg/kg) in egg white, 83.8 percent TRR (0.105 mg/kg) in muscle, 68.2 percent TRR (0.225 mg/kg) in liver, 55.0 percent TRR (0.022 mg/kg) in omental fat and 79.5 percent TRR (0.135 mg/kg) in subcutaneous fat with skin.

M550I051 was the only metabolite identified across eggs and tissues. In egg yolk and egg white it contributed 2.9 percent TRR (0.001 mg eq/kg; about 25 percent of M550I006) and 18.1 percent TRR (0.006 mg eq/kg; about 30 percent of M550I006), respectively. In muscle, it accounted for 18.4 percent TRR (0.023 mg eq/kg; about 20–25 percent of M550I006), and in liver 16.4 percent TRR (0.054 mg eq/kg; about 25 percent of M550I006). In subcutaneous fat with skin, it was present at 11.2 percent TRR (0.019 mg eq/kg; about 15 percent of M550I006). M550I051 was not detected in omental fat.

Compared with the dimpropyridaz hen study, the M550I006 shows similarly rapid excretion but a much simpler residue pattern. In both hen studies, most of the AR was recovered in excreta, with only a very small fraction retained in eggs and tissues. After dosing with dimpropyridaz, no parent was detected in edible matrices, and the major residue components were M550I015 and M550I002. In contrast, after dosing with M550I006, itself was the main residue in all matrices, and the only identified metabolite was M550I051.

Summary of animal metabolism

Dimpropyridaz and its metabolite M550I006 showed broadly similar behaviour in lactating goats and laying hens, meaning rapid elimination, low retention in edible matrices and limited transfer into milk, eggs and tissues. The meeting noted that the slaughter interval in all studies was shorter (1–3 hours) than commercial practices (24 hours for ruminants, 6–8 hours for poultry) and likely to overestimate the importance of parent in the final residue.

Methods of residue analysis

Plant commodities

The meeting received five LC–MS/MS methods (L0376/01, L0376/02, L0376/03, L0376/04 and L0376/05) to analyse dimpropyridaz and its relevant metabolites M550I002, M550I004, M550I005, M550I006 (including Reg. Nos. 6065040 and 6123135) in representative plant matrix groups (high-water/high-acid, high-starch, high-oil/high-protein, dry/difficult, honey and pollen). All methods were successfully validated with LOQs of 0.01 mg/kg per analyte. Methods L0376/01 and L0376/02 use MeOH or MeOH/H_2O extraction (with DCM partition in L0376/01), while L0376/03 and L0376/05 apply microwave-assisted MeOH or MeOH/H_2O extraction followed by dSPE cleanup. Method L0376/04 (DFG S19) determines dimpropyridaz only using aqueous-acetone extraction, partition and GPC cleanup.

The extraction efficiency for dimpropyridaz and the metabolites was investigated using samples containing incurred radiolabelled residues. The analytical protocols used in the residue trials or proposed for enforcement (MeOH or MeOH:H_2O 70:30 with maceration or shaking, and DFG S19) were compared with the matrix specific extraction procedures applied in the metabolism studies. Across high-water (tomato, lettuce, radish tops), high-acid (grapes), high-starch (barley grain), high-oil/high-protein (soybean seed) and dry/difficult matrices (soybean straw, wheat straw, hops), MeOH or MeOH:H_2O extraction generally achieved typically ≥70 percent of the extractability obtained with the metabolism study solvent systems. In high-oil/high-protein soybean seed, MeOH:H_2O mixtures outperformed MeOH alone for the parent. DFG S19 achieved acceptable extraction efficiency for dimpropyridaz, which is the only analyte in its scope.

The meeting therefore concluded that MeOH or MeOH/H_2O procedures are suitable for data gathering and enforcement in plant commodities, and that these methods are sufficiently validated for monitoring dimpropyridaz and its relevant metabolites in plant commodities.

Animal commodities

Three methods (L0449/02, L0449/03 and L0449/04) were available for dimpropyridaz and its relevant metabolites. Method L0449/03 analyses dimpropyridaz and metabolites M550I002, M550I004, M550I006, M550I014, M550I015 and M550I028 in muscle, liver, kidney, fat, milk and egg, while L0449/04 is a dedicated method for M550I005 in bovine liver, kidney and fat. Method L0449/02 analyses dimpropyridaz and M550I015 in muscle, liver, kidney, fat, milk and egg. All three methods use MeOH extraction with minimal clean up or aqueous dilution (L0449/02), followed by LC–MS/MS determination. The methods were successfully validated with LOQs of 0.01 mg/kg for all samples and analytes.

Extraction efficiency studies with incurred radiolabelled ruminant tissues, milk, poultry eggs and fat showed that methanolic extraction procedures generally achieved adequate extractability (>70 percent of the metabolism study reference) across analytes and matrices.

The meeting therefore concluded that these methods are sufficiently validated for monitoring dimpropyridaz and its relevant metabolites in animal commodities.

Stability of residues in stored analytical samples

The meeting received storage stability studies in plant and animal commodities for dimpropyridaz and metabolites M550I002, M550I004, M550I005, M550I006 and M550I014. All studies were performed under frozen conditions (≤–18 °C) over varying storage intervals. Plant matrices covered the representative categories of high water, high protein, high starch, high acid and high oil commodities.

Plant samples were initially analysed for dimpropyridaz and the metabolites spiked as individually analytes. However, highly inconsistent results were observed within and in between matrix groups. Reg. No. 6065040 is a degradation product of dimpropyridaz, M550I002 and M550I006 and Reg. No. 6123135 is a degradation product of M550I004. By re-analysis of the samples taking into consideration Reg. No. 6065040 (for the samples spiked with dimpropyridaz, M550I002 and M550I006) and Reg. No. 6123135 (for the samples spiked with M550I004), more robust storage stability data were achieved for the sum of dimpropyridaz, M550I002 and M550I006 including Reg. No. 6065040 and sum of M550I004 and Reg. No. 6123135.

The meeting concluded that Reg. No. 6065040 is likely formed during storage from dimpropyridaz, M550I002 or M550I006, and that Reg. No. 6123135 is likely formed during storage from M550I004. Consequently, both should be regarded as part of the residue associated with their respective precursors. The meeting decided that these components should be taken into account when evaluating storage stability and when defining an acceptable storage period for each compound.

The meeting concluded that residues of dimpropyridaz (plus Reg. No. 6065040), M550I002 (plus Reg. No. 6065040), M550I004 (plus Reg. No. 6123135), M550I005 and M550I006 (plus Reg. No. 6065040) are stable under frozen storage (≤–18 °C) for:

- at least 36 months in high-water commodities (cabbage, melon, cucumber fruit and leaves (incurred), lettuce (incurred, including metabolism material) and cherry (incurred) excluding onion.
- at least 36 months in high-oil commodities (soybean and oilseed rape seed).
- at least 33 months in high-acid commodities (strawberry and lemon).
- at least 25 months in high-protein commodities (beans, dry).
- at least 24 months in high-starch commodities (cereal grain and radish roots).

The available storage stability data adequately address storage durations and condition for samples from all residue studies evaluated by the meeting.

In animal commodities residues are stable under frozen storage (≤–18 °C) for:

- Dimpropyridaz, M550I002 and M550I006: at least 10 months in muscle, liver, kidney, fat and eggs.
- M550I004: at least 8 months in muscle, liver, kidney, fat and milk
- M550I014 and M550I028: at least 10 months in milk and up to 2 months in muscle, liver, kidney and fat and
- M550I015: at least 10 months in muscle, liver, kidney and eggs and up to 4 months in fat
- M550I005: at least 16 months in liver, kidney and fat.

The available storage stability data adequately address storage durations (less than 30 days) and condition for samples from the feeding studies evaluated by the meeting.

Residue definition

Plant commodities

Metabolism of dimpropyridaz was investigated in tomato (fruiting vegetables), lettuce (leafy vegetables; foliar and drench applications) and soybean (pulses and oilseeds) and in rotational crops (spinach, radish, wheat) grown after soil treatment. Processing at high-temperature hydrolysis conditions did not degrade dimpropyridaz, and no additional metabolites were formed.

The main part of the residue in plants consisted of eight major metabolites, namely M550I002, M550I004, M550I005, M550I006, M550I009, M550I014, M550I042 and M550I049. Twelve additional metabolites, namely M550I001, M550I003, M550I015, M550I040, M550I043, M550I044, M550I045, M550I048, M550I050, M550I051, Reg. No. 6065040 and Reg. No. 6123135, were also identified at lower levels.

Dimpropyridaz (parent) was a major residue component in most primary crop matrices, accounting for 39–85 percent TRR following foliar application. After soil drench treatment it was less dominant (7–15 percent TRR). In soya bean, the parent contributed consistently about 8 percent TRR in straw, hulls and seeds, indicating that dimpropyridaz remains a relevant component of the residue.

Dimpropyridaz was quantified in most supervised residue trials, but no residues were detected (<0.010 mg/kg) in maize and wheat grain.

Overall, parent dimpropyridaz is a suitable marker in primary food commodities and contributes significantly to residues in feed items (straw, hulls). Suitable analytical methods for enforcement are available for dimpropyridaz in plant matrices.

Reg. No. 6065040 was a minor part of the plant metabolism, only found in lettuce (5.1 percent TRR after foliar application and about 4.0 percent TRR after drench treatment) and in soya bean straw and hulls (up to 4.3 percent TRR) However, the meeting concluded that Reg. No. 6065040 is likely formed during storage (and/or sample processing) from dimpropyridaz and related metabolites (M550I002 and M550I006) and should therefore be regarded as part of the residue derived from these precursors. The meeting decided that is necessary to include Reg. No. 6065040 (expressed as dimpropyridaz) to avoid underestimation and to capture the full residue, and therefore it should be included in the residue definition for monitoring for plant commodities.

The meeting concluded that *dimpropyridaz and Reg. No. 6065040, expressed dimpropyridaz,* should be considered as a suitable marker compound for enforcement purposes in plant commodities.

In deciding which compounds should be included in the residue definition for estimation of dietary intake, the meeting considered the likely occurrence of the compounds and the toxicological properties of the candidates, in particular the metabolites M550I002, M550I004, M550I005, M550I006, M550I009, M550I014, M550I042 and M550I049

The meeting decided that there was no toxicological concern for residues of M550I005, M550I009, M550I049, and no inclusion into the residue definition of dietary intake for plant commodities is necessary.

M550I002 was not detected in tomato fruit; in tomato leaves it accounted for 6.3–9.9 percent TRR (about 15–25 percent of the parent TRR). In lettuce leaves after foliar application, M550I002 contributed 8.4–9.2 percent TRR (about 18–21 percent of the parent TRR). After soil drench treatment, it became the predominant metabolite in lettuce leaves (22–27 percent TRR), corresponding to about 140–350 percent of the parent TRR. In soybean, M550I002 was a major metabolite in straw and hulls (13–18 percent TRR; about 165–230 percent of the parent TRR), while it remained <10 percent TRR and <LOQ in seeds. M550I002 was not detected in rotational crops. M550I002 was quantified in several supervised residue trials following foliar applications of dimpropyridaz, representing 6–115 percent of the parent (average of 32 percent).

The toxicity of M550I002 is covered by the HBGVs for parent dimpropyridaz. The meeting concluded that M550I002 represents a significant part of the residue in food and feed and decided to include the metabolite in the residue definition for dietary intake for plant commodities.

M550I004 was a predominant residue in tomato leaves, accounting for 16–22 percent TRR (about 40–60 percent of the parent TRR). Its levels were minor (up to 6.7 percent TRR) in tomato fruit and it was not detected in rotational crops. M550I004 was quantified in several supervised residue trials following foliar applications of dimpropyridaz, representing 7–117 percent of the parent residue (average of 52 percent).

The toxicity of M550I004 is covered by the HBGVs for parent dimpropyridaz. The meeting concluded that M550I004 represents a significant part of the residue in food and feed and decided to include the metabolite in the residue definition for dietary intake for plant commodities.

M550I006 was not detected in tomato fruit, but represented a major part of the residue in lettuce leaves after foliar application (15 percent TRR, about 33–34 percent of the parent TRR). In soybean, M550I006 represented 8.5–9.7 percent TRR in straw and hulls (about 110–130 percent of the parent TRR) and 9.7 percent TRR in seeds (about 120 percent of the parent TRR). M550I006 was not detected in rotational crops but was frequently quantified in the supervised residue trials on most crops.

The toxicity of M550I006 is covered by the HBGVs for parent dimpropyridaz. The meeting decided that M550I006 represents a significant part of the residue in food and feed and should be included in the residue definition for dietary intake for plant commodities.

M550I014 was not detected in primary crop metabolism studies, but was a major metabolite in rotational crops, accounting for 8.9–51 percent TRR in spinach and radish leaves. It was not detected in radish roots or in any wheat matrices (forage, hay, straw or grain). In field rotational crop studies, concentrations of M550I014 were low and only quantified in spinach leaves at <0.01–0.02 mg/kg and was not analysed in the supervised residue trials.

The toxicity of M550I014 is covered by the HBGVs for parent dimpropyridaz. The meeting concluded that M550I014 contributes insignificantly to the dietary intake compared to the sum of parent, M550I002 M550I004 and M550I006 and does not need to be included into the residue definition for dietary intake for plant commodities.

M550I015 was a minor metabolite in primary crops, found at up to 5.8 percent of the TRR. M550I015 was not reported in confined or field rotational crop studies and was not analysed in the supervised residue trials.

The toxicity of M550I015 is covered by the HBGVs of the parent dimpropyridaz. The meeting concluded that M550I015 contributes insignificantly to the dietary exposure compared to the sum of parent, M550I002, M550I004 and M550I006 and does not need to be included in the residue definition for dietary intake for plant commodities.

M550I051 was not detected in tomato fruit and occurred only as a minor component in tomato leaves. It was not detected in lettuce leaves, soya bean straw, hulls or seeds, was not reported in confined or field rotational crop studies and was not analysed in the supervised residue trials.

The toxicity of M550I051 is covered by the HBGVs for parent dimpropyridaz. The meeting concluded that M550I051 contributes insignificantly to the dietary exposure compared to the sum of parent, M550I002, M550I004 and M550I006 and does not need to be included into the residue definition for dietary intake for plant commodities.

Reg. No. 6065040 was only a minor part of the plant metabolism while Reg. No. 6123135 was not identified in any primary crops. Both compounds were found in frozen stored (≤–18 °C) samples of various matrices during storage stability testing and were quantified in supervised field trials (including grapes, leafy brassicas (cabbage and Chinese cabbage), peppers, wheat straw and cotton gin by-products and cucumber. The meeting concluded that Reg. No. 6065040 and Reg. No. 6123135 need to be taken into account for the dietary intake to avoid underestimations and to capture the full residue of dimpropyridaz, M550I002, M550I004 and M550I006.

The toxicity of Reg. No. 6065040 and Reg. No. 6123135 could not be investigated in the current meeting and the meeting could not conclude on a residue definition for dietary intake for plant commodities.

M550I042 was a minor metabolite in plants, reaching up to about 6.7 percent TRR in food commodities (lettuce leaves, ≤0.090 mg eq/kg) and up to 10 percent TRR in feeds (3.9 mg eq/kg, soya bean straw). It was neither reported nor quantified in confined or field rotational crops and was not analysed in the supervised residue trials. M550I042 does not need to be included in the residue definition for dietary intake.

The meeting concluded that the threshold of toxicological concern (TTC) Cramer class III approach for chronic exposure (1.5 µg/kg bw per day) and for acute exposure (5 µg/kg bw) should be considered for metabolite M550I042.

Summary

Definition of the residue for compliance with the MRL for plant commodities: *sum of dimpropyridaz and* methyl 5-methyl-1-(3-methylbutan-2-yl)-1H-pyrazole-4-carboxylate *(Reg. No. 6065040), expressed as dimpropyridaz.*

Definition of the residue for estimation of dietary intake for plant commodities: not concluded as a toxicological evaluation of Reg. No. 6065040 and Reg. No. 6123135 could not be investigated in the current meeting. Animal commodities

Metabolism of dimpropyridaz and its major plant metabolite M550I006 was studied in lactating goats and laying hens. The main part of the residue in goats consisted of M550I002, M550I004, M550I005, M550I014, M550I015 and M550I028. Additional metabolites identified at lower levels were M550I010, M550I051 and M550I052

Dimpropyridaz was present in lactating goats mainly in liver and kidney, accounting for 32.5 percent TRR (0.764 mg/kg) and 5.5 percent TRR (0.049 mg/kg), respectively. In other ruminant matrices, dimpropyridaz residues were lower, contributing 8.6 percent TRR (0.010 mg/kg) in muscle, 26.4 percent TRR (0.006 mg/kg) in fat and 1.7 percent TRR (0.004 mg/kg) in milk. Dimpropyridaz residues were not found in cow feeding studies and was not detected in any poultry commodity.

M550I015 was a predominant residue in the goat metabolism study, accounting for 53.8 percent TRR in milk and about 10.9–31.2 percent TRR in muscle, fat, liver and kidney. It was the major metabolite in the hen metabolism study, representing 24.6–48.8 percent TRR in eggs (yolk and white) and 26.8–66.7 percent TRR in tissues (muscle, liver and fat). In the dairy cow feeding study, M550I015 was detected in milk at up to 0.036 mg/kg and in kidney at up to 0.02 mg/kg at the highest dose, while in the hen feeding study residues were only observed in liver (up to 0.067 mg/kg at the highest dose).

Overall, dimpropyridaz and M550I015 were the most relevant identified residues in livestock (goat and hen). Validated analytical methods are available for both compounds in animal commodities at a LOQ of 0.01 mg/kg. The meeting concluded that dimpropyridaz and M550I015 (expresses as dimpropyridaz equivalents) should be considered as suitable marker compounds for enforcement purposes in animal commodities.

In deciding which compounds should be included in the residue definition for dietary intake, the meeting considered the likely occurrence of the compounds and the toxicological properties of the candidates, in particular the metabolites M550I002, M550I004, M550I005, M550I014 and M550I028.

M550I002 was a predominant residue in the lactating goat metabolism study, contributing with 13.5–23.1 percent TRR (about 60–270 percent of the parent TRR) in tissues, while it remained minor in milk at 1.6 percent TRR (about 95 percent of the parent TRR). In the dairy cow feeding study, M550I002 was present in liver up to about 0.23 mg/kg at the highest dose. In poultry, M550I002 occurred in eggs and tissues, accounting for 25–47 percent TRR in egg yolk and egg white, 17–22 percent TRR in muscle and liver, and was not detected in fat.

The toxicity of M550I002 is covered by the HBGVs for parent dimpropyridaz. The meeting concluded that M550I002 represents a significant part of the residue and decided to include the metabolite in the residue definition for dietary intake for animal commodities.

M550I014 was a relevant metabolite in the goat metabolism study, contributing with 12.0 percent TRR (0.027 mg eq/kg; about 700 percent of the parent TRR) in milk. In the dairy cow feeding study, M550I014 was quantified in milk at all dosing levels (from 0.017 mg/kg to 0.313 mg/kg) and at 0.018 mg/kg in liver. M550I0014 was not found in any poultry commodity.

The toxicity of M550I0014 is covered by the HBGVs for parent dimpropyridaz. The meeting concluded that M550I0014 represents a significant part of the residue, mainly via milk, and decided to include the metabolite in the residue definition for dietary intake for animal commodities.

M550I004 was a minor metabolite in the goat metabolism study, found at 4.3 percent TRR (0.010 mg eq/kg) in milk and was not found in any commodity in the dairy cow feeding study. M550I004 was not found in any poultry commodity.

The toxicity of M550I004 is covered by the HBGVs for parent dimpropyridaz. The meeting concluded that M550I004 contributes insignificantly to the dietary exposure, primarily via milk in comparison to M550I014, and does not need to be included into the residue definition for dietary intake for animal commodities.

M550I051 was a secondary metabolite following administration of M550I006. In the goat M550I006 metabolism study, M550I051 was identified only in tissues, contributing with 6.2–8.3 percent TRR (0.137 and 0.021 mg eq/kg; about 20 percent of the M550I006 TRR) in kidney and liver, respectively. In hens dosed with M550I006, M550I051 was the only metabolite identified in eggs and tissues, accounting for 2.9–18.1 percent TRR (0.001–0.006 mg eq/kg) in eggs (yolk and white). M550I051 was not identified in dimpropyridaz metabolism or in any feeding study, indicating that its occurrence is specific to direct exposure to M550I006.

M550I052 was a secondary metabolite following administration of M550I006. In the goat M550I006 metabolism study, M550I052 was found at 27.6–40.1 percent TRR (0.005–0.008 mg eq/kg) in muscle and 24.0–26.7 percent TRR (0.529–0.587 mg eq/kg in kidney), corresponding to about 200–700 percent and 80–90 percent of the M550I006 levels, respectively. M550I052 was not identified in hens (eggs or tissues) in either the dimpropyridaz or M550I006 metabolism studies, nor in any feeding study.

The toxicity of M550I051 and M550I052 is considered to be covered by the HBGVs established for parent dimpropyridaz. These metabolites occur mainly after dosing with M550I006 and are not formed to a relevant extent from dimpropyridaz in livestock. Dietary burden calculations for M550I006 (maximum intake of 0.167 ppm for beef cattle) are much lower than the feed levels of 11.8–11.9 ppm in metabolism studies. In addition, animals were sacrificed 1 hour after dosing, limiting the opportunity for further metabolism and distribution. Overall, the meeting concluded that M550I006, M550I051 and M550I052 contribute insignificantly to overall dietary exposure and do not need to be included in the residue definition for dietary intake for animal commodities.

M550I028 was a minor metabolite, found only in milk in the goat metabolism study, contributing with 10.3 percent TRR (0.023 mg eq/kg). In the dairy cow feeding study, M550I028 was found in milk up to 0.029 mg/kg (high dose) and detected only at low levels in liver. M550I028 was not found in any poultry commodity.

M550I028 is not included into the residue definition for dietary intake and the threshold of toxicological concern (TTC) Cramer class III approach for chronic exposure (1.5 µg/kg bw per day) and for acute exposure (5 µg/kg bw) should be considered.

On the basis of the metabolism patterns in goats and hens, the quantitative importance of parent and metabolites in edible matrices, dietary burden and feeding-study results, and the toxicological grouping of metabolites with the parent, the following residue definitions were agreed for animal commodities.

Residue definition for compliance with MRL: *sum of dimpropyridaz and 1-(3-hydroxy-3-methylbutan-2-yl)-5-methyl-N-(pyridazin-4-yl)-1H-pyrazole-4-carboxamide (M550I015), expressed as dimpropyridaz.*

Residue definition for estimation of dietary intake: s*um of dimpropyridaz, 1-(3-hydroxy-3-methylbutan-2-yl)-5-methyl-N-(pyridazin-4-yl)-1H-pyrazole-4-carboxamide (M550I015), 5-methyl-1-(3-methylbutan-2-yl)-N-(pyridazin-4-yl)-1H-pyrazole-4-carboxamide (M550I002) and N-ethyl-1-(3-hydroxy-3-methylbutan-2-yl)-5-methyl-N-(pyridazin-4-yl)-1H-pyrazole-4-carboxamide (M550I004) expressed as dimpropyridaz.*

Residues to be included in livestock dietary burden calculations: *sum of dimpropyridaz and methyl 5-methyl-1-(3-methylbutan-2-yl)-1H-pyrazole-4-carboxylate (Reg. No. 6065040), expressed as dimpropyridaz.*

The meeting will revisit this decision after the toxicological assessment of Reg. No. 6065040 and Reg. No. 6123135.

Residues of the components in the animal residue definition (dimpropyridaz, M550I015) are consistently equal or higher in muscle, liver and kidney than in fat and there is no indication of preferential accumulation in fatty tissues. The meeting concluded that the residues are not fat soluble.

Summary of residue definition

Based on the previous content, the meeting recommended the following residue definitions are recommended.

Residue definition for compliance with the MRL for plant commodities: sum of dimpropyridaz and methyl 5-methyl-1-(3-methylbutan-2-yl)-1H-pyrazole-4-carboxylate (Reg. No. 6065040), expressed as dimpropyridaz.

Residue definition for estimation of dietary intake for plant commodities: not concluded.

Residue definition for compliance with MRLs in animal commodities: *sum of dimpropyridaz and 1-(3-hydroxy-3-methylbutan-2-yl)-5-methyl-N-(pyridazin-4-yl)-1H-pyrazole-4-carboxamide (M550I015), expressed as dimpropyridaz.*

Residue definition for estimation of dietary intake in animal commodities: *sum of dimpropyridaz, 1-(3-hydroxy-3-methylbutan-2-yl)-5-methyl-N-(pyridazin-4-yl)-1H-pyrazole-4-carboxamide (M550I015), 5-methyl-1- (3-methylbutan-2-yl)-N-(pyridazin-4-yl)-1H-pyrazole-4-carboxamide (M550I002) and N-ethyl-1-(3-hydroxy-3-methylbutan-2-yl)-5-methyl-N-(pyridazin-4-yl)-1H-pyrazole-4-carboxamide (M550I004) expressed as dimpropyridaz.*

The residue is not fat soluble.

Results of supervised residue trials on crops

The meeting received supervised residue trial data for foliar applications of dimpropyridaz on citrus fruits (oranges and lemons), peaches, grapes, bulb onion, head brassica (cabbage, Brussels sprouts, Chinese cabbage), cucurbits (melon, cucumber, zucchini), fruiting vegetables (tomatoes, peppers), cereals (corn, wheat) and cotton. The following residue summaries are used.

The following molecular-weight-based conversion factors to parent equivalents are applied (Table 5.14.6).

Table 5.14.6 Conversion factors to parent equivalents for the residue definition for compliance

Residue	Component	Conversion factor to dimpropyridaz	LOQ (expressed as dimpropyridaz)
Dimpropyridaz (compliance)	Dimpropyridaz	1.000	0.01
	Reg. 6065040	1.433	0.014
	Sum, expressed as dimpropyridaz	–	0.024

For estimation of the maximum residue level, the highest residue measured at or beyond the intended PHI was used when multiple sampling dates were available, and if more than one analytical method had been applied to the same sample, the higher residue value was selected. In residue studies, two different analytical methods L0376/02 (or L0376/01) and L0376/03 were used, which are both based on LC-MS/MS detection, however, differ in their extraction procedure. In general, if the samples have been analysed with L0376/02 (or L0376/01) and L0376/03, the higher residue values have been taken into account for maximum residue level estimation, STMR, HR and dietary burden calculation.

Group of citrus fruit (crop group 001)

The critical GAP for dimpropyridaz on citrus in Brazil is three foliar applications at 0.12 kg ai/ha per application, applied at 7-day intervals with a 7-day PHI.

Supervised residue trials on citrus fruits were provided from Brazil and Europe, involving foliar uses at 0.12 kg ai/ha with 2 or 3 applications. The meeting noted that the third treatment in trials did not materially contribute to residues at harvest and decided to use trials with 2 or 3 applications for the residue evaluation.

In citrus, residues in the edible portion (pulp) were estimated based on the ratio of pulp to whole-fruit total residues from 12 trials (6 oranges and 6 mandarins). The results are presented in Table 5.14.7.

Table 5.14.7 List of peeling factors (PF) in citrus fruits

Commodity	Residues in whole fruit, mg/kg	Residues in peel, mg/kg	Residues in pulp, mg/kg	Individual PF	Mean or best estimated PF
Oranges N = 6	0.121, 0.101, <0.0725, 0.1690, 0.109, 0.106, 0.0725, 0.102	0.284, 0.278, 0.098, 0.413, 0.264, 0.34, 0.2, 0.18	<0.073 (6)	0.26, 0.27, 0.77, 0.18, 0.28, 0.22, 0.38, 0.42	0.28
Mandarins N = 6	0.097, 0.12, 0.088, 0.236, 0.106, 0.104, 0.086, 0.142	0.167, 0.648, 0.195, 1.28, 0.383, 0.289, 0.605, 0.315	<0.073 (6)	0.45, 0.12, 0.38, 0.06, 0.2, 0.26, 0.12, 0.24	0.22
Citrus fruits (n = 12)	See aforementioned oranges and mandarins				0.26

Oranges, sweet, sour (FC 0004)

For oranges, the critical GAP is from Brazil and consists of three foliar applications at 0.12 kg ai/ha, applied at 7-day interval with a 7-day PHI. A total of 20 supervised residue trials on oranges (Brazil and Europe) approximated this GAP were available.

Residues of dimpropyridaz (compliance) in orange whole fruits were (n = 20): 0.011, 0.012, 0.013, 0.023, 0.029, 0.035, 0.039, 0.043, 0.043, 0.046, 0.048, 0.053, 0.058, 0.058, 0.064, 0.080, 0.085, 0.092, 0.100, 0.170 mg/kg. A median of 0.047 mg/kg is estimated for whole fruits**.**

The meeting estimated a maximum residue level of 0.2 mg/kg for the subgroup of Oranges, Sweet, Sour (FC 0004).

Lemons and limes (FC 0002) and mandarins (FC 0003)

For lemons and mandarins, the critical GAP is from Brazil and consists of three foliar applications at 0.12 kg ai/ha, applied at 7-day interval with a 7-day PHI.

A total of 5 supervised residue trials on lemons approximating this GAP were available. Residues of dimpropyridaz (compliance) in lemon whole fruits were (n = 5): 0.036, 0.043, 0.086, 0.090, 0.16 mg/kg.

A total of 12 supervised residue trials on mandarins approximating this GAP were available. Residues of dimpropyridaz (compliance) in mandarin whole fruits were (n = 12): 0.044, 0.048, 0.067, 0.069, 0.073, 0.089, 0.092, 0.11, 0.124 0.14, 0.14, 0.31 mg/kg.

Since median residues on lemon and mandarins are within a fivefold difference and the Mann-Whitney U-test also determined that the datasets are not statistically different, the meeting decided to combine these datasets for the estimation.

Residues of dimpropyridaz (compliance) in lemon and mandarin whole fruits were (n = 17): 0.036, 0.043, 0.044, 0.048, 0.067, 0.069, 0.073, 0.086, 0.089, 0.090, 0.092, 0.11, 0.124, 0.14, 0.14, 0.16, 0.31 mg/kg. A median of 0.089 mg/kg is estimated for whole fruits**.**

The meeting estimated a maximum residue level of 0.4 mg/kg for the subgroup of Mandarins (FC 0003) and for the subgroup of Lemons and Limes (FC 0002).

Peach (FS 0247)

The critical GAP on peaches is from Argentina and consists of two foliar applications at 0.12 kg ai/ha per application (0.24 kg ai/ha per season), with a 30-day PHI.

Six supervised field trials on peaches in Argentina were conducted using one application at an exaggerated rate 0.24 kg ai/ha giving residues of dimpropyridaz (compliance) <0.024 (6) mg/kg. The meeting concluded that the trials were acceptable in support of the Argentinian GAP.

The meeting estimated a maximum residue level of 0.03 mg/kg, for dimpropyridaz in peach (FS 0247.

Grapes (FB 0269)

The critical GAP for dimpropyridaz on grapes is from Argentina and consists of one foliar application at 0.12 kg ai/ha, applied at the beginning of infestation with a 14-day PHI. Six (6) trials in Argentina with one foliar application at 0.144 kg ai/ha and a 14-day PHI.

Residues of dimpropyridaz (compliance) in grapes from Argentinian trials approximating the critical GAP were, in ranked order (n = 6): 0.028, 0.047, 0.048, 0.053, 0.084, 0.09, mg/kg.

The meeting estimated a maximum residue level of 0.2 mg/kg for in grapes (FB 0269), and a median residue of 0.051 mg/kg.

Bulb onions (Subgroup 009A)

The critical GAP for dimpropyridaz on bulb onion, garlic and shallot is from Brazil and consists of three foliar applications at 0.12 kg ai/ha, applied at 7-day interval with a 1-day PHI. The meeting received eight residue trials on bulb onions from Brazil conducted according to GAP.

However, because trial samples were stored for a maximum of 53 days, exceeding the demonstrated storage stability period for onion residues (30 days), the meeting decided not to estimate a maximum residue level.

Brassica vegetables (except Brassica leafy vegetables) (VB 0040)

The critical GAP for dimpropyridaz on head brassicas is from Australia and consists of four foliar applications at 0.06 kg ai/ha, at 14-day intervals with a 1-day PHI.

The meeting received 19 field trials in head brassicas (11 in head cabbage, 4 in Brussels sprouts and 4 in Chinese cabbage).

Five trials on cabbage from Brazil with three foliar applications at 0.06 kg ai/ha, applied at 7-day intervals, with a 1-day PHI did not match the critical GAP due to fewer applications and a shorter spray interval than the GAP.

Fourteen trials from Australia (6 in cabbage and 4 in brussels sprouts, 4 in Chinese cabbage) with four foliar applications at 0.12 kg ai/ha, applied at 7-day intervals, with a 1-day PHI did not match the critical GAP due to a higher application rate and shorter spray interval.

The meeting could not estimate a maximum residue level due to lack of residue trials according to GAP.

Fruiting vegetables, cucurbits – cucumbers and summer squashes

The critical outdoor GAP for dimpropyridaz on cucumbers is from Australia and consists of four foliar applications at 0.12 kg ai/ha, at 14-day intervals with a 1-day PHI.

The meeting received six outdoor trials from Australia (3 cucumbers on 3 zucchini) with four foliar applications at 0.12 kg ai/ha, applied at 7-day intervals, with a 1-day PHI. These trials did not match the critical GAP due to a shorter spray interval than specified in the GAP.

The critical indoor GAP for dimpropyridaz on cucurbits is from Brazil and consists of three foliar applications at 0.12 kg ai/ha, at 7-day intervals with a 3-day PHI.

The meeting received 16 indoor trials in Europe (12 on cucumber and 4 zucchini) with two foliar applications at 0.15 kg ai/ha, applied at 7-day intervals, with a 3-day PHI. These trials were conducted with fewer applications (2 instead of 3) than the Brazilian GAP. Based on the decline observed over 7 days (approximately 20–65 percent reduction in residue from day 0 to day 7), the meeting concluded that the initial application would not contribute significantly to residues, and that these trials therefore approximate the GAP.

Residues of dimpropyridaz (compliance) in cucumber were (n = 12): 0.024, 0.027, 0.03, 0.033, 0.048, 0.055, 0.059, 0.082, 0.085, 0.101 0.11, 0.13 mg/kg.

Residues of dimpropyridaz (compliance) in summer squash (zucchini) were (n = 4): 0.024, 0.03, 0.033, 0.039 mg/kg.

Median residues on cucumber and summer squash are within a fivefold difference and the Mann-Whitney U-test also determined that the datasets are not statistically different, therefore the meeting decided to combine these datasets.

Residues of dimpropyridaz (compliance) in cucumber and summer squash were (n = 16): 0.024, 0.024, 0.027, 0.03, 0.03, 0.033, 0.033, 0.039, 0.048, 0.055, 0.059, 0.082, 0.085, 0.101, 0.11, 0.13 mg/kg.

Cucumber and summer squash are representative commodity for the group of subgroup of fruiting vegetables, cucurbits – cucumbers and summer squashes, therefore, the meeting decided to estimate recommendations for the whole group.

The meeting estimated a maximum residue level of 0.2 mg/kg for subgroup of Fruiting vegetables, cucurbits – cucumbers and summer squashes (VC 2039).

Fruiting vegetables, cucurbits – melons, pumpkins, and winter squashes

The critical outdoor GAP for dimpropyridaz on cucurbits is from Australia and consists of four foliar applications at 0.12 kg ai/ha, at 14-day intervals with a 1-day PHI. No trials were conducted according to the critical GAP.

The next most critical GAP is from Brazil for outdoor melon and watermelon and consists of three foliar applications at 0.12 kg ai/ha, at 7-day intervals with a 3-day PHI. The meeting received 8 field trials using four applications at the GAP rate, two on melons from Brazil and six on cantaloupe from Australia.

Residues of dimpropyridaz (compliance) in whole fruits were (n = 8): 0.024, 0.026, 0.026, 0.029, 0.035, 0.04, 0.05, 0.066 mg/kg.

The meeting estimated a maximum residue level of 0.15 mg/kg, for Melons, except watermelon (VC 0046) and decided to extrapolate the estimated maximum residue level to watermelon (VC 0432).

Fruiting vegetables, other than cucurbits

Tomato

The critical indoor GAP for dimpropyridaz on tomatoes is from Australia and consists of four foliar applications at 0.12 kg ai/ha, at 14-day intervals with a 1-day PHI. The meeting received two indoor trials in Australia with four foliar applications at 0.12 kg ai/ha, applied at 7-day intervals, with a 1-day PHI and 16 indoor trials in Europe with two foliar applications at 0.15 kg ai/ha, applied at 7-day intervals, with a 3-day PHI. The meeting concluded that none of the available trials complied with the critical GAP.

The critical outdoor GAP for dimpropyridaz on tomatoes is from Brazil and consists of three foliar applications at 0.12 kg ai/ha, at 7-day intervals with a 1-day PHI. The meeting received 18 outdoor trials conducted in Argentina and China using two foliar applications, therefore not according to GAP.

In four outdoor trials conducted in Australia and five in Brazil approximating GAP (3 or 4 applications) gave residues of dimpropyridaz (compliance) in tomato (n = 9) of 0.037, 0.074, 0.084, 0.087, 0.11(3), 0.12, 0.19 mg/kg.

The meeting estimated a maximum residue level of 0.3 mg/kg and a median residue of 0.11 mg/kg for dimpropyridaz on tomatoes (VO 2045).

Pepper

Although indoor field trials on dimpropyridaz in peppers were provided to the meeting, a registered label was not available.

The critical outdoor GAP for dimpropyridaz on peppers (sweet and chilli) is from Australia and consists of four foliar applications at 0.12 kg ai/ha, at 14-day intervals with a 1-day PHI.

The meeting received four outdoor trials in Australia with four foliar applications at 0.12 kg ai/ha, applied at 7-day intervals, with a 1-day PHI and four outdoor trials in China with two foliar applications at 0.11 kg ai/ha, applied at 7-day intervals, with a 1-day PHI.

As no trials were conducted according to GAP, the meeting could not estimate a maximum residue level for dimpropyridaz on peppers.

Wheat (crop group 020 – subgroup 020A)

The critical GAP for dimpropyridaz on wheat and triticale in Brazil consists of three foliar applications at 0.036 kg ai/ha, applied at 7-day intervals with a 35-day PHI.

Five trials conducted in Brazil matching the critical GAP gave residues of dimpropyridaz (compliance) in wheat grain of (n = 5): <0.024 (5) mg/kg. A median of 0.024 mg/kg is estimated**.**

Wheat is the representative commodity of subgroup 020A: Wheat, similar grains and pseudocereals without husks, and supervised residue trials were available that matched the critical GAP, all <LOQ.

The meeting decided to estimate a maximum residue level of 0.03(*) mg/kg and a median of 0.024 mg/kg for the subgroup Wheat, similar grains, and pseudocereals without husks (GC 2086). These recommendations were extrapolated to triticale.

Noting that the registration includes use on triticale, the meeting agreed to extrapolate the estimates from wheat to triticale.

Maize (GC 0645)

The critical GAP for dimpropyridaz on maize in Argentina consists of three foliar applications at 0.12 kg ai/ha, applied at 5-day intervals with a 35-day PHI. The meeting received 10 field trials on wheat from Argentina (6) and Brazil (4) approximating GAP (7 days application interval).

Residues of dimpropyridaz (compliance) in maize grain were <0.024 (10) mg/kg. A was estimated.

The meeting estimated a maximum residue level of 0.03* mg/kg and a median of 0.024 mg/kg for in maize (GC 0645).

Cottonseed (SO 0691)

The critical GAP for dimpropyridaz on cotton in Australia consists of four foliar applications at 0.12 kg ai/ha, applied at 14-day intervals with a 28-day PHI. No trials were available that matched this GAP.

The GAP for dimpropyridaz on cotton in Brazil consists of three foliar applications at 0.12 kg ai/ha, applied at 7-day intervals with a 35-day PHI. The five trials form Brazil matched this GAP.

Residues of dimpropyridaz (compliance) in cotton seed were <0.024 (5) mg/kg.

The GAP for dimpropyridaz on cotton in India consists of two foliar applications at 0.12 kg ai/ha, interval not reported with a 31-day PHI. The six trials from Argentina approximated the Indian GAP.

Residues of dimpropyridaz (compliance) in cotton seed were (n = 6): <0.024 (5), 0.041 mg/kg.

The meeting estimated a maximum residue level of 0.05 mg/kg and a median residue of 0.024 mg/kg for cotton seed (SO 0691) based on the Indian GAP.

Fates of residues during processing

High temperature hydrolysis

Dimpropyridaz in aqueous solutions was stable (more than 97 percent TRR) during simulating pasteurization (pH 4, for 20 minutes at 90 °C), brewing, baking and boiling (pH 5, for 60 minutes at 100 °C) and sterilization (pH 6, for 20 minutes at 120 °C).

Residues in processed commodities

The meeting received information on the fate of residues of dimpropyridaz and its metabolites during processing in orange, apple, grapes, cabbage, cucumber, tomato, wheat, barley and soybean, The effect of processing was investigated for parent dimpropyridaz. The results are shown in Table 5.14.8 and Table 5.14.9.

Although processing studies on apples, barley and soybean were provided to the meeting, a registered label was not available and the meeting did not estimate residues for dimpropyridaz in processing commodities origination from those commodities.

Table 5.14.8 Processing factors (PF) for dimpropyridaz used for estimation of maximum residue levels

Commodity	Maximum residue level $_{RAC}$, mg/kg	Processed commodity or fraction (Codex code)	Individual PF[a]	Median or best estimate PF	Processed commodity maximum residue level, mg/kg[b]
Orange	0.2	Orange Oil (OR 0004)	33, 34, 63	34	7
Grapes (for raisin)	0.2	Raisins (DF 5263)	6.3, 6.4, 7.3	6.4	1.5
Tomato	0.3	Paste (VW 0448)	0.6, 1.8, 2.4	1.8	0.6
		Sun-dried (DV 0448)	3, 3.9, 4	3.9	1.5
Wheat grain	0.03*	Aspirated grain fraction (CF 3521)	2.2, 2.8, 10.1	2.8	0.09

Notes:
[a] The concentration levels in the RAC and processed commodities were used according to the residue definition for enforcement.
[b] Maximum residue level$_{RAC}$ × PF.

On the bases of the information presented in Table 5.14.8 the meeting estimated maximum residue levels of 7 mg/kg in orange oil, of 1.5 in raisins, of 0.6 mg/kg in tomato paste and of 1.5 mg/kg in sundried tomatoes and of 0.09 mg/kg for wheat aspirated grain fraction.

Table 5.14.9 Processing factors (PF) for dimpropyridaz used for dietary burden calculations

Commodity	Processed commodity or fraction (codex code)	$Median_{RAC}$ (mg/kg)	Individual PF[a]	Median or best estimate PF	Median processed commodity (mg/kg)[b]
Orange	Orange dried pulp (AB 0004)	0.034[c]	0.6, 0.2, 0.1	0.2	0.007
Wine grapes	Grape Pomace, wet	0.051	4.9, 7.2, 4.7	4.9	0.025
Tomato	Pomace, wet	0.11	0.5, 1.5, 2.2	1.5	1.6
Wheat grain	Aspirated grain fraction (CF 3521)	0.024	2.2, 2.8, 10.1	2.8	0.067
	Bran (CM 0654)		1, 1.4, 1.2	1.4	0.034
	Middlings (CF 3514)		1, 1, 1	1	0.024
	Gluten meal (CF 3522)		1, 1, 1	1	0.024

Notes:

[a] For the calculation of the processing factor, the concentration levels in the RAC and processed commodities were used according to the residue definition for compliance with MRL.

[b] $Median_{RAC}$ × PF.

[c] Median x PF for peeling (0.26) for citrus fruits (Table 5.14.7).

Residues in animal commodities

Farm animal feeding studies

Cattle

Dimpropyridaz was administered to dairy cows in gelatine capsules once daily for 28 days at actual dietary levels of 0.305, 1.6 and 13.1 ppm DM (about 0.01, 0.051 and 0.394 mg/kg bw per day).

Milk and tissues were analysed by methods L0449/03 (dimpropyridaz, M550I002, M550I004, M550I006, M550I014, M550I015, M550I028) and L0449/04 (M550I005 in liver, kidney and fat); LOQ was 0.01 mg/kg for each analyte and matrices. All major metabolites observed in the goat metabolism study (M550I002, M550I004, M550I005, M550I006, M550I014, M550I015, M550I028) were covered analytically. Samples were stored for less than 30 days before analysis.

Parent dimpropyridaz was not found in any tissues or milk at all dose levels.

In milk, only M550I014, M550I015 and M550I028 were quantified (mainly at 1.6 and 13.1 ppm). At the highest feeding level, plateaus were reached at day 5, with mean levels of 0.25 mg/kg for M550I014, 0.036 mg/kg for M550I015 and 0.029 mg/kg for M550I028. Concentrations of these metabolites in cream (0.018–0.16 mg/kg) and skim milk (0.033–0.26 mg/kg), indicating that residue do not accumulate in fat.

In tissues, residues were largely confined to liver and kidney at the 1.6 and 13.1 ppm levels. In liver, M550I002 was up to 0.23 mg/kg, with lower levels of M550I004, M550I005, M550I014, M550I015 and M550I028. In kidney, metabolites M550I002, M550I005, M550I014 and M550I015 were found at about 0.02 mg/kg. None of the metabolites were found in muscle and fat.

Laying hens

Dimpropyridaz was administered to hens in capsules for 28 days at 0.073, 0.25 and 0.76–0.827 ppm feed (0.005, 0.015 and 0.05 mg/kg bw per day).

Eggs, liver, muscle and skin with fat were analysed by method L0449/03 for dimpropyridaz, M550I002 and M550I015 (LOQ 0.01 mg/kg). Metabolite M550I05 identified in the hen metabolism study (dosed with M550I006), was not analysed in the feeding study. Samples were stored for less than 30 days before analysis.

Parent and metabolites (M550I002 M550I015) were not found in any tissues or eggs at any dose except low residues of M550I002 (up to 0.022 mg/kg) and M550I015 (up to 0.067 mg/kg) in liver at the highest dose level.

Farm animal dietary burden

The maximum dietary burdens were calculated for beef cattle, dairy cattle, broilers and laying poultry based on feed items evaluated by the current meeting, including processed commodities. The input was based on the intake of sum of dimpropyridaz, and Reg. No. 6065040, expressed as dimpropyridaz. The dietary burdens estimated using the most recent version of the OECD livestock dietary burden calculator are presented in Annex 5 and summarized in Table 5.14.10.

Table 5.14.10 Estimated maximum dietary burdens of farm animals for dimpropyridaz and Reg. No. 6065040 expressed as dimpropyridaz, ppm of dry matter diet

	United States/Canada	European Union	Australia	Japan
Beef cattle	0.031	0.032	0.18	0.027
Dairy cattle	0.027	0.030	0.18	0.027
Poultry – broiler	0.027	0.028	0.024	0.020
Poultry – layer	0.027	0.028	0.020	0.027

Notes:

[a] Highest maximum beef or dairy cattle dietary burden suitable for maximum residue level estimates for mammalian tissues.

[b] Highest maximum dairy cattle dietary burden suitable for maximum residue level estimates for milk.

[c] Highest maximum poultry dietary burden suitable for maximum residue level estimates for poultry tissues and poultry eggs.

Estimation of animal commodity residue levels

Ruminants

The calculations used to estimate maximum residue levels for ruminant matrices are shown in Table 5.14.11.

Table 5.14.11 Residues for sum of dimpropyridaz and M550I015, expressed as dimpropyridaz equivalents, for estimation of maximum residue level in mammalian commodities

	Feed level (ppm) for milk residues	Total residues (mg eq/kg) in milk	Feed level (ppm) for tissue residues	Total residues (mg eq/kg)			
				Muscle	Liver	Kidney	Fat
Feeding study	0.24	<0.02	0.24	<0.02	<0.02	<0.02	<0.02
Dietary burden and estimate of highest residue	0.18	<0.02	0.18	<0.02	<0.02	<0.02	<0.02

The meeting estimated maximum residue levels of 0.02* mg/kg in the groups of milk, the group of mammalian fats (except milk fats), the group of muscle (from mammals other than marine mammals) and the group of edible offal (mammalian).

Poultry
The calculations used to estimate maximum residue levels for poultry matrices are shown in Table 5.14.12.

Table 5.14.12 Residues for sum of dimpropyridaz and M550I015, expressed as dimpropyridaz, for estimation of maximum residue levels in avian products

	Feed level (ppm) for eggs residues	Total residues (mg eq/kg) in eggs	Feed level (ppm) for tissue residues	Total residues (mg eq/kg)			
				Muscle	Liver	Kidney	Fat
Feeding study	0.073	<0.02	0.073	<0.02	0.032	–	<0.02
Dietary burden and estimate of highest residue	0.03	<0.02	0.03	<0.02	0.013	–	<0.02

The meeting estimated a maximum residue level of 0.02* mg/kg in the group of eggs, group of avian, group of avian fats and of 0.02 mg/kg in the group of avian, edible offal of.

Recommendations

No recommendations were made because the residues definitions for estimation of dietary intake for plant was not concluded. Table 5.14.13 shows the residues included in the dietary burden calculation.

Definition of the residue for compliance with the MRL for plants: *sum of dimpropyridaz and methyl 5-methyl-1-(3-methylbutan-2-yl)-1H-pyrazole-4-carboxylate (Reg. No. 6065040), expressed as dimpropyridaz.*

Definition of residue for estimation of dietary intake for plant commodities: not concluded.

Definition of the residue for compliance with the MRL for animals: *sum of dimpropyridaz and 1-(3-hydroxy-3-methylbutan-2-yl)-5-methyl-N-(pyridazin-4-yl)-1H-pyrazole-4-carboxamide (M550I015), expressed as dimpropyridaz.*

Definition of the residue for estimation of dietary intake in animal commodities: sum of dimpropyridaz, 1-(3-hydroxy-3-methylbutan-2-yl)-5-methyl-N-(pyridazin-4-yl)-1H-pyrazole-4-carboxamide (M550I015), 5-methyl-1- (3-methylbutan-2-yl)-N-(pyridazin-4-yl)-1H-pyrazole-4-carboxamide (M550I002) and N-ethyl-1-(3-hydroxy-3-methylbutan-2-yl)-5-methyl-N-(pyridazin-4-yl)-1H-pyrazole-4-carboxamide (M550I004) expressed as dimpropyridaz.

The residue is not fat soluble.

Table 5.14.13 Residues used in estimating livestock dietary burdens

CCN	Commodity name	Median residue (-P) mg/kg
–	Citrus pulp, dry	0.007
SO 0691	Cotton seed	0.024
–	Grape Pomace	0.025
GC 0645	Maize	0.024
–	Tomato pomace, wet	0.15
GC 0653	Triticale	0.024
GC 0654	Wheat	0.024
CF 3521	Wheat aspirated grain fraction	0.067
CF 3522	Wheat gluten meal	0.024
CF 3514	Wheat middlings	0.024

Dietary risk assessment

As the meeting did not have sufficient time to reach a conclusion on the toxicological evaluation of Reg. No. 6065040 and Reg. No. 6123135, a residue definition for dietary intake assessment for plant commodities was not concluded and no dietary risk assessment was conducted. A dietary risk assessment will be conducted when a conclusion is reached on the residue definition.

5.15 Dinotefuran (255) (R)

Residue and analytical aspects

Dinotefuran (IUPAC name: (EZ)-(RS)-1-methyl-2-nitro-3-(tetrahydro-3-furylmethyl)guanidine) is a neonicotinic insecticide used in various crops and acts as an agonist at the insect nicotinic acetylcholine receptor.

Dinotefuran was evaluated by JMPR in 2012 as a new compound, when an ADI of 0–0.2 mg/kg bw and an ARfD of 1 mg/kg bw were established, and in 2023 for additional uses. Its specifications have not yet been established by the Joint Meeting on Pesticides Specifications (JMPS).

Definition of residue for compliance with the MRL in plant commodities: dinotefuran.

Definition of residue for estimation of dietary intake in plant commodities: sum of dinotefuran, 1-methyl-3-(tetrahydro-3-furylmethyl) urea (UF) and 1-methyl-3-tetrahydro-3-furylmethyl)guanidium dihydrogen (DN), expressed as dinotefuran.

Definition of residue for compliance with the MRL and estimation of dietary intake for animal commodities: sum of dinotefuran and 1-methyl-3-(tetrahydro-3-furylmethyl) urea (UF), expressed as dinotefuran.

The residue is not fat soluble.

Dinotefuran was scheduled at the 55th Session of the CCPR for evaluation of additional uses by the 2025 JMPR. The meeting received information on use patterns, analytical methods and supervised trials on durian and mango.

Methods of residue analysis

The meeting received an analytical method for durian and mango. The sample was extracted with acetonitrile containing acetic acid and analysed using LC-MS/MS. The meeting concluded that the method is suitable for the analysis of dinotefuran, UF and DN in durian (whole fruit and pulp) and mango (whole fruit, pulp and peel) with an LOQ of 0.01 mg/kg (0.013 mg eq/kg for UF and DN, expressed as dinotefuran).

Stability of pesticide residues in stored analytical samples

The meeting received no new information on the stability of the residues. The 2012 JMPR concluded that dinotefuran and its metabolite (UF and DN) residues were stable for at least 26 months (780 days) in peach (high water content commodity) when stored frozen. In all residue trials, the storage periods (up to 664 days) were covered by the storage stability study.

Results of supervised residue trials on crops

Total residues to estimate STMR and HR for food commodities are calculated by summing up the concentrations of dinotefuran, UF and DN (expressed as dinotefuran equivalents). The method of calculation is illustrated in 5.15.1.

Table 5.15.1 Total residue calculation for dinotefuran

Dinotefuran (mg/kg)	UF (mg eq/kg)	DN (mg eq/kg)	Total (mg eq/kg)
0.10	0.05	0.03	0.18
0.10	0.05	<0.013	0.16
0.10	<0.013	0.03	0.14
0.10	<0.013	<0.013	0.13
<0.01	<0.013	<0.013	<0.036

Durian

The critical GAP (cGAP) for dinotefuran on durian in Thailand is 2 foliar applications at 1.5 g ai/tree with a minimum re-treatment interval (RTI) of 7 days and a PHI of 3 days.

In independent trials conducted with dinotefuran in Thailand approximating the cGAP, residues of dinotefuran in durian (whole fruit) were (n = 6): 0.13, 0.16, 0.22, 0.24, 0.29 and 0.32 mg/kg. Total residues in durian (pulp) from trials approximating the cGAP were (n = 4): <0.036 (3) and 0.036 mg eq/kg.

The meeting estimated a maximum residue level of 0.7 mg/kg, an STMR of 0.036 mg/kg and HR of 0.036 mg/kg for dinotefuran in durian.

Mango

The cGAP for dinotefuran on mango in Thailand is three foliar applications at 0.5 g ai/tree with RTIs of 7 days and a PHI of 3 days.

In trials conducted with dinotefuran in Thailand approximating the cGAP, residues of dinotefuran in mango (whole fruit) were (n = 5): 0.14, 0.16, 0.17, 0.21 and 0.27 mg/kg. Total residues in mango (whole fruit) from trials approximating the GAP were (n = 5): 0.17, 0.19, 0.22, 0.24 and 0.30 mg/kg.

The meeting estimated a maximum residue level of 0.6 mg/kg. Using pulp:whole fruit ratio (x 0.54) to estimate residues in mango pulp from those in mango whole fruit, the meeting estimated an STMR of 0.12 mg eq/kg and HR of 0.16 mg/kg for mango.

Residues in animal commodities

Farm animal dietary burden

No commodities evaluated by the current JMPR are used as animal feed. At the request of CCPR, the meeting estimated the animal dietary burden for dinotefuran based on the residues estimated by previous JMPR. The dietary burdens, estimated using the OECD diets listed in Appendix IX of the 2016 edition of the FAO manual, are presented in Annex 5 and summarized in 5.15.2.

Table 5.15.2 Animal dietary burden of dinotefuran, ppm of dry matter diet

	United States/Canada		European Union		Australia		Japan	
	Max.	Mean	Max.	Mean	Max.	Mean	Max	Mean
Beef cattle	1.32	1.32	9.28	2.58	13.29	4.61	3.10	1.45
Dairy cattle	5.53	2.33	6.60	2.18	15.36[a]	6.34[b]	1.43	0.68
Poultry – broiler	1.00	1.00	0.239	0.239	2.35	2.35	0.117	0.117
Poultry – layer	1.00	1.00	0.121	0.121	2.35[c]	2.35[d]	0.469	0.469

Notes:

[a] Highest maximum beef cattle and dairy cattle burden suitable for MRL estimates for mammalian tissues and milk.

[b] Highest mean beef cattle dietary and dairy cattle burden suitable for STMR estimates for mammalian tissues and milk.

[c] Highest maximum poultry dietary burden suitable for MRL estimates for poultry tissues and eggs.

[d] Highest mean poultry dietary burden suitable for STMR estimates for poultry tissues and eggs.

Estimation of residues in animal commodities

The residues of dinotefuran (total) in cattle beef and dairy cattle were calculated based on animal dietary burdens and the result of farm animal feeding study submitted to the 2012 JMPR. The results are shown in Table 5.15.3.

Table 5.15.3 Residues in animal commodities for dinotefuran

	Feed level (ppm) for milk residues	Residues (mg eq/kg) in milk	Feed level (ppm) for tissue residues	Residues (mg eq/kg)			
				Muscle	Liver	Kidney	Fat
Maximum residue level (beef or dairy cattle)							
Feeding study	15 50	0.082 0.26	15 50	0.062 0.26	0.066 0.26	0.076 0.39	0.065 0.18
Dietary burden and estimate of maximum residue	15.4	0.084	15.4	0.065	0.068	0.080	0.067
STMR (beef or dairy cattle)							
Feeding study	5 15	0.033 0.082	5 15	0.026 0.058	0.024 0.061	0.023 0.072	<0.02 0.044
Dietary burden and estimate of mean residue	6.34	0.039	6.34	0.030	0.029	0.030	0.023

Taking into account the changes of CODEX classification for animal commodities, the meeting recommends a maximum residue levels of 0.1 mg/kg and a STMR and 0.039 mg/kg for the group of milk; a maximum residue level of 0.1 mg/kg, a STMR of 0.030 and a HR of 0.065 mg eq/kg for group of muscle (from mammals other than marine mammals); a maximum residue level 0.1 mg/kg, a SMTR 0.023 and a HR of 0.067 mg eq/kg for the group of mammalian fats (except milk fats); a maximum residue level of 0.1 mg/kg for the group of edible offal (mammalian) (based on the residue in kidney), a STMR of 0.029 mg/kg and a HR of 0.068 mg/kg for liver and a STMR of 0.030 mg/kg and a HR of 0.080 mg/kg for kidney. The meeting subsequently withdrew its previous recommendations for dinotefuran in milk, mammalian meat, and edible offal (mammalian).

A feeding study for broiler and layer poultry was not available. However, the maximum dietary burden for broiler and layer poultry (2.35 ppm) is lower than the level in the animal metabolism study on laying hen (10 ppm), and residue of dinotefuran was detected only in egg white at 0.013 mg/kg. Therefore, the residues of sum of dinotefuran, UF and DN at the maximum dietary burden were expected <0.01 mg eq/kg in avian commodities.

The meeting estimated a maximum residue level of 0.02* mg/kg and a STMR and HR 0 mg/kg for the group of avian muscle; group of avian, edible offal of; in group of avian fats; and group of eggs. The meeting subsequently withdrew the previous recommendations for poultry meat, poultry, edible offal of, and eggs.

Recommendations

On the basis of the data obtained from supervised trials, the meeting concluded that the residue levels listed in Table 5.15.4 and in Annex 1 are suitable for establishing maximum residue limits and for estimation of dietary intake. Table 5.15.5 shows the commodities and residues used for dietary burden calculation.

Definition of residue for compliance with the MRL in plant commodities: dinotefuran.

Definition of residue for dietary risk assessment in plant commodities: sum of dinotefuran, 1-methyl-3-(tetrahydro-3-furylmethyl) urea (UF) and 1-methyl-3-tetrahydro-3-furylmethyl)guanidium dihydrogen (DN), expressed as dinotefuran.

Definition of residue for compliance with the MRL and dietary risk assessment for animal commodities: sum of dinotefuran and 1-methyl-3-(tetrahydro-3-furylmethyl) urea (UF), expressed as dinotefuran.

The residue is not fat soluble.

Table 5.15.4 Residue levels suitable for establishing maximum residue limits and for the estimation of dietary intake

CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P (mg eq/kg)	HR or HR-P (mg eq/kg)
		New	Previous		
FI 0334	Durian	0.7	–	0.036 (pulp)	0.036 (pulp)
MO 0105	Edible offal (mammalian)	W	0.1	–	–
PE 0112	Eggs	W	0.02*	–	–
PO 0111	Group of avian, edible offal of	0.02*	–	0 (liver) 0 (kidney)	0 (liver) 0 (kidney)
PF 0111	Group of avian fats	0.02*	–	0	0
PM 0110	Group of avian muscle	0.02*	–	0	0
MO 0105	Group of edible offal (mammalian)	0.1	–	0.029 (liver) 0.030 (kidney)	0.068 (liver) 0.080 (kidney)
PE 0112	Group of eggs	0.02*	–	0	0
MF 0100	Group of mammalian fats (except milk	0.1	–	0.025	0.067

CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P (mg eq/kg)	HR or HR-P (mg eq/kg)
		New	Previous		
	fats)				
ML 0106	Group of milk	0.1	–	0.039	–
MM 0095	Group of muscle (from mammals other than marine mammals)	0.1	–	0.030	0.065
FI 0345	Mango	0.6	–	0.12 (pulp)	0.16 (pulp)
MM 0095	Meat (from mammals other than marine mammals)	W	–	–	–
ML 0106	Milk	W	0.1	–	–
PO 0111	Poultry, edible offal of	W	0.02*	–	–
PM 0110	Poultry meat	W	0.02*	–	–

Table 5.15.5 Residues used in the animal dietary burden calculation

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed	Source
AM/AV	Cotton, gin by-products	3.8	7.1	90	JMPR 2012
SM	Cotton, hulls	0.0765	–	90	JMPR 2012
SM	Cotton, meal	0.0765	–	89	JMPR 2012
SO	Cotton, undelinted seed	0.15	–	88	JMPR 2012
AB	Grape, pomace, wet	0.22	–	15	JMPR 2012 (based on RAC)
AM/AV	Kale, leaves	1.2	4.4	15	JMPR 2012
CM/CF	Rice, bran/pollard	2.112	–	90	JMPR 2012
GC	Rice, grain	3.3	–	88	JMPR 2012
CM/CF	Rice, hulls	15.18	–	90	JMPR 2012
AF/AS	Rice, straw	1.6	4.3	90	JMPR 2012
AB	Tomato, pomace,wet	0.1	–	20	JMPR 2012 (based on RAC)
AM/AV	Turnip, tops (leaves)	1.2	4.4	30	JMPR 2012

Dietary risk assessment

Long-term exposure

The ADI for dinotefuran is 0–0.2 mg/kg bw. The International Estimated Daily Intakes (IEDIs) for 17 GEMS/Food cluster diets, based on the recommendations of the current JMPR, were in the range of 0–3 percent of the maximum ADI of 0.2 mg/kg bw for dinotefuran. The results are shown in Annex 3.

The meeting concluded that the long-term dietary exposure from residues of dinotefuran, from uses that have been considered by the JMPR, is unlikely to present a public health concern.

Acute dietary exposure

The ARfD for dinotefuran is 1 mg/kg bw. The International Estimated Short-Term Intake (IESTI) for dinotefuran was calculated. The results are shown in Annex 4.

The IESTIs for dinotefuran from the intake of the residue evaluated by the present meeting were 0 percent for general population and 0–1 percent for children of the ARfD. The meeting concluded that acute dietary exposure from the residues of dinotefuran, from uses that have been considered by the JMPR, is unlikely to present a public health concern.

5.16 Etoxazole (241) (R)

Residue and analytical aspects

Etoxazole is an acaricide (miticide/ovicide) belonging to the diphenyloxazoline group of chemicals. The IUPAC name for etoxazole is (*RS*)-5-*tert*-butyl-2-[2-(2,6-difluorophenyl)-4,5-dihydro-1,3-oxazol-4-yl]phenetole.

Etoxazole was first evaluated by the JMPR in 2010, when an ADI of 0–0.05 mg/kg bw was established and an ARfD was considered unnecessary. An additional residue evaluation was conducted in 2011.

The residue definition for compliance with the MRL and for estimation of dietary intake for plant and animal commodities is etoxazole. The residue is fat soluble.

Etoxazole was scheduled at the 55th Session of the CCPR for evaluation of additional uses by the 2025 JMPR. The meeting received new information on analytical method, storage stability, use patterns and additional supervised residues trials on avocado and sweet corn commodities.

Methods of residue analysis

The meeting received additional information on analytical methods for etoxazole in avocado and sweet corn. The methods were derived from method RM-37, which is based on GC-MSD for avocado and LC-MS/MS in sweet corn commodities. Description and validation of RM-37 and modifications was previously considered in the JMPR 2010 evaluation.

The methods are considered suitable for determination of etoxazole with an LOQ of 0.01 mg/kg for avocado and sweet corn kernel plus cob with husk removed and 0.02 mg/kg for sweet corn forage and stover.

The meeting concluded that the presented methods were sufficiently validated and are suitable to measure etoxazole in avocado and sweet corn commodities.

Stability of pesticide residues in stored analytical samples

The current meeting received additional information on the freezer storage stability of etoxazole residues in plant commodities (avocado, sweet corn kernels plus cob with husks removed, sweet corn forage, and sweet corn stover). Storage stability studies showed that etoxazole was stable at ≤–20 °C for at least 403 days in avocado and at least 104 days in sweet corn commodities. These durations covered the longest period of storage for samples obtained from supervised residue trials.

Results of supervised residue trials on crops

The meeting received supervised trial data for the foliar application of etoxazole on avocado and sweet corn. Labels and residue trials from the United States were made available.

Avocado

The GAP for avocado is from the United States consists of 1 foliar application at 151 g ai/ha with a PHI of 1 day.

Residues of etoxazole in avocado pitted fruits from independent trials approximating the GAP in ranked order were (n = 5): 0.018, 0.019, 0.033, 0.065, and 0.076 mg/kg.

According to the Codex classification and the FAO Manual, the commodity to be analysed is the whole avocado after removal of pit where the residue is calculated and expressed on a whole fruit basis. As the pits account for an average of 15 percent of the whole fruit weight, all residues for pitted avocadoes were adjusted by a factor of 0.85. As residues were not detected for pulp (<0.01 mg/kg), the residues reported for pitted avocadoes (peel and pulp) were considered for estimation of STMR.

The meeting estimated a maximum residue level of 0.15 mg/kg, and a STMR of 0.033 mg/kg for etoxazole in avocado.

Sweet corn (corn-on-the-cob) (kernels plus cob with husk removed)

The critical GAP for sweet corn from the United States is 1 foliar application of a WP formulation at 151 g ai/ha before tasseling stage, with a PHI of 21 days.

Residues of etoxazole in independent trials approximating the critical GAP were (n = 13): <0.01 (13) mg/kg.

The meeting estimated a maximum residue level of 0.01* mg/kg, and a STMR of 0.01 mg/kg for etoxazole in sweet corn (corn-on-the-cob) (kernels plus cob with husk removed).

Animal feeds

Sweet corn forage and stover

The critical GAP for sweet corn from the United States is 1 foliar application at 151 g ai/ha before tasseling stage, with a PHI of 21 days.

Residues of etoxazole in sweet corn forage (as received) in trials approximating the critical GAP in ranked order were (n = 13): 0.06, 0.08, 0.11, 0.12, 0.18, 0.26, 0.32, 0.34 (2), 0.58, 0.74, 0.85, and 0.88 mg/kg.

The meeting estimated a median residue of 0.32 mg/kg and a highest residue of 0.88 mg/kg for etoxazole in sweet corn forage (as received).

Residues of etoxazole in sweet corn stover (as received) were (n = 13): 0.18 (2), 0.39, 0.55, 0.63, 0.75, 0.82, 0.94, 0.99, 1.4, 1.7, 2.0, and 3.3 mg/kg.

The meeting estimated a median residue of 0.82 mg/kg and a highest residue of 3.3 mg/kg for etoxazole in sweet corn stover (as received).

The meeting estimated a maximum residue level of 6 mg/kg etoxazole in sweet corn stover (dry weight, DM content 83 percent).

Residues in animal commodities

Animal feeding study

A ruminant feeding study was evaluated by the 2010 JMPR. Lactating Holstein cows were dosed with etoxazole for 28 days at the equivalent of 1, 3 and 10 ppm in the diet. Residues of etoxazole were below the LOQ (0.01 mg/kg) in whole milk at the 1 and 3 ppm feeding levels. Cream (day 27) from the 1 ppm level contained residues below the LOQ (0.02 mg/kg) and at the 3 ppm level contained a maximum of 0.02 mg/kg etoxazole residues. Kidney and muscle contained etoxazole residues below the LOQ (0.01 mg/kg) at all feeding levels. Liver contained etoxazole residues below the LOQ (0.01 mg/kg) at the 1 and 3 ppm levels and 0.01–0.02 mg/kg at the 10 ppm level. Fat contained etoxazole residues of <0.01–0.02 mg/kg at the 1 ppm, 0.01–0.04 mg/kg at the 3 ppm and 0.06–0.11 mg/kg at the 10 ppm level.

Farm animal dietary burden

Dietary burdens were calculated for beef cattle and dairy cattle based on feed items evaluated by the JMPR in 2011 and the current recommendations. As none of the feed items is relevant for poultry diet, the dietary burden for poultry was not necessary. The dietary burdens estimated using the most recent version of the OECD livestock dietary burden (2018) are presented in Annex 5 and Table 5.16.1.

Table 5.16.1 Estimated maximum and mean dietary burdens of farm animals of etoxacole, ppm of dry matter diet

	United States/Canada		European Union		Australia		Japan	
	Max.	Mean	Max.	Mean	Max.	Mean	Max.	Mean
Beef cattle	0.002	0.002	0.029	0.029	2.690[a]	0.795[c]	–	–
Dairy cattle	1.186	0.388	0.016	0.016	1.242[b]	0.411[d]	–	–

Notes:

[a] Highest maximum beef or dairy cattle dietary burden suitable for MRL estimates for mammalian tissues.

[b] Highest maximum dairy cattle dietary burden suitable for MRL estimates for mammalian milk.

[c] Highest mean beef or dairy cattle dietary burden suitable for STMR estimates for mammalian tissues.

[d] Highest mean dairy cattle dietary burden suitable for STMR estimates for milk.

Estimation of animal commodity residue levels

The calculations used to estimate highest total residues for use in estimating maximum residue levels and STMR values are shown in Table 5.16.2.

Table 5.16.2 Animal commodity maximum residue level and STMR for cattle, as etoxazole

	Feed level (ppm) for milk residues	Residues (mg/kg) in milk[a]	Feed level (ppm) for tissue residues	Residues (mg/kg)			
				Muscle	Liver	Kidney	Fat
Maximum residue level estimation (beef or dairy cattle)							
Feeding study	1	<0.01 (<0.02)	1	<0.01	<0.01	<0.01	0.015
	3	<0.01 (0.02)	3	<0.01	<0.01	<0.01	0.033
Dietary burden and estimate of highest residue	1.242	<0.01 (0.02)	2.690	<0.01	<0.01	<0.01	0.030
STMR estimation (beef or dairy cattle)							
Feeding study	1	<0.01 (<0.02)	1	<0.01	<0.01	<0.01	0.013
Dietary burden and estimate of highest residue	0.411	<0.01 (<0.02)	0.795	<0.01	<0.01	<0.01	0.01

Notes:

[a] Figures in brackets are for cream.

For maximum residue level estimation for milk and tissues, the highest residue was calculated by interpolating the maximum dietary burden (1.242 and 2.690 ppm for milk and tissues respectively) between the relevant feeding levels (1 and 3 ppm) from the dairy cow feeding study and using the highest residue level for tissues, and mean residue for milk, from individual animals within those feeding groups.

For maximum residue level estimation for milk fats, the high residue was calculated by scaling the highest dietary burden of cream (1.242 ppm) from the 3 ppm feeding level and then adjusting by a factor of 2 based on cream containing 40–60 percent fat.

The STMR values were calculated by scaling the mean dietary burden (0.411 and 0.795 ppm for milk/cream and tissues respectively) from the 1 ppm feeding level from the dairy cow feeding study and using the mean concentrations from those feeding groups.

Taking into account the new Codex classification of foods and animal feeds the meeting recommended etoxazole maximum residue levels of 0.01* mg/kg for the Group of muscle (from mammals other than marine mammals), Group of edible offal (mammalian), and Group of milks, of 0.03 mg/kg for the Group of mammalian fats (except milk fats), and 0.02 mg/kg for the Group of milk fats. The meeting estimated STMRs of 0.01 mg/kg for all animal commodities except for the Group of milk fats, for which the STMR was determined to be 0.02 mg/kg.

The meeting withdrew its previous recommendations for edible offal (mammalian), meat (from mammalians other than marine mammals), and milks.

As none of the feed items is relevant for poultry diet, no residues are expected in avian commodities. The meeting also estimated etoxazole maximum residue levels of 0.01* mg/kg, and STMRs of 0 mg/kg, for the Group of avian, edible offal of, Group of avian fats, Group of avian muscle, and Group of eggs.

Recommendations

On the basis of the data obtained from supervised trials, the meeting concluded that the residue levels listed in Table 5.16.3 and Annex 1 are suitable for establishing maximum residue limits and for estimation of dietary intake. Table 5.16.4 shows the residues included in the dietary burden calculation.

Definition of the residue for compliance with the MRL and dietary risk assessment for plant and animal commodities: etoxazole. The residue is fat soluble.

Table 5.16.3 Residue levels suitable for establishing maximum residue limits and for IEDI and IESTI assessments

CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P (mg/kg)
		New	Previous	
FI 0326	Avocado	0.15	–	0.033
MO 0105	Edible offal (mammalian)	W	0.01*	–
PO 0111	Group of avian, edible offal of	0.01*	–	0
PF 0111	Group of avian fats	0.01*	–	0
PM 0110	Group of avian muscle	0.01*	–	0
MO 0105	Group of edible offal (mammalian)	0.01*	–	0.01
PE 0112	Group of eggs	0.01*	–	0
MF 0100	Group of mammalian fats (except milk fats)	0.03	–	0.01
FM 0106	Group of milk fats[a]	0.02	–	0.02
ML 0106	Group of milks	0.01*	–	0.01
MM 0095	Group of muscle (from mammals other than marine mammals)	0.01*	–	0.01
MM 0095	Meat (from mammals other than marine mammals)	W	0.01*	–
ML 0106	Milks	W	0.01*	–
GC 0447	Sweet corn (corn-on-the-cob) (kernels plus cob with husk removed)	0.01*	–	0.01
AS 3563	Sweet corn, stover	6 (dw)	–	–

Notes:

[a] For monitoring and regulatory purposes, whole milk is to be analysed, and the result compared to the MRL for whole milk.

Table 5.16.4 Residues of etoxazole for estimation of animal dietary burden

Codex group	Commodity	Median residue (mg/kg)	Highest residue (mg/kg)	DM (%)
AM/AV	Almond, hulls	0.23	–	90
AB	Apple pomace, dry	0.057	–	40
AB	Citrus pulp, dried	0.015	–	91
AF/AS	Corn, sweet, forage	0.32	0.88	48
AF/AS	Corn, sweet, stover	0.82	3.3	83
AB	Grape pomace, dry	0.04[a]	–	15

Notes:

[a] STMR of the RAC.

Dietary risk assessment

Long-term dietary exposure

The ADI for etoxazole is 0–0.05 mg/kg bw. The International Estimated Daily Intakes (IEDIs) for etoxazole were estimated for the 17 GEMS/Food Consumption Cluster Diets using the STMR or STMR-P values estimated by the JMPR. The results are shown in Annex 3.

The IEDIs ranged from 0 to 1 percent of the maximum ADI. The meeting concluded that long-term dietary exposure to residues of etoxazole from uses considered by the JMPR is unlikely to present a public health concern.

Acute dietary exposure

An ARfD for etoxazole is unnecessary. The meeting therefore concluded that the acute dietary exposure to residues of etoxazole from the uses considered is unlikely to present a public health concern.

5.17 Flubendiamide (242) (R)

Residue and analytical aspects

Flubendiamide belongs to a chemical family of benzenedicarboxamides or phthalic acid diamides with insecticidal activity through the activation of the ryanodine-sensitive intracellular calcium release channels, leading to the cessation of feeding immediately after ingestion of the compound. The IUPAC name for flubendiamide is 3-iodo-N'-(2-mesyl-1,1-dimethylethyl)-N-{4-[1,2,2,2-tetrafluoro-1-(trifluoromethyl)ethyl]-otolyl}phthalimide.

Flubendiamide was first evaluated for toxicology and residues by JMPR in 2010, when an ADI of 0–0.02 mg/kg bw and an ARfD of 0.2 mg/kg bw were established. JMPR 2024 evaluated flubendiamide for additional uses for rice.

The residue definition for compliance with the MRL for plant and animal commodities and for estimation of dietary intake for plant commodities is *flubendiamide*.

For estimation of dietary intake of animal commodities, the residue was defined as flubendiamide and flubendiamide-iodophthalimide. The residue is fat soluble.

Flubendiamide was scheduled by the 55th CCPR for evaluation of an additional use on Welsh onions. In addition, the meeting received a request to extrapolate recommendations made by the 2010 meeting for pepper to eggplant. The meeting received new information on registered uses on fruiting vegetables, except cucurbits, and Welsh onions, along with supporting data from analytical methods, storage stability, and residue trials and processing studies.

Methods of residue analysis

The meeting received additional information on analytical methods for flubendiamide in plant and animal matrices.

In the data evaluated by JMPR 2010, the analytical method 00816 was used and several adaptations to this method, including 00816/M002, 00816/M003, ATM-0012, and a Japanese HPLC-UV method were used for the determination of flubendiamide in plant matrices. All of these methods include extraction steps with a mixture of acetonitrile/ HCl/ water and sometimes a cleaning step before the quantification step by LC-MS/MS. The LOQ for most methods was 0.01 mg/kg except for the ATM-0012 method where 0.02 mg/kg was the lowest concentration tested.

In the data evaluated by JMPR 2024, the QuEChERS technique and LC-MS/MS method were used. The LOQ was 0.01 mg/kg. The LC-MS/MS methods used in the supervised field trials submitted to the current meeting were similar to the methods evaluated by the JMPR 2010 and 2024. Based on concurrent recoveries, a LOQ of 0.01 mg/kg was demonstrated for fresh and dried Welsh onions.

The meeting concluded that the presented methods were suitable to measure flubendiamide in plant commodities.

Results of supervised residue trials on crops

Supervised trials were available for the use of flubendiamide on Welsh onion. In addition, the use label and trials submitted for estimation of maximum residue level for peppers and tomatoes in 2010 were reconsidered for extrapolation to eggplants.

Product labels were available from Republic of Korea (Welsh onion) and Australia (fruiting vegetables, exluding cucurbits, and including tomatoes and eggplants).

Onion, Welsh (fresh)

The critital GAP for application of flubendiamide on Welsh onion is from the Republic of Korea and involves 3 foliar treatments at a spray concentration of 10 g ai/hL with a PHI of 7 days and RTI not specified. The meeting received 6 field residue trials conducted in the Republic of Korea.

The meeting decided not to use the data, since the procedure for sampling of the raw commodity is not in line with the description in the Codex Classification for green onions (Subgroup 009B) and the FAO manual for sampling of green onions. For these reasons, the meeting could not estimate a maximum residue level for fresh Welsh onions.

Subgroup of eggplant

The current meeting was requested to consider extrapolating recommendations made by the 2010 JMPR to the Subgroup of eggplant. This extrapolation was presented to the 2024 JMPR as part of an analysis across multiple compounds where such an extrapolation might be supported (see 2024 JMPR General Consideration Item 3). The critical Australian GAP supporting the use in Fruiting vegetables, excluding cucurbits was submitted (3 x 72 g ai/ha, RTI 7–14 days and PHI of 1 day). No additional trials were submitted.

In residue trials submitted to the 2010 JMPR according to the Australian GAP, residues of flubendiamide in peppers were (n = 7): 0.04, 0.06 (2), 0.09, 0.16, 0.21 and 0.37 mg/kg and residues in tomatoes were (n = 5): 0.04, 0.07, 0.35 (2) and 0.63 mg/kg.

The 2010 JMPR estimated a maximum residue level of 0.7 mg/kg, an STMR of 0.09 mg/kg and an HR of 0.37 mg/kg for flubendiamide in peppers and a maximum residue level of 2 mg/kg, an STMR of 0.35 mg/kg and an HR of 0.63 mg/kg for flubendiamide in tomatoes.

According to the current procedure, tomato data would be used for an extrapolation to eggplant due to higher residues in the fruits. However, eggplant is a major commodity, for which a minimum of six independent supervised field trials is required. The meeting agreed that the data is insufficient for a recommendation for the Subgroup of eggplants.

Fate of residues during processing

The meeting received new information on the magnitude of flubendiamide residues following drying of Welsh onions. Fresh Welsh onions were trimmed (roots and outer layer removed), washed with water, and cut into slices and air-dried until the moisture content was 8.1–19 percent. The meeting

considered removal of the outer layer prior to drying appropriate as this is a common industrial procedure in the Republic of Korea.

The critital GAP for application of flubendiamide on Welsh onion is from the Republic of Korea and involves 3 foliar treatments at a spray concentration of 10 g ai/hL with a PHI of 7 days while RTI is not specified.

In 6 field residue trials conducted in the Republic of Korea supporting this GAP residues in the dried commodity (roots and outer layer, removed) were (n = 6): 0.7, 0.76, 1.27, 1.92, 3.07, and 3.15 mg/kg (3.59 mg/kg highest individual value).

The meeting estimated a maximum residue level of 7 mg/kg, an STMR-P of 1.595 mg/kg and an HR-P of 3.59 mg/kg for flubendiamide in Onion, Welsh, dried.

The meeting could not estimate a processing factor for Welsh onion since the fresh RAC did not follow the Codex procedure, due to the removal of the outer layer.

Residues in animal commodities

Farm animal feeding studies

Farm animal feeding studies in dairy cattle and laying hens were submitted and evaluated by the 2010 JMPR. No additional information was submitted to the meeting.

Farm animal dietary burden

The meeting noted that Welsh onion and Eggplant are not listed in the OECD feeding table and would not result in a change of dietary burdens of farm animals. The OECD feeding tables have been revised since 2010 and new dietary burdens were estimated based on feed items evaluated by the JMPR in 2010 and 2024. The dietary burden estimations using the OECD feed calculator 2018, rev 5, are presented in Annex 5 and the results are summarized in Table 5.17.1.

The max and mean estimated dietary burdens for beef cattle (47.9 and 29.9 ppm) increased slightly compared with the previous values (47.3 and 25.0 ppm) estimated in 2010. For poultry the max. and mean estimated dietary burdens (4.96 and 3.37 ppm) were lower when compared to the previous calculations (9.6 and 5.3 ppm) in poultry (both for layer and broiler).

Table 5.17.1 Estimated maximum and mean dietary burdens of farm animals for flubendiamide, ppm of dry matter diet

	United States/Canada		European Union		Australia		Japan	
	Max.	Mean	Max.	Mean	Max.	Mean	Max.	Mean
Beef cattle	5.86	4.13	29.98	13.23	47.92[a]	29.92[c]	0.35	0.35
Dairy cattle	19.69	11.34	29.0	12.82	40.72[b]	23.38[d]	10.68	4.93
Poultry – broiler	0.45	0.45	0.20	0.20	0.97	0.97	0.075	0.26
Poultry – layer	0.45	0.45	4.96[e]	3.37[f]	0.97	0.97	0.26	0.26

Notes:

[a] Highest maximum beef or dairy cattle dietary burden suitable for MRL estimates for mammalian tissues.

[b] Highest maximum dairy cattle dietary burden suitable for MRL estimates for mammalian milk.

[c] Highest mean beef or dairy cattle dietary burden suitable for STMR estimates for mammalian tissues.
[d] Highest mean dairy cattle dietary burden suitable for STMR estimates for milk.
[e] Highest maximum poultry dietary burden suitable for MRL estimates for poultry tissues and eggs.
[f] Highest mean poultry dietary burden suitable for STMR estimates for poultry tissues and eggs.

Animal commodity residue levels

Cattle

Using the input from the dairy cattle feeding study evaluated in 2010, the calculations used to estimate residue levels, STMR and HR values for cattle matrices are shown in Table 5.17.2.

Table 5.17.2 Animal commodity estimations for cattle

	Feed level (ppm) for milk residues	Total residues (mg eq/kg) in milk	Feed level (ppm) for tissue residues	Total residues (mg eq/kg)			
				Muscle	Liver	Kidney	Fat
Maximum residue level (beef or dairy cattle)[a]							
Feeding study	30	0.09	30	0.08	0.52	0.54	0.76
–	50	0.11[c]	50	0.14	0.58	0.57	–
Dietary burden and estimate of highest residue	40.72	0.101	47.92	0.13	0.57	0.57	1.15
HR (beef or dairy cattle) [b]							
Feeding study	30	–	30	0.09	0.53	0.55	0.93
–	50	–	50	0.16	0.59	0.59	1.47
Dietary burden and estimate of highest residue	40.72	–	47.92	0.15	0.58	0.59	1.41
STMR (beef or dairy cattle) [b]							
Feeding study	7.5	0.04	7.5	0.04	0.16	0.15	0.21
–	30	0.11	30	0.077	0.39	0.41	0.73
Dietary burden and estimate of highest residue	23.38	0.082	29.92	0.077	0.39	0.41	0.73

Notes:
[a] For maximum residue level: residues of flubendiamide.
[b] For HR and STMR estimation: sum of flubendiamide and iodo-phthalimide, expressed as flubendiamide.
[c] Highest level found in depuration phase.

In the 2010 report, a residue concentration factor was provided for “milk fat (cream)”, but no lipid content was provided for this sample. Assuming that whole milk is 4 percent milk fat, and assuming all flubendiamide and flubendiamide-iodophthalimide residues partition into the fat, a milk fat residue was estimated by applying the maximum concentration factor for milk to milk fat of 25×.

Based on the calculated residues of flubendiamide in milk and cattle tissues, the meeting estimated maximum residue levels in animal commodities as follows:

- Group of milks = 0.15 mg/kg to replace the previous recommendation of 0.1 mg/kg
- Group of milk fats = 4 mg/kg to replace the previous recommendation of 5 mg/kg
- Group of muscle (from mammals other than marine mammals) = 0.15 mg/kg to replace the previous recommendation of 0.2 mg/kg
- Group of mammalian fats (except milk fats) = 1.5 mg/kg to replace the previous recommendation of 2 mg/kg
- Group of edible offal (mammalian) = 0.6 mg/kg to replace the previous recommendation of 1 mg/kg

Based on the calculated residues of flubendiamide + iodo-phthalimide in milk and cattle tissues, the meeting estimated the respective STMRs and HRs in animal commodities as follows:

- Group of milks = 0.082 mg/kg;
- Group of milk fats = 2.05 mg/kg;
- Group of muscle (from mammals other than marine mammals) = 0.077 and 0.15 mg/kg;
- Group of mammalian fats (except milk fats) = 0.73 and 1.4 mg/kg;
- Group of edible offal (mammalian) = Liver: 0.39 and 0.58 mg/kg; Kidney: 0.41 and 0.59 mg/kg.

Poultry

The meeting noted that the 2010 and 2024 JMPR did not estimate maximum residue levels, STMR or HR values for poultry tissues and eggs as the poultry dietary burden exceeded the highest dosing level in the poultry feeding study by more than 30 percent. No new feeding study was received, and the meeting could not make any estimation for poultry commodities.

Further work or information

Desirable information to be considered:

- Farm animal feeding studies in laying hens with appropriate dosing levels.

Recommendations

On the basis of the data obtained from supervised trials, the meeting concluded that the residue levels listed in Table 5.17.3 and in Annex 1 are suitable for establishing maximum residue limits and for estimation of dietary intake. Table 5.17.4 shows the residues used in the dietary burden calculation.

Definition of the residue for compliance with the MRL for plant and animal commodities and for estimation of dietary intake for plant commodities: *flubendiamide.*

Definition of the residue for compliance with the MRL and for estimation of dietary intake for animal commodities: Definition of the residue (for estimation of dietary intake) for animal commodities: *flubendiamide and flubendiamide-iodophthalimide.*

The residue is fat soluble.

Table 5.17.3 Residue levels suitable for establishing maximum residue limits and for estimation of dietary intake

CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
		New	Previous		
MM 0095	Group of muscle (from mammals other than marine mammals)	0.15	0.2	0.077	0.15
MF 0100	Group of mammalian fats (except milk fats)	1.5	2	0.73	1.4
MO 0105	Group of edible offal (Mammalian)	0.6	1	0.41 (kidney) 0.39 (liver)	0.59 (kidney) 0.58 (liver)
FM 0106	Group of milk fats [a]	4	5	1.8	–
ML 0106	Group of milks	0.15	0.1	0.082	–
DV 0387	Onion, Welsh, dried	7	–	1.595	3.59

Note:

[a] For monitoring and regulatory purposes, whole milk is to be analysed, and the result compared to the MRL for whole milk.

Table 5.17.4 Residues used in estimating livestock dietary burdens for flubendiamide

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed	Source
AM/AV	Almond, hulls	2.45	–	90	2010
AB	Apple, pomace, wet	0.25	–	40	2010 (RAC apple)
VD	Bean, seed	0.18	–	88	2010 (pulses)
CM/CF	Corn gluten, feed	0.01	–	40	2010
CM/CF	Corn gluten, meal	0.009	–	40	2010
CM/CF	Corn, field, asp gr fn	3.18	–	85	2010
AF/AS	Corn, field, forage/silage	3.8	8.4	40	2010 (maize forage)
GC	Corn, field, grain	0.01	–	88	2010 (RAC corn grain)
CM/CF	Corn, field, hominy meal	0.009	–	88	2010
CM/CF	Corn, field, milled bypdts	0.01	–	85	2010 (RAC corn grain)
AM/AV	Cotton, gin by-products	7.45	25	90	2010
SM	Cotton, meal	0.08	–	89	2010
SO	Cotton, undelinted seed	0.15	–	88	2010 (RAC cotton seed)
AL	Cowpea, forage	6.05	14	30	2010
AL	Cowpea, hay	13.5	26	86	2010
VD	Cowpea, seed	0.18	–	88	2010 (pulses)
AB	Grape, pomace, wet	2.45	–	15	2010
SM	Lupin seed, meal	0.18	–	85	2010 (RAC pulses)
VD	Lupin, seed	0.18	–	88	2010 (RAC pulses)
AL	Pea, hay	13.5	26	88	2010
VD	Pea, seed	0.18	–	90	2010
AL	Pea, silage	6.05	14	40	2010

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed	Source
AL	Pea, vines	3.1	5.5	25	2010
CM/CF	Rice, bran/pollard	1.15	–	90	2024 (RAC rice grain)
GC	Rice, grain	1.15	–	88	2024
CM/CF	Rice, hulls	7.2	–	90	2024
SM	Soybean, asp gr fn	28.6	–	85	2010
AL	Soybean, forage	7.95	15	56	2010
AL	Soybean, hay	27.5	41	85	2010
SM	Soybean, hulls	0.22	–	90	2010
SM	Soybean, meal	0.01	–	92	2010
SM	Soybean, okara	0.18	–	92	2010
VD	Soybean, seed	0.18	–	89	2010
AL	Soybean, silage	6.05	14	30	2010
AB	Tomato, pomace,wet	0.35	–	20	2010 (RAC tomato)
VD	Vetch, seed	0.18	–	89	2010 (pulses)

Dietary risk assessment

Long-term dietary exposure

The ADI for flubendiamide is 0–0.02 mg/kg bw. The International Estimated Daily Intakes (IEDIs) for flubendiamide were estimated for the 17 GEMS/Food Consumption Cluster Diets using the STMR or STMR-P values estimated by the JMPR. The results are shown in Annex 3.

The IEDIs ranged from 6 to 20 percent of the maximum ADI. The meeting concluded that long-term dietary exposure to residues of flubendiamide from uses considered by the JMPR is unlikely to present a public health concern.

Acute dietary exposure

The ARfD for flubendiamide is 0.2 mg/kg bw. The International Estimate of Short-Term Intakes (IESTIs) for flubendiamide were calculated for the food commodities and their processed commodities for which HRs/HR-Ps or STMRs/STMR-Ps were estimated by the present meeting and for which consumption data were available. The results are shown in Annex 4.

The IESTIs varied from 1 to 5 percent of the ARfD for children and 1 to 3 percent of the ARfD for the general population. The meeting concluded that acute dietary exposure to residues of flubendiamide from uses considered by the present meeting is unlikely to present a public health concern.

5.18 Fludioxonil (211) (T, R)

Toxicology

Fludioxonil is the common name approved by the International Organization for Standardization (ISO) for 4-(2,2-difluoro-1,3-benzodioxol-4-yl)-*1H*-pyrrole-3-carbonitrile (International Union of Pure and Applied Chemistry [IUPAC]), for which the Chemical Abstracts Service (CAS) number is 131341-86-1.

Fludioxonil is a non-systemic, broad-spectrum fungicide with a long residual activity. It is a member of the phenylpyrrole group of substances. Fludioxonil, being fat soluble, is absorbed into the outer wax layer of the plant and seeds, resulting in mycelial growth inhibition and spore rupture. Within fungal cells, fludioxonil interferes with cell intracellular osmolality.

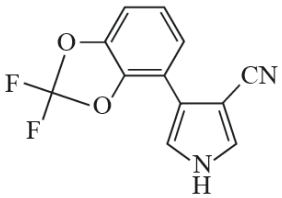
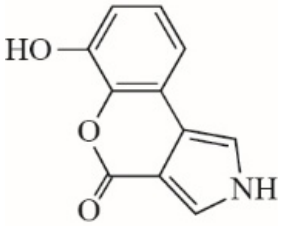
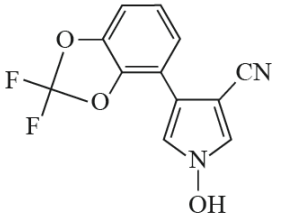
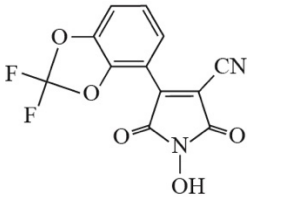
Fludioxonil was first evaluated by the Joint FAO/WHO Meeting on Pesticide Residues (JMPR) in 2004, which established an acceptable daily intake (ADI) of 0–0.4 mg/kg bw based on hepatotoxicity and reduced body weight gain at the next highest dose, in a two-year study in rats. An acute reference dose (ARfD) was considered unnecessary. A follow-up evaluation was conducted on fludioxonil by the 2022 meeting at the request of the Codex Committee on Pesticide Residues (CCPR) for additional maximum residue levels (MRLs). The studies evaluated during the 2022 meeting had no effect on the health-based guidance values (HBGVs) of fludioxonil.

Fludioxonil was reviewed by the present meeting due to a request from the CCPR for additional MRLs and, in accordance with meeting policy that any new information that may lower HBGVs must be submitted, newly supplied studies were evaluated by the present meeting. The new information made available for fludioxonil comprised of a two-generation reproductive toxicity study in the rat and endocrine activity studies. The new studies did not affect the existing HBGVs for fludioxonil. The studies will be reviewed as part of a periodic re-evaluation in the future. For metabolite CGA227731 an Ames test was provided; for metabolites CGA335892 and SYN518580 the new information included Ames tests, *in vitro* micronucleus tests and *in vivo* micronucleus assays. All critical studies contained statements of compliance with good laboratory practice (GLP) and were conducted in accordance with relevant national or international test guidelines, unless otherwise specified.

Toxicological data on metabolites and/or degradates

A toxicological evaluation of the following plant/livestock metabolites was performed. The following table shows an overall summary of the toxicological characterization of the plant/livestock metabolites requested for consideration in the residue definition.

Table 5.18.1 Summary overview of toxicological characterization of plant/livestock metabolites of fludioxonil

Compound, code and structure	Major rat metabolite (>10% AD)	Genotoxicity assessment (data, QSAR, read-across)	General toxicity	Toxicological reference value
Fludioxonil 	Parent	Not genotoxic (data)	Full dataset	ADI: 0–0.4 mg/kg bw ARfD: not necessary
CGA227731 	No	Not genotoxic (data)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
CGA335892 	No	Not genotoxic (data)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
SYN518580 	No	Not genotoxic (data)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)

Note: AD: Administered dose; TTC: threshold of toxicological concern.

Toxicological evaluation

The meeting concluded that the threshold of toxicological concern (TTC) Cramer class III approach for chronic exposure (1.5 µg/kg bw per day) and for acute exposure (5 µg/kg bw) should be considered in the dietary risk assessment for metabolites CGA227731, CGA335892 and SYN518580, if necessary.

An addendum to the toxicological monograph was prepared.

Table 5.18.2 Critical end-points for setting guidance values for exposure to fludioxonil

Studies on toxicologically relevant metabolites	
CGA227731	Not genotoxic Ames (new study): negative Ames positive; *in vitro* micronucleus negative, *in vivo* comet negative, transgenic rat somatic and germ cell gene mutation assay negative (JMPR 2022)
CGA335892	Not genotoxic Ames: negative In vitro micronucleus: positive In vivo micronucleus: negative
SYN518580	Not genotoxic Ames: negative In vitro micronucleus: positive In vivo micronucleus: negative

Residue and analytical aspects

Fludioxonil is a phenylpyrrole fungicide that was first evaluated for toxicology and residues by JMPR in 2004, when an ADI of 0–0.4 mg/kg bw was established and it was concluded that an ARfD was unnecessary. Additional residue evaluations were conducted in 2006, 2010, 2012, 2013, 2018, and 2022. The 2025 JMPR concluded that the metabolites CGA-227731, CGA-335892, and SYN-518580 could be assessed using the TTC approach (Cramer class III threshold of 1.5 µg/kg bw per day for chronic exposure and 5 µg/kg bw for acute exposure).

Definition of residue for compliance with the MRLs and estimation of dietary intake in plant commodities: fludioxonil.

Definition of residue for compliance with the MRLs and estimation of dietary intake in animal commodities: sum of fludioxonil and metabolites determined as 2,2-difluorobenzo[1,1]dioxole-4-carboxylic acid, expressed as fludioxonil. The residue is fat soluble.

Fludioxonil was scheduled at the 55th Session of the CCPR for evaluation of additional uses by the 2025 JMPR. The meeting received new information on analytical methodology, storage stability, use patterns and supervised residues trials on melons.

Methods of residue analysis

The meeting received information on an analytical method for fludioxonil in melon peel and pulp. Sample analysis was performed according to the method REM 133.06, based on LC/MS/MS, which was reviewed by the 2012 JMPR. The method was adequately validated at an LOQ of 0.01 mg/kg for melon and is considered suitable for determination of fludioxonil in melon.

QuEChERs multi-residues methods were validated for the determination of fludioxonil in plant commodities (EN 15662:2009-2) and honey (15662:2008). Both methods involve extraction in acetonitrile/water with QuEChERS salts followed by SPE clean-up, dilution, and quantification by LC-MS/MS. The methods were validated in lettuce, orange (whole fruit), wheat (straw), broad bean (dry seed), and oilseed rape (seed), and in multi-floral honey at a LOQ of 0.01 mg/kg for each matrix.

The meeting concluded that method REM 133.06 is a suitable analytical method to measure fludioxonil in melon and that QuEChERS multi-residues methods are now available for analysis of fludioxonil in plant commodities (high acid, high oil, high water and dry) and honey.

Stability of residues in stored analytical samples

The stability of fludioxonil residues in samples in frozen storage was evaluated by the 2004 and 2010 JMPR for a range of commodities. Fludioxonil was found to be stable for at least 24 months in frozen samples of the following high-water commodities: apple, tomato, pea, and potato tuber. Fludioxonil was also demonstrated to be stable for at least 12 months in frozen broccoli, cabbage and carrots, 10 months in frozen sweet potato, 9 months in frozen chives, 5 months in frozen yam and 3 months in frozen peach, plum, and cherry. Collectively, the existing stability data for fludioxonil are acceptable to support the storage duration of samples in the trials considered by the current meeting (<3 months).

Results of supervised residue trials on crops

Melons, except watermelon

The GAP for melon from Brazil consists of one post-harvest treatment with a solution of 120 g ai/hL fludioxonil, either via spraying, dipping, or peduncle/stalk application, 0 days after harvest. Eight supervised residue trials were submitted to the meeting that were conducted in Brazil matching the GAP.

For dip application residue levels of fludioxonil in melon (whole fruit) in ranked order were (n = 8): 0.80, 0.86, 1.16, 1.38, 1.51, 2.56, 3.04, and 3.13 mg/kg.

Residues in the edible portion (melon pulp, dip application) in ranked order were (n = 8): <0.01 (3), 0.01, 0.02, 0.09, 0.10, and 0.11 mg/kg.

For spray application residue levels of fludioxonil in melon (whole fruit) in ranked order were (n = 8): 0.36, 0.45, 0.53, 0.93, 1.17, 2.72, 3.25, and 3.38 mg/kg.

Residues in the edible portion (melon pulp, spray application) in ranked order were (n = 8): <0.01 (8) mg/kg.

For peduncle/stalk application residue levels of fludioxonil in melon (whole fruit) in ranked order were (n = 8): 0.04 (2), 0.07, 0.55, 1.21, 1.58, 1.80, and 3.07 mg/kg.

Residues in the edible portion (melon pulp, peduncle/stalk application) in ranked order were (n = 8): <0.01 (8) mg/kg.

A Kruskal-Wallis H-test determined that there was no significant difference between the residue levels of fludioxonil in melon (whole fruit) as a result of the different application methods. Therefore, for estimation of maximum residue levels the highest residue from each trial was used. Fludioxonil residues in melon (whole fruit) in ranked order were (n = 8): 0.80, 0.86, 1.16, 1.38, 2.72, 3.07, 3.25, and 3.38 mg/kg.

The dip application method is the critical technique in terms of peel penetration and gave the highest residues; therefore, only this data set was used to estimate the STMR.

The meeting estimated a maximum residue level (based on the mean + 4 × SD, whole fruit) of 7 mg/kg (Po) and an STMR of 0.015 mg/kg for fludioxonil in melon.

Watermelon

The GAP for watermelon from Brazil also consists of one post-harvest spray, dip, or stalk application at 120 g ai/hL fludioxonil, 0 days after harvest.

Melon (*Cucumis melo*) is the representative commodity for Subgroup 11B, Fruiting vegetable, Cucurbits – Melons, Pumpkins and Winter Squashes, which includes watermelon. The meeting decided that the data presented for melon can be extrapolated to watermelon.

The meeting estimated a maximum residue level of 7 mg/kg (Po) and an STMR value of 0.015 mg/kg for fludioxonil in watermelon.

Eggplants

The critical GAP for eggplant from the United States consists of a maximum of 4 foliar applications each at 250 g ai/ha, on a 7–10-day retreatment interval, with a PHI of 0 days.

This GAP also applies to pepper, bell and pepper, nonbell. The current representative commodities for Subgroup 12C Eggplant and eggplant-like commodities are one cultivar of large variety eggplant and/or tomato and/or sweet pepper and one cultivar of small variety eggplant and/or tomato and/or chili pepper. Therefore, previously assessed data for peppers may be extrapolated to eggplants.

The 2013 JMPR assessed 14 supervised field residue trials on bell (sweet pepper) and non-bell peppers (including chili pepper) from the United States and Canada and five greenhouse trials matching the United States GAP. Residues in the field trials for sweet peppers were < 0.02 (2), 0.08, 0.09, 0.12, 0.13, 0.16 (2), and 0.28 (2) mg/kg. Residues for non-bell peppers were 0.06, 0.07, 0.12, and 0.14 mg/kg. Residues found in the greenhouse trials were 0.10, 0.20, 0.21, and 0.22 mg/kg for sweet pepper and 0.20 mg/kg for non-bell peppers. The data indicated that the previously recommended maximum residue level of 1 mg/kg in peppers, sweet would accommodate the expected fludioxonil residues resulting in peppers when applied according to the GAP.

Extrapolating the peppers data to eggplants, the meeting estimated a maximum residue level of 1 mg/kg and a STMR of 0.13 mg/kg for fludioxonil in eggplants.

Residues in animal commodities

Cattle

No commodities assessed by the current meeting are used as animal feed; however, a new dietary burden calculation was conducted using the residue values in Table 5.18.2. The meeting confirmed the previous maximum beef and dairy cattle dietary burden of 38 ppm with a mean dietary burden of 12 ppm. Based on the animal dietary burden and the results of the dairy cattle feeding studies evaluated by the 2018 JMPR, the calculations used to estimate highest total residues for use in estimating maximum residue levels and STMR values in mammalian commodities are shown in Table 5.18.3.

Table 5.18.3 Maximum residue level and STMR estimations of fludioxonil in cattle commodities

Feeding study	Feed level (ppm) for milk residues	Total residues[a] (mg/kg) in milk[a]	Feed level (ppm) for tissue residues	Total residues[a] (mg/kg)			
				Muscle	Liver	Kidney	Fat
Maximum residue level for beef or dairy cattle							
Feeding study	20	0.03	20	<0.01	0.079	0.082	0.011
	100	0.15	100	0.012	0.35	0.29	0.033
Dietary burden and high residue	38	0.06	38	0.011	0.14	0.129	0.016
STMR for beef or dairy cattle							
Feeding study	20[b]	0.026	20	<0.01	0.055	0.062	0.01
Dietary burden and residue estimate	12	0.016	12	0.006	0.033	0.037	0.006

Notes:

[a] Total residues = fludioxonil and its benzopyrrole metabolites, determined as 2,2-difluorobenzo[1,1]dioxole-4-carboxylic acid and expressed as fludioxonil.

[b] Although the dairy cattle feeding study evaluated by the 2004 JMPR was conducted at a feeding level of 5.5 ppm, no quantifiable residues were observed in any matrices, as such it was decided to extrapolate from the feeding study evaluated by the 2018 JMPR where quantifiable residues were observed at a 20 ppm feeding level.

Using the new Codex Classification for animal commodities, the meeting estimated maximum residue levels of 0.15 mg/kg for the group of edible offal (mammalian), 0.02 mg/kg for the group of mammalian fats (except milk fats) and group of muscle (from mammals other than marine mammals), and 0.07 mg/kg for the group of milks. The meeting also estimated an MRL of 2 mg/kg for the group of milk fats based on milks containing 4 percent fat.

The meeting also estimated STMRs of 0.037 mg/kg for the group of edible offal (mammalian), 0.006 mg/kg for the group of mammalian fats (except milk fats) and group of muscle (from mammals other than marine mammals), 0.016 mg/kg the group of milks, and 0.4 mg/kg for the group of milk fats.

The meeting withdraws its previous recommendations of maximum residue levels for edible offal (mammalian), mammalian fats (except milk fats), meat (from mammals other than marine mammals), and milks.

Poultry

The meeting also confirmed the previous poultry maximum dietary burden of 1.9 ppm and a mean dietary burden of 0.87 ppm. Based on the poultry dietary burden and the results of the feeding study evaluated by the 2013 JMPR, the calculations used to estimate highest total residues for use in estimating maximum residue levels and STMR values in mammalian commodities are shown in Table 5.18.4.

Table 5.18.4 Estimations of fludioxonil in residues poultry commodities

Feeding study	Feed level (ppm) for egg residues	Total residues[a] (mg/kg) in egg	Feed level (ppm) for tissue residues	Total residues[a] (mg/kg)		
				Muscle	Liver	Fat
Maximum residue level for broiler or layer poultry						
Feeding study	1.54	<0.01	1.54	<0.01	0.080	<0.01
	4.64	0.013	4.64	<0.01	0.21	<0.01
Dietary burden and high residue	1.9	0.011	1.9	<0.01	0.095	<0.01
STMR for broiler or layer poultry						
Feeding study	1.54	<0.01	1.54	<0.01	0.050	<0.01
Dietary burden and residue estimate	0.87	<0.01	0.87	<0.01	0.028	<0.01

Notes:

[a] Total residues = fludioxonil and its benzopyrrole metabolites, determined as 2,2-difluorobenzo[1,1]dioxole-4-carboxylic acid and expressed as fludioxonil.

Using the new Codex Classification for animal commodities, the meeting estimated maximum residue levels of 0.1 mg/kg for the group of avian, edible offal of, 0.01* mg/kg for the group of avian fats and group of avian muscle, and 0.02 mg/kg for the group of eggs. The meeting also estimated STMRs of 0.028 mg/kg for the group of avian, edible offal of, 0 mg/kg for the group of avian fats and group of avian muscle, and 0.01 mg/kg for the group of eggs.

The meeting withdraws its previous recommendations of maximum residue levels for eggs, poultry fats, poultry meat, and poultry, edible offal of.

Recommendations

On the basis of the data obtained from supervised trials, the meeting concluded that the residue levels listed in Table 5.18.5 and Annex 1 are suitable for establishing maximum residue limits and for dietary intake estimations. Table 5.18.6 shows the residues used for dietary burden calculation. Additionally, Table 5.18.7 shows the residues of fluxional metabolites used for TTC estimation.

Definition of the residue for compliance with MRLs and estimation of dietary intake in plant commodities: fludioxonil.

Definition of the residue for compliance with MRLs and estimation of dietary intake in animal commodities: sum of fludioxonil and metabolites determined as 2,2-difluorobenzo[1,1]dioxole-4-carboxylic acid, expressed as fludioxonil. Fludioxonil is fat soluble.

Table 5.18.5 Fludioxonil residue levels suitable for establishing maximum residue limits and for dietary intake estimates

CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
		New	Previous		
MO 0105	Edible offal (mammalian)	W	0.15	0.037	–
PE 0112	Eggs	W	0.02	0.01	–
PO 0111	Group of avian, edible offal of	0.1	–	0.028	0.095
PF 0111	Group of avian fats	0.01*	–	0	0
PM 0110	Group of avian muscle	0.01*	–	0	0
MO 0105	Group of edible offal (mammalian)	0.15	–	0.037	0.14
PE 0112	Group of eggs	0.02	–	0.01	0.011
MF 0100	Group of mammalian fats (except milk fats)	0.02	–	0.006	0.016
FM 0106	Group of milk fats[a]	2	–	0.4	–
ML 0106	Group of milks	0.07	–	0.016	–
MM 0095	Group of muscle (from mammals other than marine mammals)	0.02	–	0.006	0.011
MF 0100	Mammalian fats (except milk fats)	W	0.02	0.006	–
MM 0095	Meat (from mammals other than marine mammals)	W	0.02	fat 0.006 muscle 0.006	–
VC 0046	Melons, except Watermelon	7 (Po)	–	0.02	0.11
ML 0106	Milks	W	0.07	0.016	–
PF 0111	Poultry fats	W	0.01*	0	–
PM 0110	Poultry meat	W	0.01*	0	–
PO 0111	Poultry, edible offal of	W	0.1	0.028	–
VO 2046	Subgroup of Eggplants	1	0.3	0.13	0.28
VC 0432	Watermelon	7 (Po)	–	0.02	0.11

Notes:

[a] For monitoring and regulatory purposes, whole milk is to be analysed, and the result compared to the MRL for whole milk.

Table 5.18.6 Residues of fludioxonil for estimation of animal dietary burden

Group	Commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed
AM/AV	Almond, hulls	1.8	–	90
AB	Apple, pomace, wet	2.9	–	40
GC	Barley, grain	0.02	–	88
VD	Bean, seed	0.029	–	88
AL	Bean, vines	3.75	11	35
AB	Beet, sugar, dried pulp	1.4	–	88
AB	Beet, sugar, ensiled pulp	0.68	–	15
DM	Beet, sugar, molasses	0.62	–	75
AM/AV	Cabbage, heads, leaves	0.24	1.2	15
SM	Canola, meal	0.02	–	88
VR	Carrot, culls	0.19	0.54	12
GC	Corn, field, grain	0.02	–	88
GC	Corn, pop, grain	0.02	–	88

Group	Commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed
AF/AS	Corn, sweet, cannery waste	0.01	0.01	30
SO	Cotton, undelinted seed	0.05	–	88
AB	Grape pomace	0.28[a]	–	15
AM/AV	Kale, leaves	1.2	7.1	15
GC	Oat, grain	0.02	–	89
VD	Pea, seed	0.11	–	90
AB	Pineapple, process waste	2	–	25
VR	Potato, culls	1.5	2.9	20
AB	Potato, process waste	2.535	–	12
GC	Rye, grain	0.02	–	88
GC	Sorghum, grain, grain	0.02	–	86
VD	Soybean, seed	0.01	–	89
AB	Tomato, pomace, wet	0.396	–	20
GC	Triticale, grain	0.02	–	89
GC	Wheat, grain	0.02	–	89

Notes:

[a] STMR of RAC.

Table 5.18.7 Residues of metabolites of fludioxonil for TTC

Compound	Commodity	STMR (mg/kg)	HR (mg/kg)	Source
For chronic dietary exposure against TTC Cramer class III of 1.5 µg/kg bw per day For acute dietary exposure against TTC Cramer class III of 5 µg/kg bw				
CGA335892	Group of avian, edible offal of	0.025	0.0855	STMR x 0.9 (Hen metabolism CGA335892:parent) HR x 0.9 (Hen metabolism CGA335892:parent)
CGA335892	Group of edible offal (mammalian)	0.033	0.126	STMR x 0.9 (Hen metabolism CGA335892:parent) HR x 0.9 (Hen metabolism CGA335892:parent)
CGA335892	Group of eggs	0.006	0.0066	STMR x 0.6 (Hen metabolism CGA335892:parent) HR x 0.6 (Hen metabolism CGA335892:parent)
For chronic dietary exposure against TTC Cramer class III of 1.5 µg/kg bw per day For acute dietary exposure against TTC Cramer class III of 5 µg/kg bw				
SYN518580	Avocado	0.00009	0.00009	STMR x 0.009 (Grape metabolism SYN518580:parent) HR x 0.009 (Grape metabolism SYN518580:parent)
SYN518580	Blackberries	0.009	0.0324	STMR x 0.009 (Grape metabolism SYN518580:parent) HR x 0.009 (Grape metabolism SYN518580:parent)
SYN518580	Blueberries	0.0054	0.0153	STMR x 0.009 (Grape metabolism SYN518580:parent) HR x 0.009 (Grape metabolism

Compound	Commodity	STMR (mg/kg)	HR (mg/kg)	Source
				SYN518580:parent)
SYN518580	Currants, black, red, white	0.00558	0.0126	STMR x 0.009 (Grape metabolism SYN518580:parent) HR x 0.009 (Grape metabolism SYN518580:parent)
SYN518580	Dewberries (including boysenberry and loganberry)	0.009	0.0324	STMR x 0.009 (Grape metabolism SYN518580:parent) HR x 0.009 (Grape metabolism SYN518580:parent)
SYN518580	Eggplants	0.00117	0.00252	STMR x 0.009 (Grape metabolism SYN518580:parent) HR x 0.009 (Grape metabolism SYN518580:parent)
SYN518580	Fruitng vegetables, cucurbits	0.000585	0.00324	STMR x 0.009 (Grape metabolism SYN518580:parent) HR x 0.009 (Grape metabolism SYN518580:parent)
SYN518580	Grapes	0.00252	0.0144	STMR x 0.009 (Grape metabolism SYN518580:parent) HR x 0.009 (Grape metabolism SYN518580:parent)
SYN518580	Guava	0.001125	0.00171	STMR x 0.009 (Grape metabolism SYN518580:parent) HR x 0.009 (Grape metabolism SYN518580:parent)
SYN518580	Peppers (subgroup)	0.00162	0.00252	STMR x 0.009 (Grape metabolism SYN518580:parent) HR x 0.009 (Grape metabolism SYN518580:parent)
SYN518580	Peppers chili, dried	0.0108	0.018	STMR x 0.009 (Grape metabolism SYN518580:parent) HR x 0.009 (Grape metabolism SYN518580:parent)
SYN518580	Pistachio nuts	0.00045	0.00072	STMR x 0.009 (Grape metabolism SYN518580:parent) HR x 0.009 (Grape metabolism SYN518580:parent)
SYN518580	Raspberries, red, black	0.009	0.0324	STMR x 0.009 (Grape metabolism SYN518580:parent) HR x 0.009 (Grape metabolism SYN518580:parent)
SYN518580	Strawberry	0.00243	0.0171	STMR x 0.009 (Grape metabolism SYN518580:parent) HR x 0.009 (Grape metabolism SYN518580:parent)
SYN518580	Sweet corn (corn-on-the-cob)	0.00008	0.00008	STMR x 0.008 (Wheat metabolism SYN518580:parent) HR x 0.008 (Wheat metabolism SYN518580:parent)

Compound	Commodity	STMR (mg/kg)	HR (mg/kg)	Source
SYN518580	Tree nuts (group)	0.00009	0.00135	STMR x 0.009 (Grape metabolism SYN518580:parent) HR x 0.009 (Grape metabolism SYN518580:parent)

Dietary risk assessment

Long-term dietary exposure

The ADI for fludioxonil is 0–0.4 mg/kg bw. The International Estimated Daily Intakes (IEDIs) for fludioxonil were estimated for the 17 GEMS/Food Consumption Cluster Diets using the STMR or STMR-P values estimated by the JMPR. The results are shown in Annex 3.

The IEDIs ranged from 1 to 6 percent of the maximum ADI. The meeting concluded that long-term dietary exposure to residues of fludioxonil from uses considered by the JMPR is unlikely to present a public health concern.

Acute dietary exposure

An ARfD for fludioxonil is unnecessary. The meeting therefore concluded that the acute dietary exposure to residues of fludioxonil from the uses considered is unlikely to present a public health concern.

Threshold of toxicological concern (TTC) consideration for metabolites

During the 2025 JMPR meeting, the WHO concluded that the threshold of toxicological concern (TTC) Cramer class III approach for chronic exposure (1.5 µg/kg bw per day) and for acute exposure (5 µg/kg bw) should be considered in the dietary risk assessment for metabolites CGA-227731, CGA-335892 and SYN-518580, if necessary.

The metabolite CGA-227731 was assessed by the 2022 JMPR using the TTC approach (Cramer class III threshold of 1.5 µg/kg bw per day for chronic exposure). The meeting concluded that given metabolite CGA-227731 was only present at insignificant levels in animal feed commodities, dietary exposure to residues of CGA-227731 is expected to be below the TTC for Cramer class III compounds of 1.5 µg/kg bw per day for chronic exposure and is unlikely to present a public health concern. The current meeting also concluded that dietary exposure to residues of CGA-227731 is expected to be below the TTC for Cramer class III compounds of 5 µg/kg bw for acute exposure. The meeting will not consider this metabolite in future assessments.

Based on metabolism studies previously evaluated by the 2004 JMPR, conversion factors to fludioxonil STMRs and HRs based on the ratio of CGA-335892 or SYN-518580 to parent were estimated. CGA-335892 was only identified and characterized in the hen metabolism study, whereas SYN-518580 was identified and characterized in grape, tomato, and wheat metabolism studies. For post-harvest uses and seed treatment uses, generally no residues of the metabolites were expected.

The maximum chronic and acute dietary exposure estimates for CGA-335892 were 0.0083 µg/kg bw per day (chronic) and 1 µg/kg bw (acute) and for SYN-518580 were 0.0083 µg/kg bw per day (chronic) and 1 µg/kg bw (acute).

The meeting concluded that the estimated dietary exposure to residues of CGA335892 and SYN-518580 from uses considered by the JMPR is below the TTC for Cramer class III compounds and is unlikely to present a public health concern.

These conclusions should be revisited if additional uses of fludioxonil are evaluated by future meetings.

5.19 Fluopyram (243) (R)

Residue and analytical aspects

Fluopyram (IUPAC name *N*-(2-[3-chloro-5-(trifluoromethyl)-2-pyridinyl]ethyl)-2-(trifluoromethyl) benzamide), is a broad-spectrum fungicide and nematicide. It was first evaluated for residues and toxicological aspects by the 2010 JMPR, when an ADI of 0–0.01 mg/kg bw and an ARfD of 0.5 mg/kg bw. Subsequently, the compound was evaluated for residues in 2012, 2014, 2015, 2017 and 2021 (extra), and 2023.

The 2010 JMPR recommended the following residue definitions.

Definition of the residue for compliance with the MRL and estimation of dietary intake for plant commodities: fluopyram.

Definition of the residue for compliance with the MRL for animal commodities: sum of fluopyram and 2-(trifluoromethyl)benzamide, expressed as fluopyram.

Definition of the residue for estimation of dietary intake for animal commodities: sum of fluopyram, 2-(trifluoromethyl)benzamide and the combined residues of N-(E)-2-[3-chloro-5-(trifluoromethyl) pyridine-2-yl]ethenyl)-2-trifluoromethyl)benzamide and N-(Z)-2-[3-chloro-5-(trifluoromethyl)pyridine -2-yl]ethenyl)-2-trifluoromethyl)benzamide, all expressed as fluopyram.

The residue is not fat soluble.

Fluopyram was scheduled at the 55th Session of the CCPR for evaluation of additional uses by the 2025 JMPR. The meeting received data from supervised residue trials for papaya, pineapple, bulb onion, summer squash, melon, carrot, radish, and mint with supporting processing studies.

Methods of residue analysis

The meeting received additional information on the HPLC-MS/MS analytical methods reviewed by the JMPR for fluopyram in papaya, pineapple, bulb onion, summer squash, melon, watermelon, carrot, radish, mint (fresh) and mint oil.

Method 00984 and its later variations were used to determine residues of fluopyram and its benzamide metabolite, AE F148815, in pineapple, melon, carrot, and radish commodities. The method is considered suitable for determination of fluopyram and the metabolite in pineapple, melon, carrot, and radish commodities at a LOQ of 0.01 mg/kg.

Method GM-001-P07-01 was used to determine residues of fluopyram in papaya, bulb onions, cucurbits, and mint commodities. The method is considered suitable for determination of fluopyram in papaya, bulb onions, cucurbits, and mint commodities at a LOQ of 0.01 mg/kg.

The meeting concluded that the methods were sufficiently validated and are suitable to measure residues of fluopyram in papaya, pineapple, bulb onion, cucumber, summer squash, melon, watermelon, carrot, radish, and mint commodity matrices.

Stability of pesticide residues in stored analytical samples

No specific storage stability studies were submitted to the current meeting. The 2012 meeting concluded residues of parent fluopyram are stable at ≤–18 °C for at least 36 months in lettuce, head (high water); orange (high acid and high water); dry pea, seed (high protein and low water and fat); and wheat, grain (high starch and low water and fat); and for at least 37 months in rapeseed (high oil and very low water).

The demonstrated storage stability intervals covered the storage durations of the crop field trials and processing studies provided to the current meeting.

Results of supervised residue trials on crops

Papaya

The critical GAP for fluopyram is from the United States and consists of up to three applications each at 140 g ai/ha on a 7-day retreatment interval, and a 0-day PHI.

Residues of fluopyram in six independent trials with four applications of 140 g ai/ha on a 7-day retreatment interval with a 0-day PHI were provided to the current meeting. As the number of applications in the trials did not match GAP, a maximum residue level for papaya could not be estimated.

Pineapple

The critical GAP for pineapple is from Mexico and consists of two drench/drip applications each at 0.250 kg ai/ha, with the first application 30-days after transplanting with a second application 13-days after and a PHI of 180 days.

Residues of fluopyram in whole fruit following a single foliar application of 0.500 kg ai/ha in eight independent trials with samples harvested at 107 to 150-days were (n = 8): <0.01 (8) mg/kg.

Residues of fluopyram in whole fruit following two foliar applications of 0.500 kg ai/ha, 165–209 days apart, in six independent trials with samples harvested at 170 to 297-days after the last application were (n = 6): <0.01 (6) mg/kg.

The meeting expected foliar application would lead to higher residues when compared soil application. As no residues were detected following foliar application in the supervised trials, no residues are expected following soil application, especially considering a PHI of 180 days. The meeting estimated a maximum residue level of 0.01* mg/kg and an STMR value of 0 mg/kg for fluopyram in pineapple.

Onion, bulb

The 2014 meeting considered a critical GAP from Germany consisting of two foliar applications at 0.1 kg ai/ha, with a 7-day RTI and a PHI of 7 days and estimated a maximum residue level of 0.07 mg/kg.

The current meeting considered a new critical GAP for bulb onion from the United States which consists of two foliar applications at 0.25 kg ai/ha, on a 5-day RTI, and a PHI of 0-days.

Residues of fluopyram in independent trials approximating the critical GAP were (n = 8): 0.016, 0.060, 0.073, 0.099, 0.14, 0.15, 0.17 and 0.19 mg/kg (0.221 in a single sample).

The meeting estimated a maximum residue level of 0.4 mg/kg, a STMR of 0.118 mg/kg, and a HR of 0.221 mg/kg for fluopyram in bulb onion to replace its previous recommendation.

Fruiting vegetables, cucurbits

The critical GAP for fruiting vegetables, cucurbits is from the United States consists of two foliar applications at 0.250 kg ai/ha, on a 5-day retreatment interval, with a PHI of 0 days. The meeting received supervised residue trials on summer squash and melons (including watermelon) approximating the critical GAP.

Summer squash

Residues of fluopyram in summer squash in five independent trials approximating the critical GAP in ranked order were (n = 5): 0.069, 0.079, 0.084, 0.11 and 0.17 mg/kg (0.18 in a single sample).

The meeting estimated a maximum residue level of 0.3 mg/kg, an STMR of 0.084 mg/kg and a HR of 0.18 mg/kg for fluopyram in summer squash.

Melons

The meeting received trials from the United States and Europe on melons (field and greenhouse grown) and watermelons. All trials matched the critical GAP for cucurbits, except in the European trials where the RTI was 7-days compared to 5-days between the two treatments.

Residues of fluopyram in field-grown melons in ranked order were (n = 15): 0.05, 0.072, 0.1, 0.13, 0.14 (3), 0.15 (2), 0.23 (2), 0.26, 0.35, 0.42 and 0.44 mg/kg.

Residues of fluopyram in watermelon]in ranked order were (n = 4): 0.080, 0.12 (2), and 0.15 mg/kg.

Residues of fluopyram in glasshouse-grown melons in ranked order were (n = 6): 0.04, 0.11, 0.12, 0.21 (2) and 0.25 mg/kg.

The meeting identified the medians between all groups were within 5-fold and a Kruskal-Wallis test demonstrated there was no difference in the residue potential between growing conditions. Therefore, the meeting decided to combine the datasets.

For estimation of maximum residue levels, residues of fluopyram in melon (whole fruit), including greenhouse [GH] grown and watermelon [WM] in ranked order were (n = 25): 0.04[GH], 0.050, 0.072, 0.080[WM], 0.080, 0.10, 0.11[GH], 0.12[GH], 0.12[WM] (2), 0.13, 0.14 (2), 0.15 (2), 0.15[WM], 0.21[GH] (2), 0.23 (2), 0.25[GH], 0.26, 0.35, 0.42, and 0.44 mg/kg.

In pulp, corresponding residues were calculated using a median pulp-to-whole fruit ratio based on day-3 residues, and in ranked order were (n = 25): <0.01 (6), 0.01 (10), 0.02 (6), 0.03 and 0.04 (2) mg/kg.

The meeting noted the GAP in from the United States covers commodities of the Codex Subgroup 11B, Fruiting vegetable, Cucurbits – Melons, Pumpkins and Winter Squashes. As melon (*Cucumis melo*) is the representative crop of the subgroup, the meeting estimated a maximum residue level of 0.6 mg/kg, an STMR of 0.01 mg/kg (pulp) and an HR of 0.04 mg/kg (pulp) for the Subgroup of fruiting vegetables, cucurbits – melons, pumpkins and winter squashes.

Root and tuber vegetables

The critical GAP for radish and ginseng is from the United States and consists of two applications each at 0.250 kg ai/ha, on a 5-day retreatment interval, with a PHI of 7 days.

Residues of fluopyram in independent trials on carrot, used as a representative crop, and radish approximating the critical GAP were (n = 2): 0.062 and 0.14 mg/kg, respectively.

As the preharvest interval from the majority of submitted trials was 0-day in both carrot and ginseng, maximum residue levels at a PHI of 7-days for either radish or ginseng could not be estimated.

Mint

The critical GAP for mint is from the United States and consists of two applications each at 0.250 kg ai/ha, on a 21-day retreatment interval, with a PHI of 28 days.

Residues of fluopyram in independent trials approximating the critical GAP were (n = 5): 0.064, 0.069, 0.087, 0.13 and 0.31 mg/kg.

The meeting estimated a maximum residue level of 0.6 mg/kg and a STMR of 0.087 mg/kg for fluopyram in mint.

Fate of residues during processing

The meeting received new information on the fate of fluopyram residues during processing of mint to mint oil. The processing factor was 0.53. From a STMR of 0.087 mg/kg, the meeting estimated a STMR-P of 0.046 mg/kg for fluopyram in mint oil.

Residues in animal commodities

None of the commodities for which the current meeting are making recommendations on are animal feeds and residues in pineapple process waste are expected to be below limits of quantification; therefore, no changes to the dietary burdens are expected. The meeting confirmed the previous maximum beef cattle dietary burden suitable for maximum residue level estimates for mammalian tissues of 65 ppm with a mean of 32 ppm. The meeting confirmed the previous maximum dairy cattle dietary burden suitable for maximum residue level estimates for mammalian milk of 55 ppm with a mean of 31 ppm. The meeting confirmed the previous maximum poultry dietary burden suitable for maximum residue level estimates for poultry tissues and eggs of 9.1 ppm with a mean of 3.1 ppm.

Following the new Codex Classification for animal commodities (see 2024 JMPR General Considerations Item 2.4) and based on the dietary burden derived by JMPR 2023, the meeting estimated maximum residue levels of 0.8 mg/kg for Group of milks with an STMR of 0.48 mg/kg. The meeting withdrew its previous recommendation of 0.8 mg/kg for milks.

The meeting estimated maximum residue levels of 8 mg/kg for Group of edible offal (mammalian), 1.5 mg/kg for Group of muscle (from mammals other than marine mammals) and 1.5 mg/kg for Group of mammalian fats (except milk fats). The meeting estimated STMRs of 3.8 mg/kg for Group of edible offal (mammalian), 0.51 mg/kg for Group of muscle (from mammals other than marine mammals), and 0.67 mg/kg for Group of mammalian fats (except milk fats). The meeting withdrew its previous recommendations of 8 mg/kg for edible offal (mammalian), 1.5 (fat) mg/kg for meat (from mammals other than marine mammals), and 1.5 mg/kg for mammalian fats (except milk fats).

The meeting also estimated maximum residue levels of 2 mg/kg for Group of eggs, 5 mg/kg for Group of avian edible offal, 1.5 mg/kg for Group of avian muscle, and 1 mg/kg for Group of avian fats with STMRs of 0.46 mg/kg for Group of eggs, 0.88 mg/kg for Group of avian edible offal, 0.19 mg/kg for Group of avian muscle, and 0.28 mg/kg for Group of avian fats. The meeting withdrew its previous recommendations for eggs, poultry fats, poultry meat and poultry edible offal.

Recommendations

On the basis of the data obtained from supervised trials, the meeting concluded that the residue levels listed in Table 5.19.1 and Annex 1 are suitable for establishing maximum residue limits and for estimation of dietary intake. Table 5.19.2 shows the residues used in the dietary burden calculation.

Definition of the residue for compliance with the MRL and dietary risk assessment for plant commodities: fluopyram.

Definition of the residue for compliance with the MRL for animal commodities: sum of fluopyram and 2-(trifluoromethyl)benzamide, expressed as fluopyram.

Definition of the residue for dietary risk assessment for animal commodities: sum of fluopyram, 2-(trifluoromethyl)benzamide and the combined residues of N-(E)-2-[3-chloro-5-(trifluoromethyl)pyridine-2-yl]ethenyl)-2-trifluoromethyl)benzamide and N-(Z)-2-[3-chloro-5-(trifluoromethyl)pyridine-2-yl]ethenyl)-2-trifluoromethyl)benzamide, all expressed as fluopyram.

The residue is not fat soluble.

Table 5.19.1 Residue levels suitable for establishing maximum residue limits and for estimation of dietary intake

CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
		New	Previous		
MO 0105	Edible offal (mammalian)	W	8	–	–
PE 0112	Eggs	W	2	–	–
PO 0111	Group of avian, Edible offal	5	–	0.88	3.1
PF 0111	Group of avian fats	1	–	0.28	0.90

CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
		New	Previous		
PM 0110	Group of avian muscle	1.5	–	0.19	0.97
MO 0105	Group of edible offal (mammalian)	8	–	3.8	7.4
PE 0112	Group of eggs	2	–	0.46	1.5
MF 0100	Group of mammalian fats (except milk fats)	1.5	–	0.67	1.5
ML 0106	Group of milks	0.80	–	0.48	–
MM 0095	Group of muscle (from mammals other than marine mammals)	1.5	–	0.51	1.0
MF 0100	Mammalian fats (except milk fats)	W	1.5	–	–
MM 0095	Meat (from mammals other than marine mammals)	W	1.5	–	–
ML 0106	Milks	W	0.8	–	–
HH 0738	Mints	0.6	–	0.087	–
–	Mint oil	–	–	0.046	–
VA 0385	Onion, Bulb	0.4	0.07	0.12	0.22
FI 0353	Pineapple	0.01*	–	0.01	0.01
PO 0111	Poultry, edible offal	W	5	–	–
PF 0111	Poultry, fats	W	1	–	–
PM 0110	Poultry, meat	W	1.5	–	–
VC 0431	Squash, summer	0.3	–	0.084	0.18
VC 2040	Subgroup of Fruiting vegetables, Cucurbits – Melons, Pumpkins and Winter Squashes	0.6	–	0.14	0.53

Notes: (ar) – as received; (dw) – dry weight.

Table 5.19.2 Animal feed values for livestock dietary burden calculations

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed
AM/AV	Almond, hulls	3.6	–	90
AB	Apple, pomace, wet	0.31	–	40
GC	Barley, grain	0.041	–	88
AF/AS	Barley, hay	1.2	4.1	88
AF/AS	Barley, straw	0.67	1.9	89
VD	Bean, seed	0.014	–	88
AL	Bean, vines	14	–	35
AB	Beet, sugar, dried pulp	0.01	–	88
DM	Beet, sugar, molasses	0.01	–	75
AM/AV	Beet, sugar, tops	0.46	–	23
SM	Brewer's grain, dried	0.135	–	92
SM	Canola, meal	0.23	–	88
VR	Carrot, culls	0.09	–	12
AB	Citrus, dried pulp	0.14	–	91
CM/CF	Corn, field, asp gr fn	16	–	85
AF/AS	Corn, field, forage/silage	2	–	40
GC	Corn, field, grain	0.01	–	88
CM/CF	Corn, field, milled bypdts	0.027	–	85
AF/AS	Corn, field, stover	1.85	–	83
AM/AV	Cotton, gin by-products	5.4	14	90
SM	Cotton, meal	0.0013	–	89
SO	Cotton, undelinted seed	0.0585	–	88
VD	Cowpea, seed	0.014	–	88
AB	Grape, pomace, wet	1.86	–	15
SM	Lupin seed, meal	0.014	–	85
VD	Lupin, seed	0.014	–	88
GC	Oat, grain	0.041	–	89
AF/AS	Oat, hay	1.2	4.1	90
AF/AS	Oat, straw	0.67	1.9	90
AL	Pea, hay	18	48	88
VD	Pea, seed	0.058	–	90
AL	Pea, vines	5.6	–	25
AL	Peanut, hay	5.4	21	85
SM	Peanut, meal	0.0063	–	85
AB	Pineapple, process waste	0.01	–	25
VR	Potato, culls	0.021	0.069	20
AB	Potato, process waste	0.09	–	12
SM	Rape, meal	0.23	–	88
CM/CF	Rice, bran/pollard	0.68	–	90
GC	Rice, grain	0.615	–	88
CM/CF	Rice, hulls	1.23	–	90
AF/AS	Rice, straw	2.55	–	90
AF/AS	Rye, forage	0.195	1.1	30
GC	Rye, grain	0.035	–	88
AF/AS	Rye, straw	0.67	–	88
AF/AS	Sorghum, grain, forage	0.43	3.2	35

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed
GC	Sorghum, grain, grain	0.18	–	86
AF/AS	Sorghum, grain, stover	0.45	–	88
SM	Soybean, asp gr fn	4.6	–	85
AL	Soybean, forage	2.3	–	56
AL	Soybean, hay	6.1	20	85
SM	Soybean, meal	0.001	–	92
VD	Soybean, seed	0.0205	–	89
SM	Sunflower, meal	0.0013	–	92
AF/AS	Triticale, forage	0.195	–	30
GC	Triticale, grain	0.035	–	89
AF/AS	Triticale, hay	1.2	–	88
AF/AS	Triticale, straw	0.67	1.9	90
CM/CF	Wheat, asp gr fn	2.45	–	85
AF/AS	Wheat, forage	0.195	1.1	25
GC	Wheat, grain	0.035	–	89
AF/AS	Wheat, hay	1.2	4.1	88
CM/CF	Wheat, milled bypdts	0.095	–	88
AF/AS	Wheat, straw	0.67	1.9	88

Dietary risk assessment

Long-term dietary exposure

The ADI for fluopyram is 0–0.01 mg/kg bw. The International Estimated Daily Intakes (IEDIs) for fluopyram were estimated for the 17 GEMS/Food Consumption Cluster Diets using the STMR or STMR-P values estimated by the JMPR. The results are shown in Annex 3.

The IEDIs ranged from 10 to 80 percent of the maximum ADI. The meeting concluded that long-term dietary exposure to residues fluopyramfrom uses considered by the JMPR is unlikely to present a public health concern.

Acute dietary exposure

The ARfD for fluopyram is 0.5 mg/kg bw. The International Estimate of Short-Term Intakes (IESTIs) for fluopyram were calculated for the food commodities and their processed commodities for which HRs/HR-Ps or STMRs/STMR-Ps were estimated by the present meeting and for which consumption data were available. The results are shown in Annex 4.

The IESTIs varied from 0 to 10 percent of the ARfD for children and 0 to 10 percent of the ARfD for the general population. The meeting concluded that acute dietary exposure to residues of fluopyram from uses considered by the present meeting is unlikely to present a public health concern.

5.20 Guazatine (114) (T, R)**

Toxicology

Guazatine is the common name approved by the International Organization for Standardization (ISO) for a reaction mixture containing 1,1'-(iminodioctamethylene)diguanidine and numerous other guanidines and polyamines, resulting from the amidination of technical iminodi(octamethylene)diamine (IUPAC), for which the Chemical Abstracts Service (CAS) number is 115044-19-4 (guazatine acetates).

Guazatine is a non-systemic contact fungicide which disturbs the membrane function of fungi by inhibiting lipid biosynthesis.

Guazatine was first evaluated by the Joint FAO/WHO Meeting on Pesticide Residues (JMPR) in 1978, when an acceptable daily intake (ADI) of 0–0.03 mg/kg bw was established on the basis of a no-observed-adverse-effect level (NOAEL) of 3 mg/kg bw per day in a two-year dietary study in dogs. Guazatine was re-evaluated by the JMPR in 1980 and 1997 when the ADI was withdrawn, owing to the inadequate information on its composition and concerns about the production of rare malignant tumours in mice. As a consequence, in 1999, Codex withdrew all MRLs but set Guideline Levels for cereal grains and citrus fruit, pending establishment of a new ADI. A new sponsor submitted data for consideration by JMPR in 2021, but this did not adequately address the concerns expressed in 1997. The current meeting reviewed a toxicological dossier submitted to attempt to resolve the outstanding issues, at the request of the Codex Committee on Pesticide Residues (CCPR).

Guazatine is never isolated as the pure, solid complex, but is always handled and shipped as a technical concentrate comprised of approximately 70 percent weight for weight solution of guazatine acetates in water.

The monograph summarizes new or not previously reviewed data on guazatine, as well as relevant data from previous monographs on this pesticide. Some of the critical studies do not comply with good laboratory practice (GLP), as the data were generated before the implementation of GLP regulations. However, the meeting considered that, overall, the database was adequate for the risk assessment. A literature review was conducted to assess published information on guazatine, but no scientific papers were retrieved that would impact the human health risk assessment for guazatine.

Biochemical aspects

Following oral doses of 2–30 mg/kg bw of guazatine, absorption was low (less than 10 percent). It is possible that the absorption of guazatine components could increase after repeated dosing due to the irritant nature of the mixture. Concentrations in blood peaked within 10 minutes after a gavage dose. The half-life of plasma radioactivity was 27–69 hours, depending on the position of the radiolabel. Tissue concentrations were generally low with the highest levels in kidney, liver and lung after single dose administration. Following repeat dose administration, the levels of radioactivity in liver, kidney and fat increased 5 to 17-fold when compared to a single dose. Radioactivity could still be detected 14 days after the cessation of dosing.

Biliary excretion of radioactivity was minimal (about 1 percent of a systemically administered dose [AD]), but there was evidence that up to 30 percent of a systemically AD was excreted into the gut through other routes of elimination (e.g. salivary gland secretion and possible intestinal secretion). There were no sex differences in the metabolism of guazatine but it was noted that females had slightly higher residue levels than males for almost all tissues investigated.

The characterization and identification of metabolites was only partially possible or, in some cases, only tentative. Some differences were apparent in the elimination and metabolite profiles of (1,1'-iminodi(octamethylene)diguanidine [GNG]) when radiolabelled in the guanidine and methylene positions. The metabolism of guazatine has not been fully characterized, but monodeamidination and dideamidination play significant roles.

Toxicological data

The acute oral median lethal dose (LD_{50}) in rats was 300–500 mg/kg bw, the acute dermal LD_{50} was greater than 1050 mg/kg bw and the acute inhalation median lethal concentration (LC_{50}) was greater than 0.156 mg/L. Guazatine was severely irritating to the skin of rabbits and, therefore, considered to pose a risk of serious damage to the eyes. Guazatine was not skin sensitizing in a Magnusson and Kligman maximization test in the guinea pig.

In repeated dose toxicity studies, the common critical effect was a decrease in body weight gain.

In a 13-week study in mice, using dietary guazatine concentrations of 0, 10, 50, 200 and 500 ppm (equal to 0, 1.9, 9.7, 41 or 104 mg/kg bw per day for males and 0, 2.9, 15, 55 or 141 mg/kg bw per day for females), the NOAEL was 50 ppm (equal to 9.7 mg/kg bw per day), based on effects on body weight gain and liver and heart weight in both sexes at 200 ppm (equal to 41 mg/kg bw per day).

In a 13-week study in rats, using dietary guazatine concentrations of 0, 50, 150 or 400 ppm (equal to 0, 3.9, 11 or 30 mg/kg bw per day for males and 0, 4.6, 14 or 36 mg/kg bw per day for females) the NOAEL was 150 ppm, equal to 11 mg/kg bw per day, on the basis of reduced body weight gain in females and histopathological changes in the salivary gland in both sexes at 400 ppm (equal to 30 mg/kg bw per day).

In a 52-week toxicity study in dogs using dietary guazatine concentrations of 0, 25, 75 or 250 ppm (equal to 0, 0.8, 2.4 and 8.0 mg/kg bw per day for males or 0, 0.8, 2.6 and 8.5 mg/kg bw per day for females), the NOAEL was 25 ppm (equal to 0.8 mg/kg bw per day), based on reduced body weight gain in females at 75 ppm (equal to 2.6 mg/kg bw per day).

In a two-year combined toxicity and carcinogenicity study in mice using dietary guazatine concentrations of 0, 50, 120 or 300 ppm (equal to 0, 6.8, 17 and 47 mg/kg bw per day for males and 0, 8.7, 21 and 57 mg/kg bw per day for females), a NOAEL could not be identified. The LOAEL was 50 ppm (equal to 8.7 mg/kg bw per day), the lowest dose tested, based on an equivocal increase in the total incidence of haemangiosarcoma in females, with similar findings in males at higher doses.

In a two-year combined toxicity and carcinogenicity study in rats using dietary guazatine concentrations of 0, 50, 150 or 350 ppm (equal to 0, 2.8, 7.8 and 19 mg/kg bw per day for males and 0, 3.5, 11 or 25 mg/kg bw per day for females), the NOAEL for toxicity was 150 ppm (equal to 7.8 mg/kg bw per day) based on reduced body weight gain in both sexes, atrophy of the testicular tubules and hyperplasia in the prostate, and histological changes in the salivary gland in females at 350 ppm (equal to 19 mg/kg bw per day). The NOAEL for neoplastic lesions was 150 ppm (equal to 7.8 mg/kg bw per day), based on the equivocal increase in total incidence of haemangiosarcoma in males at 350 ppm (equal to 19 mg/kg bw per day).

The meeting concluded that guazatine is possibly carcinogenic in mice and male rats, as the effects in both mice and rats were considered equivocal. No information on a potential mode of action (MOA) was available.

Guazatine was tested for genotoxicity in a range of *in vitro* and *in vivo* assays. Guazatine proved to be clearly negative for the induction of gene mutation in bacteria and mammalian cells at the HPRT locus. The positive findings observed in the mammalian cell gene mutation in mouse lymphoma L5178Y cells were shown to be generated by a clastogenic mechanism. This clastogenic activity of guazatine was not reproduced in two *in vitro* chromosomal aberration assays in peripheral human lymphocytes and Chinese hamster ovary cells. Negative findings were also observed in an *in vivo* mouse bone marrow micronucleus test, though very limited in its study protocol.

The meeting concluded that guazatine is unlikely to be genotoxic.

In view of the lack of genotoxicity, and the fact that the equivocal increases in haemangiosarcomas in male and female mice and male rats would be induced by a non-genotoxic MOA, the meeting concluded that guazatine is unlikely to pose a carcinogenic risk to humans from the diet.

In a two-generation study in rats using dietary guazatine concentrations of 0, 50, 150 or 350 ppm (equal to 0, 4.0, 12 and 28 mg/kg bw per day) for F0 males; 0, 5.0, 15 or 34 mg/kg bw per day for F0 females, the NOAEL for parental, offspring and reproductive toxicity was 350 ppm (equal to 8 mg/kg bw per day), the highest dose tested.

In a developmental toxicity study in the rat using gavage doses of guazatine at 0, 5, 10 or 17 mg/kg bw per day, the NOAEL for maternal and embryo/fetal toxicity was 17 mg/kg bw per day, the highest dose tested.

In a developmental toxicity study in the rabbit using gavage doses of guazatine of 0, 2.8, 5.6 or 11 mg/kg bw per day, the NOAEL for maternal toxicity was 5.6 mg/kg bw per day based on reduced body weight gain and food consumption at 11 mg/kg bw per day. The NOAEL for embryo/fetal toxicity was 11 mg/kg bw per day, the highest dose tested.

The meeting concluded that guazatine is not a developmental toxicant.

No studies on neurotoxicity were available. In the available toxicity studies on guazatine, no indications of a neurotoxic potential were seen.

The meeting concluded that guazatine is unlikely to be neurotoxic.

No studies on immunotoxicity were available. In the available toxicity studies on guazatine, no indications of an immunotoxic potential were seen.

The meeting concluded that guazatine is unlikely to be immunotoxic.

Toxicological data on metabolites and/or degradates

No metabolites or degradates were identified.

Microbiological aspects

There is insufficient information available in the public domain, and no experimental data were submitted that address the possible impact of guazatine residues on the human intestinal microbiome.

Human data

No information was provided on the health of workers involved in the manufacture or use of guazatine. In a case of attempted suicide with Befran, a formulation containing 25 percent iminoctadine (guazatine) and 5 percent polyoxyethylenealkylether, the patient was admitted with severe cyanosis and in a stuporous state. Blood pressure and pulse could not be measured (the radial arteries were not palpable) until noradrenaline (1 mg) was administered.

The meeting concluded that the existing database on guazatine was adequate to characterize the potential hazards to the general population, including fetuses, infants and children.

Toxicological evaluation

The meeting established an acceptable daily intake (ADI) of 0–0.008 mg/kg bw per day, based on a NOAEL of 0.8 mg/kg bw per day in a 52-week study in dogs. A safety factor of 100 was used. The upper bound of the ADI gives a margin of 1 100 relative to the LOAEL for the equivocal increase in the incidence of haemangiosarcoma in female mice.

The meeting concluded that an acute reference dose (ARfD) was not necessary. Although in a range-finding developmental toxicity study in rats (severe) toxicity was observed after a few days of treatment at 40 mg/kg bw per day or higher, necropsy showed that these animals showed signs of gastrointestinal irritation. Signs of gastrointestinal irritation were also observed in the LD_{50} studies. The meeting considered that the observed toxicity was secondary to the local irritant effect and therefore not an appropriate basis for an ARfD.

A toxicological monograph was prepared.

Table 5.20.1 Levels relevant to risk assessment of guazatine

Species	Study	Effect	NOAEL	LOAEL
Mouse	78-week study of toxicity and carcinogenicity[a]	Toxicity	–	50 ppm, equal to 8.7 mg/kg bw per day[d]
		Carcinogenicity	–	50 ppm, equal to 8.7 mg/kg bw per day[d]
Rat	Two-year study of toxicity and carcinogenicity[a]	Toxicity	150 ppm, equal to 7.8 mg/kg bw per day	350 ppm, equal to 19 mg/kg bw per day
		Carcinogenicity	150 ppm, equal to 7.8 mg/kg bw per day	350 ppm, equal to 19 mg/kg bw per day
	Two-generation study of reproductive toxicity[a]	Reproductive toxicity	350 ppm, equal to 28 mg/kg bw per day[c]	–
		Parental toxicity	350 ppm, equal to 28 mg/kg bw per day[c]	–
		Offspring toxicity	350 ppm, equal to 28 mg/kg bw per day[c]	–
	Developmental toxicity study[b]	Maternal toxicity	17 mg/kg bw per day[c]	–
		Embryo/fetal toxicity	17 mg/kg bw per day[c]	–
Rabbit	Developmental toxicity study[b]	Maternal toxicity	5.6 mg/kg bw per day	11 mg/kg bw per day
		Embryo/fetal toxicity	11 mg/kg bw per day[c]	–
Dog	52-week study of toxicity[a]	Toxicity	25 ppm, equal to 0.8 mg/kg bw per day	75 ppm, equal to 2.6 mg/kg bw per day

Notes:

[a] Dietary administration.

[b] Gavage administration.

[c] Highest dose tested.

[d] Lowest dose tested.

Acceptable daily intake (ADI) applies to guazatine:

0–0.008 mg/kg bw

Acute reference dose (ARfD) for guazatine:

Unnecessary

Information that would be useful for the continued evaluation of the compound

Results from epidemiological, occupational health and other observational studies of human exposure.

Table 5.20.2 Critical end-points for setting guidance values for exposure to guazatine

Absorption, distribution, excretion and metabolism in mammals	
Rate and extent of oral absorption	Rapid, <10%
Dermal absorption	7%
Distribution	Wide; highest concentrations in kidney, liver and lung
Potential for accumulation	5- to 17-fold accumulation in tissues following 14 daily doses
Rate and extent of excretion	Slow. Reported half-lives 27–69 hours
Metabolism in animals	Monodeamidination and dideamidination
Toxicologically significant compounds in animals and plants	Guazatine
Acute toxicity	
Rat, LD_{50}, oral	300–500 mg/kg bw
Rat, LD_{50}, dermal	>1050 mg/kg bw
Rat, LC_{50}, inhalation	0.156 mg/L
Rabbit, dermal irritation	Irritating
Rabbit, ocular irritation	Risk of serious damage
Guinea pig, dermal sensitization	Not sensitizing (Magnusson & Kligman)
Short-term studies of toxicity	
Target/critical effect	Body weight gain
Lowest relevant oral NOAEL	0.8 mg/kg bw per day (dog)
Lowest relevant dermal NOAEL	No data
Lowest relevant inhalation LOAEC	0.58 mg/L (rat)
Long-term studies of toxicity and carcinogenicity	
Target/critical effect	Haemangiosarcoma
Lowest relevant LOAEL	8.7 mg/kg bw per day (mouse, lowest dose tested)
Carcinogenicity	Carcinogenic in mice/rats[a]
Genotoxicity	Unlikely to be genotoxic
Reproductive toxicity	
Target/critical effect	None
Lowest relevant parental NOAEL	28 mg/kg bw per day (rat)
Lowest relevant offspring NOAEL	28 mg/kg bw per day (rat)
Lowest relevant reproductive NOAEL	28 mg/kg bw per day (rat)
Developmental toxicity	
Target/critical effect	None
Lowest relevant maternal NOAEL	5.6 mg/kg bw per day (rabbit)
Lowest relevant embryo/fetal NOAEL	11 mg/kg bw per day, highest dose tested (rabbit)
Neurotoxicity	
Acute neurotoxicity NOAEL	No evidence from routine studies

Subchronic neurotoxicity NOAEL	No evidence from routine studies
Developmental neurotoxicity NOAEL	No data
Other toxicological studies	
Immunotoxicity	No evidence from routine studies
Studies on toxicologically relevant metabolites	No data
Microbiological data	No data submitted
Human data	A poisoning case showed severe cyanosis and stuporous state. Blood pressure and pulse could not be measured until noradrenaline was administered

Note:

[a] Unlikely to pose a carcinogenic risk to humans via exposure from the diet.

Table 5.20.3 Summary

	Value	Study	Safety factor
ADI	0–0.008 mg/kg bw	52-week study in dogs	100
ARfD	Unnecessary	–	–

Residue and analytical aspects

Guazatine is a non-systemic contact fungicide which disturbs the membrane function of fungi. It controls a wide range of seed-borne diseases of cereals. On citrus fruit, guazatine is used post-harvest to disinfect the process water. Guazatine was first evaluated by the JMPR in 1978 and 1980 and was re-evaluated for toxicology and residues in 1997. Currently, there is no Codex MRL for guazatine.

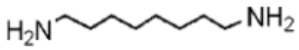
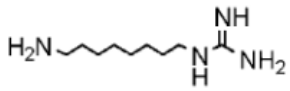
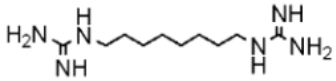
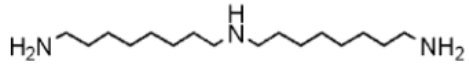
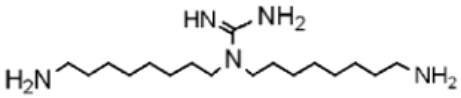
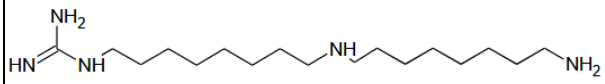
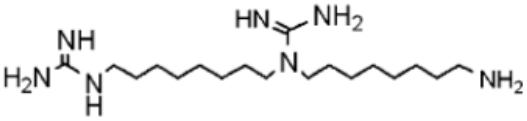
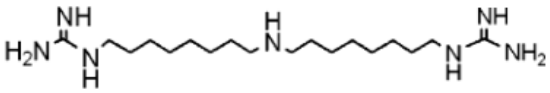
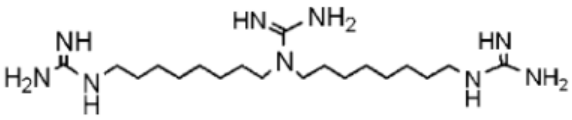
Guazatine was scheduled by the 55th Session of the CCPR for periodic review by the JMPR. The meeting received information on physical chemical properties, metabolism in plants and livestock, environmental fate, analytical methods, registered uses and supervised field trials. Currently, no CXLs for guazatine are established.

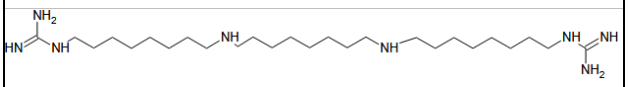
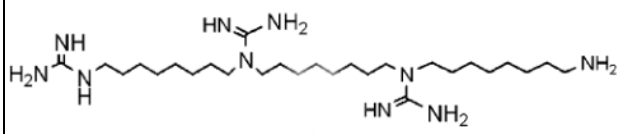
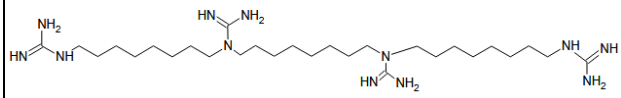
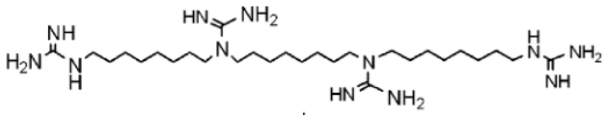
Guazatine is a multi-component technical material consisting of structurally-related compounds based on aliphatic chains containing amine groups, present as acetate salts. For the purposes of this document, “guazatine” is used to indicate the technical material and mixture of components. A coding system is used for the compounds that make up guazatine in which “N” represents any amino group (except for “G”) and “G” represents any guanidated amino group (NH or NH2). For example:

- NN stands for $H_2N–(CH_2)_8–NH_2$;
- NNN stands for $H_2N–(CH_2)_8–NH–(CH_2)_8–NH_2$ and so on; and
- GG stands for $H_2N–C(NH)NH–(CH_2)_8–NH–C(NH)–NH_2$.

Exact composition of guazatine may varies slightly. Information on the individual components and their percentage in guazatine are shown in Table 5.20.4.

Table 5.20.4 Composition of guazatine in combined batches from 1993 to 2009

Component	Structural formula	Content Min–Max (mean), %			Combined, %
		1990–1991	2001–2003	2006–2007	Mean (SD)
NN		0.2–0.3 (0.3)	NA	NA	–
GN		3.0–3.6 (3.4)	3.3–5.1 (4.4)	4.0–4.8 (4.4)	4.1 (0.6)
GG		9.0–10.9 (10.0)	7.9–8.9 (8.4)	8.3–10.1 (9.2)	9.2 (0.9)
NNN		0–0.1 (0)	NA	NA	–
NGN		0.2–0.3 (0.3)	0.8–1.1 (1.0)	0.5–0.7 (0.6)	0.7 (0.3)
GNN		0.3–1.1 (0.6)	0.9–1.6 (1.3)	0.5–0.9 (0.7)	0.9 (0.4)
GGN		2.5–3.1 (2.8)	4.6–5.3 (5.0)	4.1–5.2 (4.7)	4.2 (1.0)
GNG		1.4–1.6 (1.5)	1.4–1.8 (1.7)	1.0–1.6 (1.3)	1.5 (0.2)
GGG		9.8–11.4 (10.4)	11.4–14.8 (13.0)	8.7–10.5 (9.3)	10.9 (1.9)

Component	Structural formula	Content Min–Max (mean), %			Combined, %
		1990–1991	2001–2003	2006–2007	Mean (SD)
GNNG		0.4–0.6 (0.5)	NA	0.1–0.2 (0.1)	–
GGGN		0.4–0.6 (0.5)	NA	0.8–0.9 (0.9)	–
GGGG		1.3–2.0 (1.7)	0.6–0.9 (0.8)	1.3–1.5 (1.4)	5.1
Other tetramines	Not available	0.5–1.1 (1.0)	1.7–3.6 (3.1)	NA	–
GGGGG		0.3–0.5 (0.4)	NA	NA	–
Other pentamines	Not available	0.4–0.6 (0.5)	NA	NA	–
Hexamones and above	Not available	0.1–0.2 (0.2)	NA	NA	–
Total of major components (free base content)	–	31.0–32.1 (31.5)	34.6–36.5 (35.5)	29.7–34.4 (31.7)	32.9
Acetates	–	18.0–18.6 (18.3)	nd	17.6–18.6 (18.1)	18.2 (0.3)
Water	–	38.3–40.8 (39.7)	nd	39.0–41.7 (40.7)	40.2(1.0)
Minor components	–	2.7–3.7 (2.9)	1.7–2.1 (1.9)	2.0–2.2 (2.0)	2.5 (0.5)

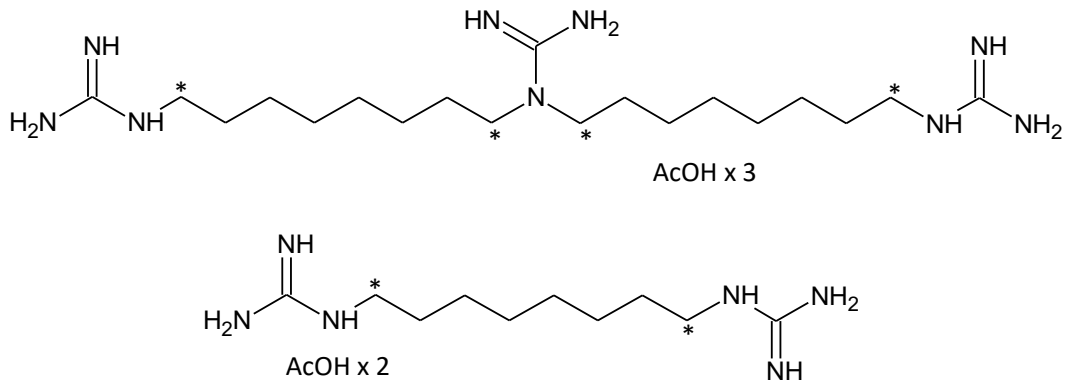
Physical and chemical properties

Guazatine is not volatile and not susceptible to hydrolysis under environmental conditions. The different components of guazatine are all highly soluble in water, with log P_{ow} ranging from –4.6 to –3.0. Depending on the pH value, aqueous photolysis was insignificant to low. Guazatine is specified by FAO.

Plant metabolism

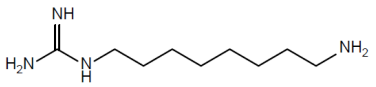
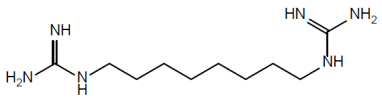
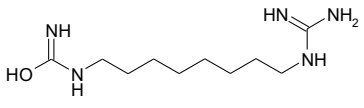
The meeting received information on the metabolism of guazatine in oranges. In one study, the test substance was as [^{14}C, ^{3}H]–Guazatine acetate, uniformly ^{14}C and ^{3}H labelled in the guanidine moieties. A second study used GGG– or GG–^{14}C–radiolabelled guazatine (Figure 5.20.1). A list of identified metabolites is presented in Table 5.20.5.

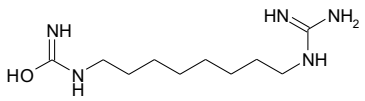
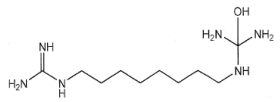
Figure 5.20.1 Radiolabel of GGG–^{14}C–guazatine



Note: * Indicates the position of ^{14}C labelling.

Table 5.20.5 Guazatine related compounds found in metabolism studies

Abbreviation or code	Chemical Structure	Name
Met-1	A.  B.  C. 	Mixture of: A. 1-(8-aminooctyl)guanidine, C9H22N4 B. 1,1'-(octane-1,8-diyl)diguanidine, C10H24N6, GG C. N-(8-guanidinooctyl) carbamimidic acid, C10H23N5O, Met-2 (see below)

Abbreviation or code	Chemical Structure	Name
Met-2		N-(8-guanidinooctyl) carbamimidic acid, C10H23N5O
Met-3		1-(8-(diamino(hydroxy)methylamino)octyl)guanidine, C10H26N6O

The meeting noted that in its previous assessment in 1997, studies on the metabolism in wheat (seed treatment), rice (soil treatment), soya beans (soil treatment) and apples (leaf/fruit direct brush treatment) were reported, with the results being described only in terms of total radioactivity. These studies were not made available to the current meeting. In view of the use pattern made available for post-harvest treatment of citrus fruits, these studies are irrelevant. In case of future requests for additional uses on field crops, submission of respective study reports and a re-assessment is required.

Oranges – Study 1 (post-harvest)

In this study, [^{14}C, ^{3}H]–Guazatine acetate, uniformly labelled in the guanidine moieties of guazatine, was applied by drench application to Jaffa oranges at 1000 ppm or 2000 ppm of the radio-labelled substance. Oranges were sequentially drenched for 30–60 seconds, dried, treated with a wax spray containing thiabendazole at 4000 ppm, dried and finally stored in plastic bags at 4 °C for up to 50 days.

Duplicate samples were removed from storage for analysis after 0, 1, 8, 24 and 50 days. Orange fruit were separated into peel, pith (white) and flesh (pulp). Radioactivity was measured by liquid scintillation counting. No identification of the radioactivity was conducted. It was noted in the study report that, the fruit were definitely damaged after 50 days in store to the extent that they were unlikely to be consumed.

Relative radioactive residues in the different compartments of the fruits showed no time or application rate dependence, with 94–97 percent of the radioactivity in the peel, 1.5–4.0 percent in the pith and 1.2–2. 2 percent in the flesh. Concentrations equalled 13–41 mg eq/kg in peel, 0.41–4.0 mg eq/kg in pith and 0.02–0.94 mg eq/kg in the flesh following treatment at 1000 ppm. Respectively, 51–99 mg eq/kg, 1.2–23 mg eq/kg and 0.27–5–5 mg eq/kg were found for the 2000 ppm treatment.

Oranges – Study 2 (post-harvest)

In this study, GGG– or GG–^{14}C–radiolabelled guazatine was applied to navel oranges (variety "Nature's Promise"). Each [^{14}C]–Guazatine test substance was applied as dip at an application rate of 1.00 mg/mL. The fruits were submerged in the solution for one minute and placed in a refrigerator at a temperature of approximately 5 °C. After 0, 7, 30 and 90 days, treated samples were removed from the refrigerator and analysed.

TRR levels were quantified by combustion. Samples were surface rinsed with water, separated into peel and pulp and extracted with acetone:water (2:1). Post extraction solids (PES) from the peel was further extracted by overnight cooking Soxhlet extraction with purified reagent water acidified to a pH of 5.5.

Initial characterization and identification of metabolites was made by comparison of HPLC retention times with co-injected reference standards (GG, GGG). Metabolites were characterized or identified by HPLC co-chromatography with reference standards and HPLC–MS.

Total radioactive residues (TRR) levels in the whole fruits were stable both for GG and GGG between 0 and 90 days, representing 2.4–3.2 mg eq/kg. Ratios of radioactivity in the different compartments changed over time. TRR in the surface wash declined from 68–71 percent TRR at day 0 to 27–28 percent after 90 days. In parallel, TRR in peel increased from 28–30 percent to 72–73 percent TRR, respectively. In the pulp, no time-dependence was observed, with TRR levels of 0.10–1.9 percent (0.006–0.036 mg eq/kg).

For GG, identification of the radioactivity after up to 7 days showed nearly exclusively the applied compound with 90–95 percent of the TRR (calculated based on whole fruits). In samples collected 30 and 90 days after treatment, GG levels declined to 59 and 41 percent TRR, respectively. Met-2 was found in the peel representing 5 percent TRR at day 7. Its concentration increased to a total of 11.7 percent TRR at day 30, primarily found in the peel (11.0 percent, 0.17 mg eq/kg) and in minor amounts in the pulp (0.7 percent TRR, 0.01 mg eq/kg). After 90 days, levels of Met-2 declined to 5.9 percent TRR (5.6 percent TRR in peel, 0.39 percent TRR in pulp). In parallel, Met-1 was found exclusively in the 90 days samples at 39 percent TRR (0.97 mg eq/kg) in whole fruits, again primarily found in the peel (39.3 percent TRR, 0.97 mg eq/kg) versus the pulp (0.05 percent TRR, 0.001 mg eq/kg).

Following application of GGG, 86–88 percent TRR (calculated on whole fruits) were recovered as GGG within the first 7 days, declining slightly to 75 percent each after 30 and 90 days. The only identified substance was Met-3, present at 5.6 percent TRR (0.14 mg eq/kg, based on whole fruits) each in samples collected after 30 and 90 days. One unidentified metabolite represented up to 1.2 percent TRR (0.03 mg eq/kg), primarily found in the peel. Following application of GGG, minor amounts of GG (1.4–3.1 percent TRR) were found in the peel.

Summary of plant metabolism

The metabolism of guazatine was investigated in oranges following post-harvest treatment with either radiolabelled GG or GGG. Over 90 percent of the applied radioactivity was recovered in the peel. Analysis of peel and pulp demonstrated that unchanged GG or GGG were the predominant compounds in all of these matrices. Major metabolites were only identified following treatment with GG, namely Met-2 (at 11.7 percent TRR on day 30) and Met-1 (at 39 percent TRR at day 90), both found in peel. TRR levels in the pulp remained low over investigated intervals of up to 90 days with up to 0.04 mg eq/kg. Metabolites in the pulp did not exceed 0.01 mg eq/kg at any timepoint.

Animal metabolism

Rats

The metabolism of guazatine in rats was reviewed in the framework of the toxicological evaluation by the WHO Core Assessment Group in the 2025 JMPR.

Lactating cows

In this study, carbon chain-labelled [^{14}C]–guazatine was administered by injection direct into the rumens at two doses per day, 50 mg and 500 mg, equivalent to 0.1 and 1.0 mg/kg bw (for a 500 kg animal). Two cows received only two dosings (1 day), followed by 169 hours of depuration (7 days). In a second part of the study, six cows were administered for 11 consecutive days (21 doses).

Milk was collected twice daily and tissues after sacrifice of the animals (only for animals from the 11 days dosing period, directly after the final dose). Pooled milk from day 3, 6 and 9 was separated into milk fat, curds and whey by centrifugation (milk fat), followed by precipitation with hydrochloric acid at pH 2 (curds, whey). Samples were homogenized in methanol. After C_{18} solid phase extraction and removal of the solvent, radioactivity was analysed with HPLC-radiolabelled detector.

Following administration for a single day, TRR in milk represented 0.019 percent beginning of the next day and declined to <0.001 percent at day 4 and later. In the experiment involving 11 days of consecutive dosing, a residue plateau was reached within 4 to 6 days. TRR levels were 0.018 mg eq/kg for the 1 mg/kg bw dose and 0.002 mg eq/kg for the 0.1 mg/kg bw dose. Fractionated milk showed 12 percent TRR in milk fat, 29.6 percent TRR in curds and 58.5 percent TRR in whey.

In tissues, highest radioactivity was found in the liver (0.054–0.12 mg eq/kg for the 1 mg/kg bw group and <0.004–0.009 mg eq/kg for the 0.1 mg/kg bw group) and in kidney (0.052–0.11 mg eq/kg for the 1 mg/kg bw group and <0.003–0.008 mg eq/kg for the 0.1 mg/kg bw group). In fat (renal, subcutaneous), radioactivity was detected but not unquantified (<0.001–<0.016 mg eq/kg). In muscle, TRR levels remained below quantification limits in most sample, except for one animal from the 1 mg/kg bw dose group with <0.007–0.013 mg eq/kg.

Identification of the residue composition was not achieved. Characterization by comparison of chromatograms suggests that the majority of the radioactivity found in kidney was unidentified and polar, whereas the activity in liver had similar chromatographic properties to the dosed guazatine, but with an additional unidentified polar metabolite.

Summary of animal metabolism

Metabolism of guazatine was investigated in lactating cows. In milk, radioactivity formed a plateau after 4 to 6 days, with the majority of the radioactivity being present in whey (58 percent), followed by curd (30 percent) and milk fat (12 percent). In tissues, highest radioactivity was found in liver and kidney (up to 0.12 mg eq/kg and 0.112 mg eq./kg, respectively). Radicoactivity in muscle, fat or the heart was low, mostly below the LOQ and not exceeding 0.027 mg eq./kg. No identification of the radioactivity was conducted.

Environmental fate

Photodegradation in water

The photolytic behaviour of unlabelled guazatine was tested in pH 5, 7 and 9 aqueous solutions at 45 °C with 300 nm lamps for 24 hours. Concentration of guazatine acetates before and after irradiation were compared, showing no degradation at pH 5 and low/moderate decline at pH 7 (–19 percent) and pH 9 (–25 percent).

The meeting concluded that aqueous photolysis is not a relevant pathway for the degradation of guazatine.

Methods of residue analysis

The meeting received two analytical methods for the determination of GG residues (free base) in citrus (fruits, pulp, dry and wet peel). GG is used as marker molecule for the determination of all guazatine acetate components and assumed to represent 30 percent of the total free base content (as specified for technical guazatine by the FAO). In order to calculate the total guazatine acetates residue, a conversion factor is required to address for deviating purities of analytical reference materials and to consider the amount of acetates not covered by the analysis. For example, assuming an average guazatine free base content of 40 percent in commercial reference materials and 18.9 percent corresponding acetates, the conversion factor from free base content to guazatine acetates is (0.40 + 0.189)/0.40 = 1.47.

In a LC–MS/MS method, samples are fortified with an isotopically-labelled GG internal standard and extracted with hot aqueous HCl, followed by neutralization with NH_3 and clean-up via cation exchange. The LOQ was 0.04 mg/kg (guazatine free base).

In a GC–MS method, guazatine is extracted into butanol as ion pairs with picric acid (2,4,6–trinitrophenol). After partitioning into sulphuric acid, the guanidines were hydrolysed to the parent amines. The amines were extracted into benzene and derivatized using trifluoroacetic anhydride. LOQs (guazatine free base) were 0.05 mg/kg for orange flesh, 0.2 mg/kg for wet orange peel and 1 mg/kg for dry orange peel.

No multi-residue methods (MRM) for plant commodities were submitted. However, the meeting is aware of a QuEChERS MRM, targeting the specific components GG, GGG, GGN and GNG.

No information on analytical methods for animal commodities was provided to the meeting.

Stability of pesticide residues in stored analytical samples

The meeting received information on the freezer storage stability of incurred guazatine residues in orange pulp and wet peel. Samples in the supervised field trials were analysed after 5–9 months and re-analysed after 6 months. No significant decline of residues was observed between both measurements.

The meeting decided that the study is insufficient to address the storage stability on citrus matrices. No information was provided on the initial 5–9 months of freezer storage stability prior to the first analysis and whether or not a potential degradation into a chemical equilibrium occurred.

Additional storage stability data on plant or animal commodities were not submitted to the meeting.

Definition of the residue

Plants

Guazatine is a complex mixture of individual compounds resulting from polyamine reaction. The meeting received information on the metabolic fate of guazatine components radiolabelled GG and GGG in oranges following post-harvest treatment. Each of these compounds represent approximately 30 percent of the total guazatine acetates in the technical product as specified by FAO.

Most of the radioactivity was recovered in the surface wash after post-harvest treatment and the majority of the residue translocated into the peel over time within 90 days of storage. In the pulp, radioactive residues always remained low irrespective of the time between treatment and analysis, representing a maximum of 1.9 percent TRR (0.036 mg eq/kg). The applied compounds GG or GGG were always the predominant residue in all matrices. Major metabolites identified were Met-1, present at up 39 percent TRR in orange peel after 90 days and Met-2, present up to 11.7 percent TRR in orange peel after 30 days. In addition, Met-3 was found at up to 5.9 percent TRR in the peel.

All metabolites consisted of released C8–amine monomers from the polyamine reaction. Met-1 is a mixture of three individual components, one of them Met-2.

In high-temperature hydrolysis, both GG and GGG were stable at pH 4 at 90 °C.

The meeting concluded that the sum of all guazatine acetate components is a suitable marker for enforcement in plants. Analytical methods for the sum of guazatine acetates (=guazatine) are available, based on the measurement of GG.

The HBGVs apply to the mixture of guazatine acetates. The meeting concluded to use the sum of guazatine acetates (=guazatine) as residue definition for estimation of dietary intake.

Definition of the residue for compliance with MRLs and for estimation of dietary intake in plant commodities: guazatine acetates (=guazatine)

Animal commodities

A metabolism study with GG and GGG on lactating cows could not identify quantified radioactive residues in milk and tissues. In addition, no analytical methods suitable for the analysis of guazatine-related compounds are available.

The meeting concluded that the information provided is insufficient to conclude on residues definition for compliance with MRL and for estimation of dietary intake for guazatine in animal commodities.

Definition of the residue for compliance with MRL and for estimation of dietary intake in animal commodities: *not concluded.*

Results of supervised residue trials on crops

Citrus fruit

The GAP for guazatine on citrus fruits is from South Africa and involves one post-harvest dip treatment of 100 g guazatine per hL for at least 40 seconds with no withholding period.

The meeting received four supervised field trials on mandarins and oranges each approximating the GAP. However, the meeting concluded that storage stability information based on incurred residues are not acceptable since the first analysis was conducted at least 5 months after sampling.

The meeting decided that the data submitted is insufficient to estimate a maximum residue level.

Fate of residues during processing

The meeting received information on high temperature hydrolysis of guazatine GG and GGG in aqueous buffer solutions at pH 4, 90 °C for 20 minutes. Under all conditions, both test compounds remained stable.

In addition, residues of guazatine in processed citrus fruit commodities was investigated. The maximum storage interval of samples in this study was 12 months, which is not supported by storage stability information. The meeting decided that the data is not suitable for the estimation of processing factors.

Residues in animal commodities

The meeting did not receive feeding studies for guazatine on livestock animals. In addition, the metabolism data was insufficient to conclude on residue definitions for compliance with MRL and for estimation of the dietary intake. No estimations of maximum residue levels for guazatine in animal commodities were made by the meeting.

Future work or information

Desirable information:

- storage stability in plant commodities;
- farm animal metabolism studies on animals exposed by feed-commodities according to the reviewed uses (citrus pomace);
- farm animal feeding studies on animals exposed by feed-commodities according to the reviewed uses (citrus pomace);
- optional: storage stability in animal commodities;
- optional: analytical methods in animal commodities;
- optional: multi-residue methods;
- optional: in case the use pattern is extended to field crops, re-submission of studies on wheat, rice, soya and apple evaluated by the 1997 JMPR; and

- optional: new metabolism studies on representative crops involving identification of radioactive residues.

Recommendations

No recommendations for guazatine were made due to the lack of appropriate storage stability studies. Currently, there is no Codex MRL for guazatine.

Definition of the residue for estimating MRLs and for estimation of dietary intake in plant commodities: guazatine acetates (=guazatine).

Definition of the residue for estimating MRLs and for dietary intake in animal commodities: not defined.

Dietary risk assessment

The ADI for guazatine is 0–0.008 mg/kg bw. As the meeting did not make any recommendation, the International Estimated Daily Intakes (IEDI) was not performed. An ARfD is unnecessary.

5.21 Indoxacarb (216) (R)

Residue and analytical aspects

Indoxacarb is an indeno-oxadiazine insecticide that is used for the control of lepidopteran and other insect pests. It was first evaluated by the 2005 JMPR when an ADI of 0–0.01 mg/kg bw and an ARfD of 0.1 mg/kg bw were established. Subsequently, the compound was evaluated for residues only in 2007, 2009, 2013 and 2022.

The residue definition for compliance with the MRL for plant and animal commodities and for estimation of dietary intake for plant commodities is the sum of indoxacarb and its *R* enantiomer.

The residue definition for estimation of dietary intake for animal commodities is the sum of indoxacarb, its *R* enantiomer, and IN-JT333, expressed as indoxacarb. The residue is fat soluble.

At the 55th Session of the CCPR, indoxacarb was scheduled for evaluation by the current meeting for additional uses on Welsh onion, eggplant, and rice. The meeting received information on analytical methods, storage stability, use pattern, supervised residue trials, and processing (dried Welsh onion and polished rice).

Methods of residue analysis

The meeting received new information on analytical methods of indoxacarb and its R enantiomer, involving QuEChERS sample preparation and LC-MS/MS determination. The LOQ was 0.01 mg/kg (sum of indoxacarb and its *R* enantiomer) for Welsh onion (fresh, dried), eggplant, and rice (grain, polished rice) matrices.

Stability of pesticide residues in stored analytical samples

The meeting concluded in 2005 and 2009 that indoxacarb and its *R* enantiomer are stable when stored frozen for at least 24 months in high water commodities, 11 months in high protein commodities, 18 months in high starch commodities, and 11 months in high oil commodities. In 2022, the meeting received additional information that showed that indoxacarb is stable for at least 17 months in high acid commodities (blueberry).

Storage periods of Welsh onion, eggplant, and rice samples were covered by the periods demonstrated as stable in the matrices. The meeting concluded that indoxacarb and its *R* enantiomer were stable for the storage period of the samples from the residue trials evaluated in this meeting.

Results of supervised residue trials on crops

The meeting received information on a use pattern and supervised residue trials for Welsh onion from the Republic of Korea and eggplant and paddy rice from Thailand. In all cases, residues were measured and expressed as indoxacarb and its *R* enantiomer.

Welsh onion

The GAP on Welsh onion from the Republic of Korea is a foliar spray with an application rate of 3 × 5 g ai/hL (2000-fold dilution of 10 percent WP formulation), a 7-day interval and a PHI of 7 days.

Six trials approximating this GAP were conducted in the country, giving residues in Welsh onion (roots and outer layer, removed) of (n = 6) 0.01, 0.01, 0.02, 0.03, 0.09, and 0.13 mg/kg (highest individual result 0.14).

The meeting decided not to use the data, since the procedure for sampling of the raw commodity is not in line with the description in the Codex Classification for green onions (Subgroup 009B) and the FAO manual for sampling of green onions. For these reasons, the meeting could not estimate a maximum residue level for fresh Welsh onions.

Welsh onions from the three trials (residue concentration, 0.02, 0.09, and 0.13 mg/kg) and two trials approximating the GAP except an exaggerated rate (3 × 15 g ai/hL) were trimmed (roots and outer layer, removed), washed with water, cut into slices and were air-dried to a moisture content of 8.1–19 percent. Residues of indoxacarb in Welsh onion (dried) were (n = 3): 0.06, 0.47, and 1.0 mg/kg (highest 1.1 mg/kg). In the exaggerated application, residues of indoxacarb in fresh (roots and outer layer, removed)/dried Welsh onion were (n = 2): 0.06/0.50 mg/kg and 0.24/1.8 mg/kg.

The meeting agreed that three trials according to GAP are not sufficient to estimate a maximum residue level for Welsh onion (dried).

Eggplant

The 2005 JMPR recommended a maximum residue level of 0.5 mg/kg, a STMR of 0.11 mg/kg, and a HR of 0.30 mg/kg for indoxacarb in eggplant based on the residue data for tomato (cGAP from the United States: 4 × 0.073 kg ai/ha, 3-days PHI).

The meeting received a new GAP on eggplant from Thailand, consisting of a foliar spray of 3 × 7.5 g ai/hL (4000-fold dilution of 30 percent WG formulation), a 7-day interval, and a PHI of 3 days. Five trials approximating this GAP were conducted in Thailand, giving residues of indoxacarb of 0.02 (2) and 0.03 (3) mg/kg.

The meeting noted that the new GAP from Thailand and the resultant residue values are covered by its previous recommendations for indoxacarb. Therefore, the meeting confirms its previous recommendations, a maximum residue level of 0.5 mg/kg, a STMR of 0.11 mg/kg, and a HR of 0.30 mg/kg for indoxacarb in eggplant.

Rice, paddy

The GAP on rice from Thailand is a foliar spray with an application rate of 3 × 9.72 g ai/hL (500-fold dilution of 4.86 percent SC formulation), a 7-day interval and a PHI of 30 days. Six trials approximating this GAP were conducted in Thailand, giving residues of indoxacarb in rice grain of 0.04 (2), 0.41, 0.50, 0.53, and 1.7 mg/kg (highest 1.8 mg/kg).

The meeting could not confirm that the current residue definition reflects residues in paddy rice, as the information on metabolism in paddy rice and environmental fate in water-sediment systems were not available for this meeting. Therefore, the meeting could not estimate a maximum residue level for rice.

Fate of residues during processing

The meeting received new information on the magnitude of residues following drying of Welsh onion and polishing of rice. However, the meeting could not estimate a processing factor for the commodities as estimation of maximum residue levels for rice grain and Welsh onion (fresh) could not be made.

Residues in animal commodities

Although no maximum residue level for crops was estimated by the meeting for feed commodities, the dietary burden using the OECD diets listed in Appendix IX of the 2016 edition of the FAO manual was recalculated to include new estimations for grape pomace and tomato pomace based on the raw commodity residue made by the 2022 JMPR, as well as cotton hulls and pea seed not previously included. The results are shown in Annex 5. There was no significant change in the dietary burden as well as in the previous recommendation values for animal commodities.

Following the update of the Codex Classification for animal commodities, the meeting estimated a maximum residue level of 0.2 mg/kg and a STMR of 0.07 mg/kg for Group of milks and withdrew its previous recommendation of 0.2 mg/kg for milk.

The meeting estimated a maximum residue level of 6 mg/kg and a STMR of 1.7 mg/kg for the Group of milk fats and withdrew its previous recommendation of 6 mg/kg for milk fat.

The meeting estimated a maximum residue level of 0.1 mg/kg, a STMR of 0.026 mg/kg, and a HR of 0.099 mg/kg for the Group of muscle (from mammals other than marine mammals) and withdrew its previous recommendation of 2 (fat) mg/kg for meat (from mammals other than marine mammals).

The meeting estimated a maximum residue level of 2 mg/kg, a STMR of 0.66 mg/kg, and a HR of 1.9 mg/kg for Group of mammalian fats (except milk fats) and withdrew its previous recommendation of 2 mg/kg for mammalian fats (except milk fats).

The meeting estimated a maximum residue level of 0.06 mg/kg for Group of edible offal (mammalian) based on kidney, estimated STMR values of 0.01 mg/kg for liver and 0.03 mg/kg for kidney, HR values of 0.028 mg/kg for liver and 0.057 mg/kg for kidney and withdrew its previous recommendation of 0.05 mg/kg for edible offal (mammalian).

Following the update of the Codex Classification and based on the dietary burden derived by JMPR 2009, the meeting recommended a maximum residue level of 0.02 mg/kg, a STMR of 0.01 mg/kg, and a HR of 0.02 mg/kg in Group of eggs and withdrew its previous recommendation of 0.02 mg/kg for eggs.

The meeting recommended a maximum residue level of 0.01* mg/kg, a STMR of 0 mg/kg, and a HR of 0 mg/kg in Group of avian muscle and withdrew its previous recommendation of 0.01* (fat) mg/kg for poultry meat.

The meeting recommended a maximum residue level of 0.05 mg/kg, a STMR of 0.025 mg/kg, and a HR of 0.05 mg/kg in Group of avian fats and withdrew its previous recommendation of 0.01* (fat) mg/kg for poultry meat.

The meeting recommended a maximum residue level of 0.01* mg/kg, a STMR of 0 mg/kg, and a HR of 0 mg/kg in Group of avian, edible offal of and withdrew its previous recommendation of 0.01* mg/kg for poultry, edible offal of.

Future work or information

Desirable

- Metabolism study in paddy rice (i.e. flooded conditions)
- Environmental fate in water-sediment systems

Recommendations

On the basis of the data obtained, the meeting concluded that the residue levels listed in Table 5.21.1 and Annex 1 are suitable for establishing maximum residue limits and for estimation of dietary intake. Table 5.21.2 shows the residues included in the dietary burden calculation.

Definition of the residue for compliance with the MRL for plant and animal commodities and dietary risk assessment for plant commodities: the sum of indoxacarb and its *R* enantiomer.

Definition of the residue definition for dietary risk assessment for animal commodities: the sum of indoxacarb, its *R* enantiomer, and IN-JT333, expressed as indoxacarb.

The residue is fat soluble.

Table 5.21.1 Residue levels suitable for establishing maximum residue limits and for estimation of dietary intake

Commodity		Recommended maximum residue levels, mg/kg		STMR, mg/kg	HR, mg/kg
CCN	Name	New	Previous		
MO 0105	Edible offal (Mammalian)	W	0.05	–	–
PE 0112	Eggs	W	0.02	–	–
PF 0111	Group of avian fats	0.05	–	0.025	0.05
PM 0110	Group of avian muscle	0.01*	–	0	0
PO 0111	Group of avian, Edible offal	0.01*	–	0	0
MO 0105	Group of Edible offal (mammalian)	0.06	–	Liver: 0.01 Kidney: 0.03	Liver: 0.028 Kidney: 0.057
PE 0112	Group of eggs	0.02	–	0.01	0.02
MF 0100	Group of Mammalian fats (except milk fats)	2	–	0.66	1.9

Commodity		Recommended maximum residue levels, mg/kg		STMR, mg/kg	HR, mg/kg
CCN	Name	New	Previous		
FM 0106	Group of Milk Fats[a]	6	–	1.7	–
ML 0106	Group of milks	0.2	–	0.07	–
MM 0095	Group of Muscle (from mammals other than marine mammals)	0.1	–	0.026	0.099
MF 0100	Mammalian fats (except milk fats)	W	2	–	–
MM 0095	Meat (from mammals other than marine mammals)	W	2 (fat)	–	–
FM 0106	Milk fat	W	6	–	–
ML 0106	Milks	W	0.2	–	–
PM 0110	Poultry meat	W	0.01* (fat)	–	–
PO 0111	Poultry, edible offal of	W	0.01*	–	–

Notes:

[a] For monitoring and regulatory purposes, whole milk is to be analysed, and the result compared to the MRL for whole milk.

Table 5.21.2 Residues of indoxacarb for estimation of animal dietary burden

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed
AL	Alfalfa, forage	16	28	100
AL	Alfalfa, hay	16	43	100
AM/AV	Almond, hulls	2.65	–	90
AB	Apple, pomace, wet	0.55	–	40
VD	Bean, seed	0.02	–	88
AL	Bean, vines	11	32	35
AM/AV	Cabbage, heads, leaves	0.44	2	15
CM/CF	Corn gluten, feed	0.01	–	40
CM/CF	Corn gluten, meal	0.01	–	40
CM/CF	Corn, field, asp gr fn	0.01	–	85
AF/AS	Corn, field, forage/silage	1.6	3.4	40
GC	Corn, field, grain	0.01	–	88
CM/CF	Corn, field, hominy meal	0.01	–	88
CM/CF	Corn, field, milled bypdts	0.01	–	85
AF/AS	Corn, field, stover	2.8	9.1	83
GC	Corn, pop, grain	0.01		88
AF/AS	Corn, pop, stover	2.8	9.1	85
AF/AS	Corn, sweet, cannery waste	3.7	9.8	30
AF/AS	Corn, sweet, forage	2.8	9.1	48
AF/AS	Corn, sweet, stover	7.8	15	100
AM/AV	Cotton, gin by-products	8	11	90
SM	Cotton, hulls	0.0104	–	90
SM	Cotton, meal	0.36	–	89
SO	Cotton, undelinted seed	0.36	–	88
VD	Cowpea, seed	0.02	–	88

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed
AB	Grape, pomace, wet	0.3	–	15
VD	Pea, seed	0.02	–	90
AL	Peanut, hay	18	45	100
SM	Peanut, meal	0.0012	–	85
VR	Potato, culls	0.003	0.0085	20
SM	Soybean, hulls	0.23	–	90
SM	Soybean, meal	0.0038	–	92
VD	Soybean, seed	0.027	–	89
AB	Tomato, pomace, wet	0.11[a]	–	20

Dietary risk assessment

The meeting recommended STMR and HR values for animal commodities according to the update of the Codex Classification, which are not anticipated to affect the previous dietary risk assessment.

5.22 Ipflufenoquin (345) (T, R)*

Toxicology

Ipflufenoquin is the common name approved by the International Organization for Standardization (ISO) for 2-[2-(7,8-difluoro-2-methylquinolin-3-yloxy)-6-fluorophenyl]propan-2-ol (International Union of Pure and Applied Chemistry [IUPAC]), for which the Chemical Abstracts Service (CAS) number is 1314008-27-9. Chemically, this compound belongs to the class of quinolone fungicides. Its target in fungi is known to be the enzyme dihydroorotate dehydrogenase, but the details have yet to be fully elucidated, and its mode of action (MOA) is likely to be novel.

Ipflufenoquin has not previously been evaluated by the Joint FAO/WHO Meeting on Pesticide Residues (JMPR) and was reviewed by the present meeting at the request of the Codex Committee on Pesticide Residues (CCPR). All critical studies contained statements of compliance with good laboratory practice (GLP) and were conducted in accordance with current international test guidelines, unless otherwise specified. As is typical with a new compound, additional information from public sources to complement the toxicological studies remains scarce. However, there were some publications on microbiological aspects (i.e., a possible role in the development and spreading of cross-resistance to antifungal drugs for use in humans) in the scientific literature which were evaluated.

Biochemical aspects

The toxicokinetics and metabolism of ipflufenoquin were investigated in rats. For these studies, ipflufenoquin was ^{14}C radiolabelled either in the quinoline (benzene) ring (the A ring), or in the phenyl ring (the C ring). Most experiments, including all those at higher dose levels or with repeated administration of labelled compound, were performed with the A ring radiolabel.

Following oral administration of a single low dose of 3 mg/kg bw to rats, rapid absorption (T_{max} for plasma radioactivity 0.5–2.0 hours) was observed. Absorption was slightly slower at a high dose of 300 mg/kg bw. The half-life of clearance of radioactivity from the plasma was approximately 15–16 hours. Absorbed radioactivity was widely distributed in the body, with the highest concentrations consistently found in the gastrointestinal (GI) tract and occasionally in the liver at 96 hours post dose. Total organ and tissue residues at termination after four days accounted for less than 0.5 percent of the administered dose (AD). There was no evidence of accumulation. No major differences in toxicokinetic parameters were observed between the two radiolabel positions.

Based on a comparison of areas under the concentration–time curve (AUC) of plasma radioactivity after oral and intravenous administration of the low dose of 3 mg/kg bw, oral absorption was high (approximately 90 percent). Data on urinary and biliary excretion and residues in the carcass were consistent with this result, but indicated a lower absorption at a high dose of 300 mg/kg bw (60 percent in males and 79 percent in females). The position of radiolabel or repeated administration had no significant impact on this general pattern.

Bile was the predominant elimination route, accounting for more than 80 percent of the administered radioactivity in both sexes at the low dose level. At the high dose, biliary excretion was lower (54 percent and 70 percent in males and females, respectively), consistent with partly saturated absorption. In line with this, in intact (non-cannulated) rats, most of the radioactive dose was recovered from faeces. Faecal elimination amounted to 77–87 percent, irrespective of sex, dose, radiolabel or multiple dosing. In experiments with infusion of bile collected from treated animals into the duodenum of naive rats, significant enterohepatic circulation was demonstrated. Urinary excretion was minor, in general accounting for less than 10 percent at either dose. Exhalation of radiolabel was negligible.

Metabolism in the rat was extensive, with a large number of metabolites resulting from initial oxidation, yielding single or multiple hydroxylation products, which were subsequently conjugated. Phase I metabolism also resulted in the formation of an intermediate epoxide on the quinoline ring. The epoxide was then either hydrolysed to give dihydroxy products or was subject to Phase II adduction with glutathione, giving rise to intact glutathione conjugates and an array of metabolites produced by its subsequent metabolism via the mercapturic acid pathway. Putative major metabolites were M16, M47, M48 and M51, since each of these accounted for more than 10 percent of the AD in bile, in at least one group. However, it is unclear to what extent they were systemically available in the absence of the time course of excretion, with the exception of M16, which was detected at quite high amounts in urine.

This metabolite pattern was also observed, with only minor quantitative differences, on repeated administration of radiolabelled compound for 7 or 14 days.

In two *in vitro* comparative metabolism studies, no unique or disproportionate human metabolites were observed, the main human metabolites being QP-1-8 and QP-1-9. Overall, human *in vitro* metabolism was much less pronounced than that of the mouse, rat, rabbit or dog. There were no qualitative (but some quantitative) differences among the species tested.

Toxicological data

Ipflufenoquin exhibited low acute oral toxicity to rats, with a median lethal dose (LD_{50}) greater than 2000 mg/kg bw. The dermal LD_{50} was greater than 2000 mg/kg bw and the inhalation LC_{50} was above 5.06 mg/L in the same species. The compound was not irritating to the skin and only minimally irritating to the eyes of rabbits. It proved negative for skin sensitization in the mouse local lymph node assay (LLNA). An *in vitro* study in mouse fibroblasts to investigate the phototoxic potential of ipflufenoquin was not conclusive.

Following repeated administration, liver, blood, colon, kidney (in dogs only), bone and teeth were target organs or tissues.

In a 90-day study in mice, dietary doses of 0, 300, 1000, 3000 or 6000 ppm (equal to 0, 47.5, 164, 443 and 1107 mg/kg bw per day in males, 0, 54.9, 185, 607 and 1322 mg/kg bw per day in females) were administered. The no-observed-adverse-effect level (NOAEL) was 300 ppm (equal to 47.5 mg/kg bw per day), based on clinical chemistry findings, suggesting an effect on lipid metabolism as evidenced by significantly lower cholesterol levels in both sexes at 1000 ppm (equal to 164 mg/kg bw per day) At the same dose level, total protein levels were significantly lower in males.

In a 90-day study in the rat, the test substance was administered at dietary dose levels of 0, 100, 400, 2000 or 8000 ppm (equal to 0, 6.8, 26.8, 137 and 577 mg/kg bw per day in males, 0, 8.3, 34.1, 171, and 675 mg/kg bw per day in females). The NOAEL of 400 ppm (equal to 26.8 mg/kg bw per day) was based on a higher platelet count in males at 2000 ppm (equal to 137 mg/kg bw per day).

In a second 90-day study, ipflufenoquin was fed to rats at nominal dietary doses of 0, 400, 2000, 4000 or 8000 ppm (equal to 0, 35.5, 175, 361 and 790 mg/kg bw per day in males, 0, 39.8, 199, 394 and 1098 mg/kg bw per day in females). The NOAEL was 400 ppm (equal to 35.5 mg/kg bw per day), based on lower body weight gain in the first two weeks of treatment, haematological findings suggestive of anaemia, histological bone changes and clinical chemistry findings indicative of liver toxicity at 2000 ppm (equal to 175 mg/kg bw per day).

In an oral 90-day study in dogs, ipflufenoquin was administered via capsules at dose levels of 0, 20, 60 or 180 mg/kg bw per day. The NOAEL of 20 mg/kg bw per day was based on equivocal kidney effects at 60 mg/kg bw per day.

In a one-year study in dogs, doses of 0, 10, 60 or 180 mg/kg bw per day for males, the top dose being instead 360 mg/kg bw per day for females, were administered via gelatin capsules. The NOAEL was 60 mg/kg bw per day, based on a reduction in food consumption and body weight in a single high-dose female and testicular inflammation and very low prostate weight in a single male dog at 180 mg/kg bw per day.

In an 18-month carcinogenicity study in mice, ipflufenoquin was administered at dietary doses of 0, 60, 250 or 1000 ppm (equal to 0, 6.1, 24.8 and 106 mg/kg bw per day in males, 0, 7.2, 29.5 and 117 mg/kg bw per day in females). The NOAEL for systemic (chronic) toxicity was 250 ppm (equal to 24.8 mg/kg bw per day), based on more frequent occurrence of broken teeth (incisors) in female mice, formation of bone globules in both sexes and adrenal hyperplasia in males. No increase in neoplastic lesions was seen and, accordingly, the highest dose of 1000 ppm (equal to 106 mg/kg bw per day) was the NOAEL for carcinogenicity.

In a combined chronic toxicity and carcinogenicity study in rats, ipflufenoquin was fed over 12 or 24 months, respectively, at concentrations of 0, 100, 500 or 2500 ppm (equal to 0, 4.8, 25 and 126 mg/kg bw per day in males, 0, 6.8, 33.8 and 177 mg/kg bw per day in females in the two-year carcinogenicity phase). The NOAEL for long-term toxicity was 100 ppm (equal to 6.8 mg/kg bw per day) based on a higher incidence of bone globules in females, the pathological relevance of which is not known, at 500 ppm (equal to 33.8 mg/kg bw per day). The highest dose tested of 2500 ppm (equal to 126 mg/kg bw per day) was the NOAEL for carcinogenicity.

The meeting concluded that ipflufenoquin was not carcinogenic in mice or rats.

Ipflufenoquin was tested for genotoxicity in an adequate range of *in vitro* and *in vivo* studies. No evidence of genotoxicity was found.

The meeting concluded that ipflufenoquin is unlikely to be genotoxic.

Considering the lack of genotoxicity and the absence of carcinogenicity in mice and rats, the meeting concluded that ipflufenoquin is unlikely to pose a carcinogenic risk to humans.

In a two-generation reproductive toxicity study, ipflufenoquin was administered to rats at dietary concentrations of 0, 250, 1000 or 4000 ppm (equal to 0, 14.4, 57.7 and 237 mg/kg bw per day in males, and 0, 15.8, 63.8 and 250 mg/kg bw per day in females). The parental NOAEL was 1000 ppm (equal to 57.7 mg/kg bw per day), based on decreases in body weight and its gain, slight anaemia, a higher incidence of dysplasia of incisors resulting in abnormally white teeth, and mucosal hyperplasia of the colon at 4000 ppm (equal to 237 mg/kg bw per day). The reproductive NOAEL was 4000 ppm (equal to 237 mg/kg bw per day), the highest dose tested. The NOAEL for offspring toxicity was 1000 ppm (equal to 57.7 mg/kg bw per day), based on reduced pup weights in both generations and lower viability of F2 pups at the top dose level of 4000 ppm (equal to 237 mg/kg bw per day).

In a developmental study in rats, ipflufenoquin was administered by gavage from gestation day (GD) 6 to 20 at dose levels of 0, 40, 200 or 1000 mg/kg bw per day. The maternal NOAEL was 200 mg/kg bw per day, based on decreased body weight gain and initially reduced food consumption at the next highest dose of 1000 mg/kg bw per day. This highest dose of 1000 mg/kg bw per day was the embryo/fetal NOAEL.

In a developmental study in rabbits, ipflufenoquin was administered by gavage at doses of 0, 50, 150 or 300 mg/kg bw per day from GD 6 to 28. The maternal NOAEL was 50 mg/kg bw per day, based on abortions and premature deliveries close to study termination, and transient decreases in body weight gain and food consumption at 150 mg/kg bw per day. The embryo/fetal NOAEL was 300 mg/kg bw per day, the highest dose tested.

The meeting concluded that ipflufenoquin is not a developmental toxicant.

In an acute neurotoxicity study in rats, doses of 0, 125, 500 and 2000 mg/kg bw were administered by gavage. The NOAEL for systemic toxicity was 125 mg/kg bw, based on a transient reduction in body temperature at the time of peak concentration (approximately four hours after dosing) and, in females, decreased motor activity at 500 mg/kg bw. The NOAEL for acute neurotoxicity was 2000 mg/kg bw, the highest dose tested.

The apical studies with repeated administration did not reveal any indications of a neurotoxic potential.

The meeting concluded that ipflufenoquin is unlikely to be neurotoxic.

No concern for immunotoxicity was identified from the available routine studies with ipflufenoquin.

The meeting concluded that the test substance is unlikely to be immunotoxic.

A number of mechanistic studies were performed to investigate the effects of ipflufenoquin on the liver, thyroid, bone and teeth. Induction of Phase I and II drug-metabolizing liver enzymes, consistent with constitutive androstane receptor (CAR) activation, was demonstrated in a 14-day feeding study in the rat with a no-observed-effect level (NOEL) of 100 ppm, equal to 9.4 mg/kg bw per day.

Induction of cytochrome P450 (CYP) and uridine diphosphate glucuronosyltransferase (UDP-GT) expression and their activities was also observed in human hepatocytes *in vitro*, but these cells appeared to be less responsive than rat hepatocytes. Activation of CAR and perhaps also of the pregnane X receptor (PXR) receptor was demonstrated in hepatocyte cultures of rat and human origin, whereas, in contrast, interaction with the AhR- and PPARα-receptors is unlikely. In rat, but not in human cells, replicative DNA synthesis was stimulated. Based on these mechanistic studies, the meeting concluded that changes in liver weight observed in repeat dose studies in rats and mice were adaptive and not adverse.

In a short-term feeding study with administration of ipflufenoquin at the dose of 16 000 ppm to female rats, effects on matrix formation and maturation of ameloblasts were observed in the incisors after 7 and 14 days, but not after three days.

Bone globules in the femur of rats receiving ipflufenoquin at 16 000 ppm for 14 days or sodium fluoride at 1000 ppm for 14 or 28 days were detected only following decalcification with formic acid/formalin, but not after ethylenediaminetetraacetic acid (EDTA) chelation. This finding was considered indicative of fluorine incorporation into bone tissue.

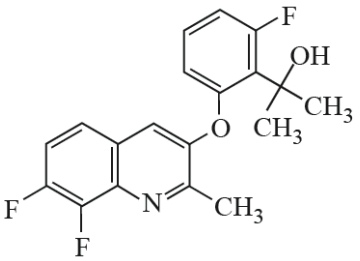
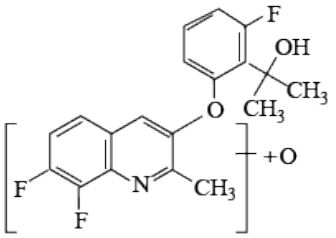
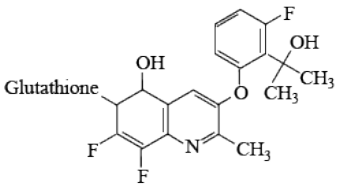
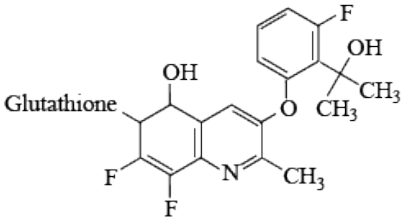
Some evidence was presented that the tooth effects in rodents were not due to fluorosis but rather to a lack of iron incorporation. However, there is no definitive proof to support this hypothesis.

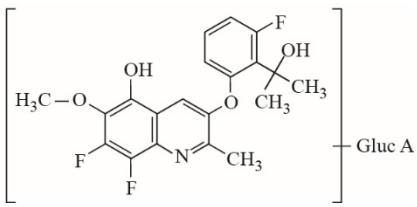
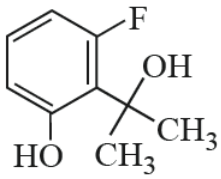
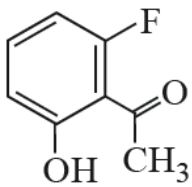
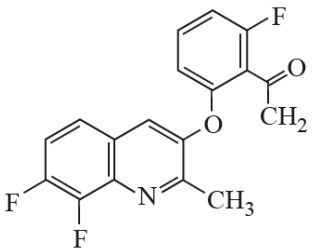
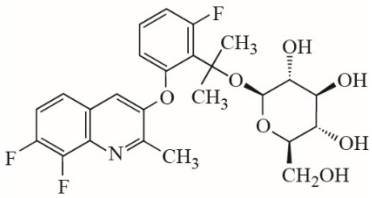
The meeting concluded that ipflufenoquin causes changes in the teeth and bone of rodents and that, in teeth at least, these changes can progress to structural impairment. There are significant differences in the dental development between rodents and humans, which add uncertainty. In the absence of biomechanical studies, the clinical or pathological human relevance of bone changes cannot be excluded.

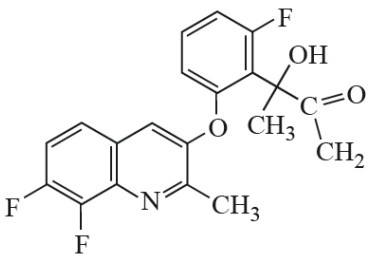
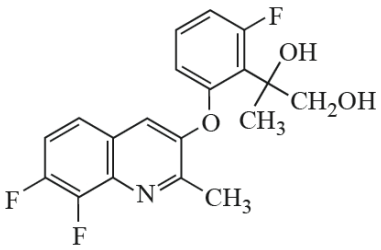
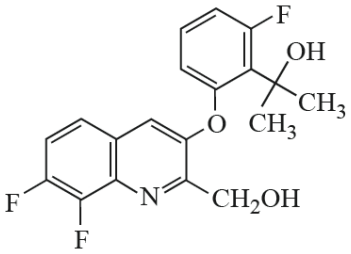
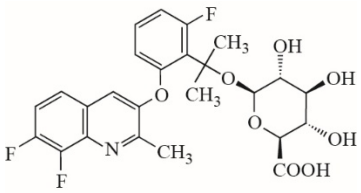
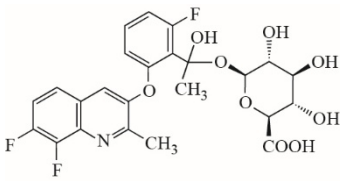
Toxicological data on metabolites and/or degradates

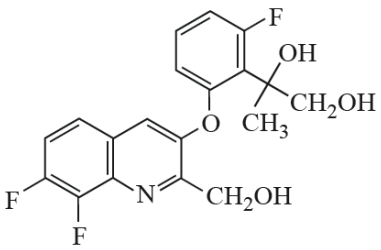
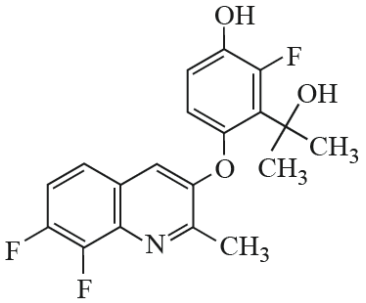
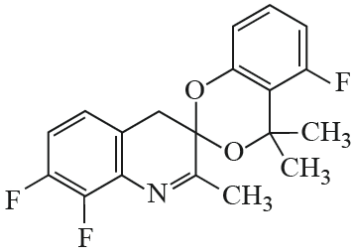
A toxicological evaluation of the following plant/livestock metabolites was performed. The following table shows an overall summary of the toxicological characterization of the plant/livestock metabolites requested for consideration in the residue definition.

Table 5.22.1 Summary overview of toxicological characterization of plant/livestock metabolites of iplufenoquin

Compound, code and structure	Major rat metabolite (>10%AD)	Genotoxicity assessment (data, QSAR, read-across)	General toxicity	Reference value for dietary risk assessment
Ipflufenoquin (parent) 	NA	Not genotoxic (data)	Full dataset	ADI: 0–0.07 mg/kg bw ARfD: 1.0 mg/kg bw
M16 	Yes	Not genotoxic as covered by parent	Covered by parent	Parent's HBGVs
M47 	Yes	Not genotoxic as covered by parent	Covered by parent	Parent's HBGVs
M48 	Yes	Not genotoxic as covered by parent	Covered by parent	Parent's HBGVs

Compound, code and structure	Major rat metabolite (>10%AD)	Genotoxicity assessment (data, QSAR, read-across)	General toxicity	Reference value for dietary risk assessment
M51 	Yes	Not genotoxic as covered by parent	Covered by parent	Parent's HBGVs
QH-1 	No	Not genotoxic (data)	LD_{50} in rats: >2000 mg/kg bw	TTC Cramer class III value: 1.5 µg/kg bw per day (chronic)
QH-2 	No	Not genotoxic (data)	LD_{50} in rats >2000 mg/kg bw	TTC Cramer class III value: 1.5 µg/kg bw per day (chronic)
QP-1-1 	No	Not genotoxic (data)	LD_{50} in rats: >2000 mg/kg bw	TTC Cramer class III value: 1.5 µg/kg bw per day (chronic)
QP-1-2 	No	Not genotoxic (data)	LD_{50} in rats: >2000 mg/kg bw	TTC Cramer class III value: 1.5 µg/kg bw per day (chronic)

Compound, code and structure	Major rat metabolite (>10%AD)	Genotoxicity assessment (data, QSAR, read-across)	General toxicity	Reference value for dietary risk assessment
QP-1-7 	No	Not genotoxic (data)	LD_{50} in rats: >2000 mg/kg bw; 28-day feeding study in rats with no effects up to the highest dose of 1435/1577 mg/kg b w per day in males/females	Not of toxicological concern
QP-1-8 	No	Not genotoxic (data)	LD_{50} in rats: >2000 mg/kg bw; High structural similarity to QP-1-7 (direct predecessor)	Not of toxicological concern
QP-1-9 	No	Not genotoxic (data)	LD_{50} in rats: >2000 mg/kg bw	TTC Cramer class III value: 1.5 µg/kg bw per day (chronic)
QP-1-10 	No	Not genotoxic (a conjugate of parent compound)	Covered by parent	Parent HBGVs
QP-1-11 	No	Not genotoxic (conjugate of QP-1-8 and read-across from QP-1-7)	Covered by QP-1-8 and QP-1-7	Not of toxicological concern

Compound, code and structure	Major rat metabolite (>10%AD)	Genotoxicity assessment (data, QSAR, read-across)	General toxicity	Reference value for dietary risk assessment
QP-1-12 	No	Not genotoxic (data)	300 mg/kg bw <LD_{50} in rats: <2000 mg/kg bw	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic); 5 µg/kg bw (acute)
QP-1-14 	No	Not genotoxic (data)	LD_{50} in rats: >2000 mg/kg bw	TTC Cramer class III value: 1.5 µg/kg bw per day (chronic)
QP-2 	No	Not genotoxic (data)	Similar toxicity to parent (data)	Parent's HBGVs

Note: AD: Administered dose; TTC: threshold of toxicological concern; HBGVs: health-based guidance values.

Microbiological data

The possible impact of ipflufenoquin residues on the human intestinal microbiome was evaluated. There was some evidence to suggest an antibacterial effect that could also affect the intestinal microbiome. Based on the available information, however, the meeting was unable to determine the strength of this evidence.

There is experimental evidence that exposure to ipflufenoquin might increase the risk of developing and spreading cross-resistance to the new antimycotic drug olorofim in humans. Olorofim is a promising candidate substance to treat azole-resistant systemic mycoses in humans and shares the target for antifungal action (i.e. dihydroorotate dehydrogenase inhibition) with ipflufenoquin. The meeting was unable to conclude whether there is any risk of cross-resistance due to the ingestion of residues, but this would be lower than that from the direct application of ipflufenoquin to fungi during crop spraying. Hence, it is not clear whether cross-resistance is a food safety issue, but the meeting would like to highlight this issue as a potential hazard from the agricultural use of ipflufenoquin.

Human data

As is typical for a new compound, human data are very scarce. Observations in manufacturing personnel did not indicate adverse health effects. No information is available on poisoning incidents.

The meeting concluded that the existing database on ipflufenoquin was adequate to characterize the potential hazards to the general population, including fetuses, infants and children.

Toxicological evaluation

The meeting established an acceptable daily intake (ADI) for ipflufenoquin of 0–0.07 mg/kg bw, based on the NOAEL of 6.8 mg/kg bw per day in the long-term chronic toxicity and carcinogenicity study in rats based on an increase in the incidence of bone globules in females, using a safety factor of 100. The MOA for this effect may involve fluorosis, although there are some inconsistencies, and the exact mechanism is unclear. In the absence of additional information, the meeting could not dismiss the potential relevance of this effect to humans even though this approach was considered conservative. The ADI also applies to metabolites QP-1-10, QP-2, M16, M47, M48, M51.

The meeting established an ARfD for ipflufenoquin of 1 mg/kg bw. This was based on the systemic NOAEL of 125 mg/kg bw in the acute neurotoxicity study in rats, for transient reductions in motor activity and body temperature, using a safety factor of 100. The ARfD for ipflufenoquin also applies to the metabolites QP-1-10, QP-2, M16, M47, M48, M51.

The meeting concluded that the threshold of toxicological concern (TTC) Cramer class III approach for chronic exposure (1.5 µg/kg bw per day) should be considered in the dietary risk assessment of the following metabolites, if necessary: QH-1, QH-2, QP-1-1, QP-1-2, QP-1-9 and QP-1-14.

The meeting concluded that the threshold of toxicological concern (TTC) Cramer class III approach for chronic exposure (1.5 µg/kg bw per day) and TTC Cramer class III for acute exposure (5 µg/kg bw) should be considered in the dietary risk assessment of the metabolite QP-1-12, if necessary.

The metabolites QP-1-7, QP-1-8, and QP-1-11 were considered by the meeting but regarded as being of no toxicological concern.

A toxicological monograph was prepared.

Table 5.22.2 Levels relevant to risk assessment of ipflufenoquin

Species	Study	Effect	NOAEL	LOAEL
Mouse	78-week study of toxicity and carcinogenicity[a]	Toxicity	250 ppm, equal to 24.8 mg/kg bw per day	1000 ppm, equal to 106 mg/kg bw per day
		Carcinogenicity	1000 ppm, equal to 106 mg/kg bw per day[c]	–
Rat	Acute neurotoxicity study[b]	Neurotoxicity	2000 mg/kg bw[c]	–
		Systemic toxicity	125 mg/kg bw	500 mg/kg bw
	Two-year study of toxicity and carcinogenicity[a]	Toxicity	100 ppm, equal to 6.8 mg/kg bw per day	500 ppm, equal to 33.8 mg/kg bw per day
		Carcinogenicity	2500 ppm, equal to 126 mg/kg bw per day[c]	–
	Two-generation study of reproductive toxicity[a]	Reproductive toxicity	4000 ppm, equal to 237 mg/kg bw per day[c]	–
		Parental toxicity	1000 ppm, equal to 57.7 mg/kg bw per day	4000 ppm, equal to 237 mg/kg bw per day
		Offspring toxicity	1000 ppm, equal to 57.7 mg/kg bw per day	4000 ppm, equal to 237 mg/kg bw per day
	Developmental toxicity study[b]	Maternal toxicity	200 mg/kg bw per day	1000 mg/kg bw per day
		Embryo/fetal toxicity	1000 mg/kg bw per day[c]	–
Rabbit	Developmental toxicity study[b]	Maternal toxicity	50 mg/kg bw per day	150 mg/kg bw per day
		Embryo/fetal toxicity	300 mg/kg bw per day[c]	–
Dog	One-year study[b]	Toxicity	60 mg/kg bw per day	180 mg/kg bw per day
Metabolite QP-1-7				
Rat	Short-term toxicity study[a]	Toxicity	1435 mg/kg bw per day	–
Metabolite QP-2				
Rat	Short-term toxicity study[b]	Toxicity	50 mg/kg bw per day	250 mg/kg bw per day

Notes:

[a] Dietary administration.

[b] Gavage/capsule administration.

[c] Highest dose tested.

Acceptable daily intake (ADI) for ipflufenoquin:*

0–0.07 mg/kg bw

Acute reference dose (ARfD) for ipflufenoquin:*

1.0 mg/kg bw

*Applies to ipflufenoquin and the following metabolites: QP-1-10, QP-2, M16, M47, M48, M51, expressed as ipflufenoquin.

Information that would be useful for the continued evaluation of the compound

Information from medical health surveillance in manufacturing workers or applicators, as well as epidemiological data.

Table 5.22.3 Critical end-points for setting guidance values for exposure to ipflufenoquin

Absorption, distribution, excretion and metabolism in mammals	
Rate and extent of oral absorption	Rapid and extensive (≥90% at 3 mg/kg bw); Some saturation at high doses
Distribution	Widely distributed, highest residues in the gastrointestinal tract and liver, significant enterohepatic circulation
Potential for accumulation	Low
Rate and extent of excretion	Rapid, nearly complete within 4 days; predominant biliary excretion; urinary excretion less important; exhalation negligible
Metabolism in animals	Extensive in rats, four metabolites (M16, M47, M 48, M51) making up >10% in bile); Mainly Phase I metabolism yielding hydroxylation products or epoxide formation on the quinoline ring, followed by Phase II conjugation
Toxicologically significant compounds in animals and plants	Parent ipflufenoquin; major rat metabolites M16, M47, M48, M51; plant metabolite QP-2
Acute toxicity	
Rat, LD_{50}, oral	>2000 mg/kg bw
Rat, LD_{50}, dermal	>2000 mg/kg bw
Rat, LC_{50}, inhalation	>5.06 mg/L
Rabbit, dermal irritation	Not irritating
Rabbit, ocular irritation	Minimally irritating
Dermal sensitization	Not sensitizing (LLNA)
Short-term studies of toxicity	
Target/critical effect	Kidney (increased organ weight, decreased urine volume) in male dogs (equivocal effects); liver (increased organ weight, histology, alterations in clinical chemistry), colon (histology), blood (anaemia), teeth (enamel hypoplasia of incisors) and bone (histology) in rodents
Lowest relevant oral NOAEL	20 mg/kg bw per day (dog)

Long-term studies of toxicity and carcinogenicity	
Target/critical effect	Bone and teeth globules (rat)
Lowest relevant NOAEL	6.8 mg/kg bw per day (rat)
Carcinogenicity	Not carcinogenic in mice or rats
Genotoxicity	Unlikely to be genotoxic
Reproductive toxicity	
Target/critical effect	Reproductive toxicity: no effects up to the highest dose tested Offspring toxicity: lower body weight gain, reduced viability Parental toxicity: body weight and its gain reduced, anaemia, histopathological lesions in teeth and colon
Lowest relevant parental NOAEL	57.7 mg/kg bw per day (rat)
Lowest relevant offspring NOAEL	57.7 mg/kg bw per day (rat)
Lowest relevant reproductive NOAEL	237 mg/kg bw per day, highest dose tested (rat)
Developmental toxicity	
Target/critical effect	Maternal: abortions and spontaneous delivery in rabbits; lower bw gain and food intake in rats and rabbits Developmental: none
Lowest relevant maternal NOAEL	50 mg/kg bw per day (rabbit)
Lowest relevant embryo/fetal NOAEL	300 mg/kg bw per day, highest dose tested (rabbit)
Neurotoxicity	
Acute neurotoxicity NOAEL	2000 mg/kg bw[a]; systemic 125 mg/kg bw
Subchronic neurotoxicity NOAEL	No data, no evidence
Developmental neurotoxicity NOAEL	No data, not necessary
Other toxicological studies	
Immunotoxicity Mechanistic studies	No data, no evidence Induction of liver enzymes in a 14-day feeding study in rats: NOEL 9.4 mg/kg bw per day
Studies on toxicologically relevant metabolites	
QP-2	Negative for genotoxicity *in vitro* (Ames test, mouse lymphoma assay, chromosome aberrations study) Acute oral LD_{50} in female rats >2000 mg/kg bw NOAEL in a 28-day gavage study in rats 50 mg/kg bw per day, based on liver effects at 250 mg/kg bw per day
Human data	No data

Note: LLNA: local lymph node assay.

Table 5.22.4 Summary

	Value	Study	Safety factor
ADI[a]	0–0.07 mg/kg bw	Two-year study of toxicity and carcinogenicity in rats	100
ARfD[a]	1.0 mg/kg bw	Acute neurotoxicity, rat	100

Note:

[a] Applies to ipflufenoquin, QP-1-10, QP-2, M16, M47, M48, M51, expressed as ipflufenoquin.

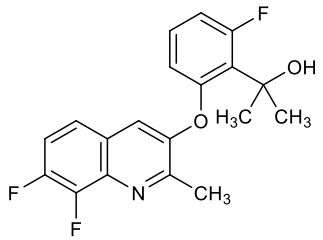
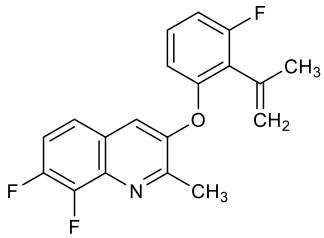
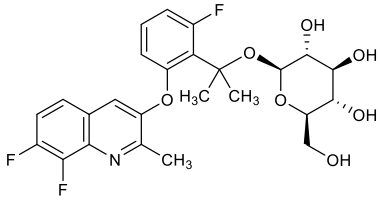
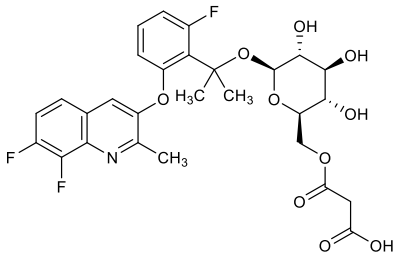
Residue and analytical aspects

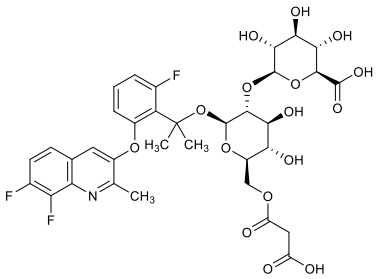
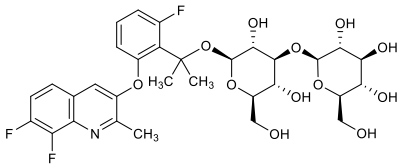
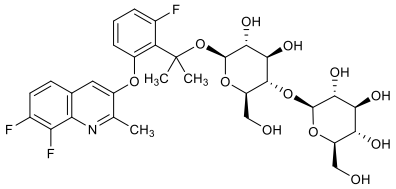
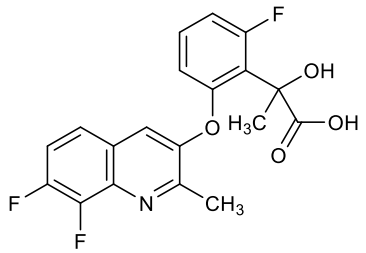
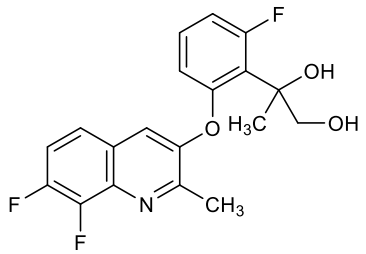
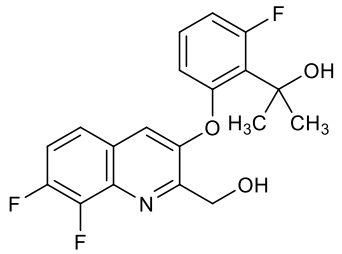
Ipflufenoquin (IUPAC name: 2-[2-(7,8-difluoro-2-methylquinolin-3-yl)oxy-6-fluorophenyl]propan-2-ol) is a fungicide with a novel mode of action, belonging to the class of the inhibition of dihydroorotate dehydrogenase (FRAC code 52).

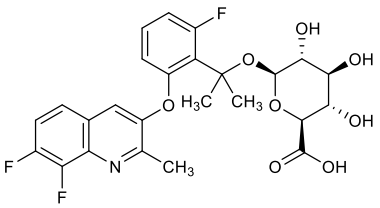
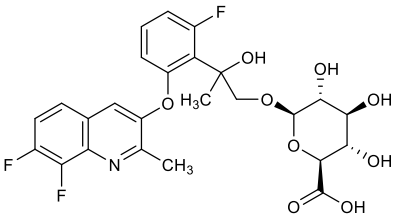
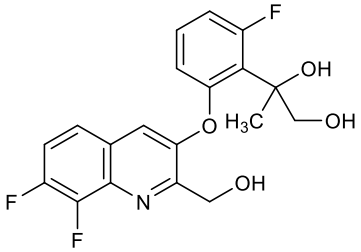
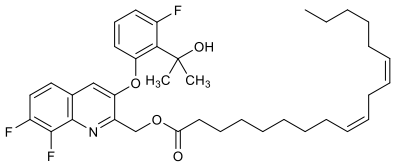
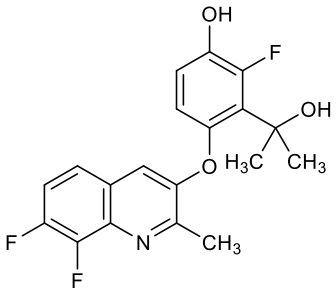
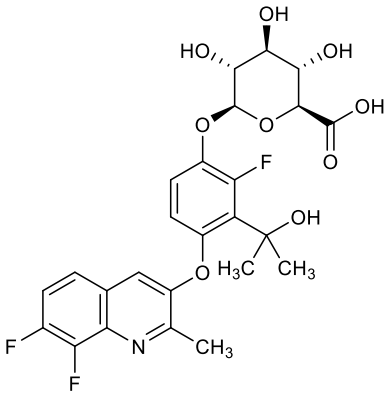
Ipflufenoquin was scheduled at the 55th Session of the CCPR for evaluation as a new compound at the 2025 JMPR. Information concerning chemical identity, physical and chemical properties, metabolism and environmental fate, methods of residue analysis, storage stability, intended use patterns, supervised residue trials, fate of residues upon processing, and farm animal feeding studies were submitted.

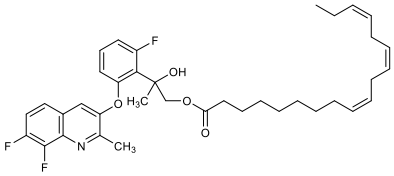
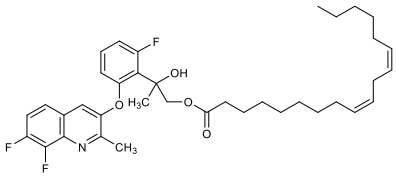
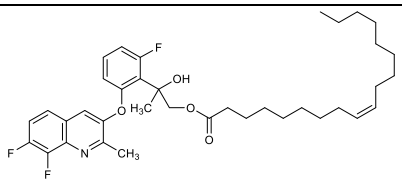
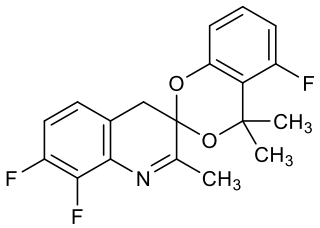
The chemical structures of ipflufenoquin and its metabolites/degradates relevant for the appraisal are shown in Table 5.22.5.

Table 5.22.5 Ipflufenoquin and its metabolites or degradates in plants, animals, and the environment

Compound code	Name	Chemical structure
Ipflufenoquin	2-[2-(7,8-difluoro-2-methylquinolin-3-yloxy)-6-fluorophyenyl]propan-2-ol	
QP-1-1	7,8-difluoro-3-[3-fluoro-2-(prop-1-en-2-yl)phenoxy]-2-methylquinoline	
QP-1-2	2-[2-(7,8-difluoro-2-methylquinolin-3-yloxy)-6-fluorophenyl]propan-2-yl β-D-glucopyranoside	
QP-1-3	6-deoxy-1-*O*-{2-[2-(7,8-difluoro-2-methylquinolin-3-yloxy)-6-fluorophenyl]propan-2-yl}-β-D-glucopyranos-6-yl hydrogen malonate	

Compound code	Name	Chemical structure
QP-1-4	6-deoxy-1-*O*-{2-[2-(7,8-difluoro-2-methylquinolin-3-yloxy)-6-fluorophenyl]propan-2-yl}-2-*O*-(β-D-glucuronopyranosyl)-β-D-glucopyranos-6-yl hydrogen malonate	
QP-1-5	2-[2-(7,8-difluoro-2-methylquinolin-3-yloxy)-6-fluorophenyl]propan-2-yl 3-*O*-(β-D-glucopyranosyl)-β-D-glucopyranoside	
QP-1-6	2-[2-(7,8-difluoro-2-methylquinolin-3-yloxy)-6-fluorophenyl]propan-2-yl 4-*O*-(β-D-glucopyranosyl)-β-D-glucopyranoside	
QP-1-7	2-[2-(7,8-difluoro-2-methylquinolin-3-yloxy)-6-fluorophenyl]-2-hydroxypropanoic acid	
QP-1-8	2-[2-(7,8-difluoro-2-methylquinolin-3-yloxy)-6-fluorophenyl]propan-1,2-diol	
QP-1-9	2-[2-(7,8-difluoro-2-hydroxymethylquinolin-3-yloxy)-6-fluorophenyl]propan-2-ol	

Compound code	Name	Chemical structure
QP-1-10	2-[2-(7,8-difluoro-2-methylquinolin-3-yloxy)-6-fluorophenyl]propan-2-yl β-D-glucopyranosiduronic acid	
QP-1-11	2-[2-(7,8-difluoro-2-methylquinolin-3-yloxy)-6-fluorophenyl]-2-hydroxypropyl β-D-glucopyranosiduronic acid	
QP-1-12	2-[2-(7,8-difluoro-2-hydroxymethylquinolin-3-yloxy)-6-fluorophenyl]propan-1,2-diol	
QP-1-13	{7,8-difluoro-3-[3-fluoro-2-(1-hydroxy-1-methylethyl)phenoxy]quinolin-2-yl}methyl linoleate	
QP-1-14	2-[6-(7,8-difluoro-2-methylquinolin-3-yloxy)-2-fluoro-3-hydroxyphenyl]propan-2-ol	
QP-1-15	4-(7,8-difluoro-2-methylquinolin-3-yloxy)-2-fluoro-3-(1-hydroxy-1-methylethyl)phenyl β-D-glucopyranosiduronic acid	

Compound code	Name	Chemical structure
QP-1-16	2-[2-(7,8-difluoro-2-methylquinolin-3-yloxy)-6-fluorophenyl]-2-hydroxypropyl linolenate	
QP-1-17	2-[2-(7,8-difluoro-2-methylquinolin-3-yloxy)-6-fluorophenyl]-2-hydroxypropyl linoleate	
QP-1-18	2-[2-(7,8-difluoro-2-methylquinolin-3-yloxy)-6-fluorophenyl]-2-hydroxypropyl oleate	
QP-2	5,7´,8´-trifluoro-2´,4,4-trimethyl-4*H*,4´*H*-spiro[1,3-benzodioxin-2,3´-quinoline]	

Based on the information on physical and chemical properties, ipflufenoquin is not volatile and is lipid soluble with a log Pow of approximately 4. It is hydrolytically stable at environmental pH and has the potential to be moderately persistent under aerobic field conditions. Photodegradation is unlikely to be a major degradation pathway of ipflufenoquin in the environment.

Plant metabolism

The meeting received studies describing the metabolism of ipflufenoquin in apple, grape, cucumber, kidney bean, paddy rice, almond, and oilseed rape. The metabolism studies were conducted using two radiolabels: [quinoline(benzene ring)-U-^{14}C]ipflufenoquin (A ring) and a [phenyl-U-^{14}C] ipflufenoquin (C ring). In general, both radiolabels yielded similar results across the metabolism studies.

Apple

Ipflufenoquin was formulated as a foliar SC and applied to apple trees grown outdoors. The metabolic fate of ^{14}C-ipflufenoquin in apple plants was examined following three applications of either A or C ring radiolabelled at an application rate of 32–53 g ai/ha. The three applications were performed at approximately BBCH 59 (ballooning), 65 (full flowering), and 74 (fruit development [walnut-sized]). Apples were harvested 7 (immature) and 81 days (mature) after the third application. Leaves were also collected but were not analysed.

Total radioactive residues (TRR) in immature fruits were 0.040 (A ring) and 0.039 (C ring) mg eq/kg at 7 days after last application. Residues in mature fruits were <0.004 (A ring) and <0.002 (C ring) mg eq/kg at 81 days after last application.

The acetonitrile surface rinse removed 31–40 percent TRR from immature apples and negligible radioactivity from mature apples. Extraction with acetonitrile:water released 48–51 percent TRR from immature apple and 57 percent TRR from mature apple. Mature apple samples were not analysed further due to low radioactivity. Base hydrolysis of the extracts of immature fruit released an additional 5 percent TRR. Radioactivity remaining in the post extraction solids (PES) accounted for ≤0.005 mg eq/kg in each sample. The extractability for immature apple fruits from the A and C ring labels was good (87 to 93 percent TRR). For mature fruits, it was 57 percent TRR for the A ring label but it was low for the C ring label, which was not further investigated.

Following foliar application, parent ipflufenoquin was detected as the most abundant component in all apple samples, ranging from 35 to 42 percent TRR (0.014–0.017 mg/kg) in immature fruits and at trace levels (<0.01 percent TRR, <0.001 mg/kg) in the acetonitrile rinse of mature fruit (constituting approximately 17 percent of radioactivity in the rinse) across all radiolabels. QP-2 was the only metabolite found, ranging from 9.0 to 11 percent TRR (0.004 mg eq/kg) in immature fruit across both radiolabels. Multiple minor unknowns comprised the majority of the residues in immature apples, with individual unknowns accounting for ≤10.1 percent TRR (≤0.004 mg eq/kg).

Grape

Ipflufenoquin was formulated as an SC and foliar applied to grape plants grown outdoors. The metabolic fate of ^{14}C-ipflufenoquin in grape plants was examined following two applications of either A or C ring radiolabelled ipflufenoquin at an application rate of 133–139 g ai/ha. The two applications were performed at approximately BBCH 77 (beginning of bunch closure) and BBCH 81 (beginning of ripening).

The first harvest (immature grape berries) occurred just before the second application (BBCH 81), the second (immature grape berries) 14 days after the 2nd application (BBCH 85) and the third and final harvest (mature grape berries) 28 days after the last application (DALA, BBCH 89).

TRRs in immature grape berries ranged from 0.035 (A ring) and 0.038 (C ring) mg eq/kg at 21 days after the first application to 0.046 (A and C rings) mg eq/kg at 14 days after last application. Residues in mature grape berries were 0.055 (A ring) and 0.035 (C ring) mg eq/kg at 28 DALA.

The acetonitrile surface rinse removed 19–29 percent TRR from immature grapes harvested at 21 after the first application, 33–44 percent TRR from immature grape berries harvested at 14 DALA, and 20–24 percent TRR from mature grape berries harvested at 28 DALA. Extraction with acetonitrile:water released 46–68 percent TRR from samples of rinsed grape. Base hydrolysis of the extracts of mature grape berries completely released the remaining 20 percent of residues. Radioactivity remaining in the PES for immature grape berries accounted for ≤0.009 mg eq/kg. The overall extractability of A and C ring labels with acetonitrile:water was good at 80–89 percent TRR (immature grape berries) and 100 percent TRR (mature grape berries) across both radiolabels.

Following foliar application, parent ipflufenoquin was detected as the most abundant component in all grape samples, ranging from 49–84 percent TRR (0.023–0.031 mg/kg) in immature grape berries and 38–39 percent TRR (0.014–0.021 mg/kg) in mature grape berries across all radiolabels. QP-2 was the only metabolite, ranging from 2.3–5.8 percent TRR (0.001–0.003 mg eq/kg) in immature grape berries and 3.6 percent TRR (0.001– 0.002 mg eq/kg in mature grape berries across both radiolabels.

Multiple minor unknowns comprised the majority of the residues in immature and mature grape berries, with individual unknowns accounting for ≤9.7 percent TRR (0.003 mg eq/kg).

Cucumber

Ipflufenoquin was formulated as an SC and foliar applied to cucumbers grown outdoors. The metabolic fate of ^{14}C-ipflufenoquin in cucumber plants was examined following two applications of A ring radiolabel ipflufenoquin at an application rate of 212–217 g ai/ha. The three applications were performed at approximately BBCH 61–69 (flowering) and twice at BBCH 71 (fruit development).

In addition to normal application (Plot A), plants (fruit and leaves) in an additional plot (Plot B) were partially covered with plastic prior to each application to investigate translocation to the unsprayed portion of the plant.

Samples of cucumber fruit and leaves were harvested at 0, 7, 14, and 28 DALA from Plot A and samples of unsprayed cucumber fruits were collected at 0, 19, and 28 DALA from Plot B. Samples of sprayed cucumber fruit were collected at 0 and 28 DALA. Samples of sprayed and unsprayed leaves were collected at 0, 14, and 28 DALA. Samples of stem (aerial portion of the plant excluding fruits, flower, and leaves) were collected from both plots at 28 DALA from both plots.

In samples of cucumbers fruits and leaves from Plot A, the methanol surface rinse removed the majority of the TRR from cucumbers fruits and leaves harvested at 0-day (77 and 72 percent, respectively), after which radioactivity in the methanol rinse decreased rapidly in cucumbers fruits. In leaves, the reduction of radioactivity in the methanol rinse was more gradual (57 percent TRR to 32 percent TRR at 7 and 28 DALA, respectively. Subsequent extraction of the rinsed fruit and leaves with methanol/water released 21–90 percent TRR, respectively, from cucumber fruits and 27–64 percent TRR from corresponding leaf samples. Extraction with methanol/water released 96 percent TRR from the unrinsed stem samples harvested at 28 DALA. Radioactivity remaining in the PES accounted for ≤7.8 percent TRR (≤0.002 mg eq/kg) in cucumber fruits and ≤4.5 percent TRR (0.357 mg eq/kg) in samples of leaves and stem.

In the Plot B, the methanol rinse removed 9–10 percent TRR from unsprayed cucumbers and 4–30 percent TRR from sprayed cucumbers. Residues in rinsed fruit were not further investigated. In unsprayed and sprayed leaves, the methanol rinse removed 4–68 percent TRR across all DALAs. Subsequent extraction with methanol/water released 86–87 and 31–62 percent TRR, respectively. Extraction with methanol/water released 94 percent TRR from the unrinsed stem samples.

The overall extractability of A ring radiolabel with methanol:water was 96–99 percent TRR in leaves, 96 percent TRR in stem, and 98–98 percent TRR in cucumber fruit.

Following foliar application, parent ipflufenoquin was detected as the most abundant component in all cucumber fruit samples, ranging from 90 percent TRR (0.092 mg/kg) at 0 DALA to 22 percent TRR (0.001 mg/kg) at 28 DALA. Ipflufenoquin was also the major residue detected in leaf samples, ranging from 85 percent TRR (10.822 mg/kg) at 0 DALA to 52 percent TRR (3.671 mg/kg) at 28 DALA and in stem samples at 76 percent TRR (0.358 mg/kg) at 28 DALA.

The metabolites QP-2 and QP-1-3 were also identified in cucumber fruit samples ranging from 2.6 percent TRR (0.003 mg eq/kg) to 2.8 percent TRR (<0.001 mg eq/kg) and 0.3 percent TRR (<0.001 mg eq/kg) to 1.4 percent TRR (<0.001 mg eq/kg) at 0 and 28 DALA, respectively. Metabolites QP-2 and QP-1-3, QP-1-2, QP-1-5, and QP-1-6 were also identified in leaves from Plot A with each metabolite comprising ≤11.3 percent TRR at any DALA.

Multiple minor unknowns comprised the majority of residues in cucumber samples, with individual unknowns accounting for ≤39.7 percent TRR, but at levels of ≤0.005 mg/kg. As such, the level of unidentified metabolites is not of concern.

In the translocation trials, parent ipflufenoquin was the most abundant component in both treated and untreated leaf samples. It ranged from 48 percent TRR (0.021 mg/kg) to 23 percent TRR (0.017 mg/kg) in untreated leaves and from 79 percent TRR (3.155 mg/kg) to 48 percent TRR (2.148 mg/kg) in treated leaves at 0 and 28 DALA, respectively.

Kidney bean

Ipflufenoquin was formulated as an SC and foliar applied to kidney beans grown outdoors. The metabolic fate of ^{14}C-ipflufenoquin in kidney plants was examined following two applications of either A ring or C ring radiolabelled ipflufenoquin at an application rate of 293–311 g ai/ha. The two applications were performed at approximately BBCH 62–64 (flowering) and BBCH 67–69 (flowering).

The commodities were collected at a suitable harvest. Samples of bean foliage (whole plant) were harvested at 0 and 7 DALA, and samples of foliage and immature pod and bean were harvested at 28 and 38 DALA. Additional samples of pod and bean harvested at 38 DAA2 were air dried in the greenhouse for 6 days to produce dried, immature pod and bean.

TRR in foliage A ring samples were 4.586, 3.341, 2.741 and 1.641 mg eq/kg at 0, 7, 28, and 38 DALA, respectively. TRR in foliage C ring samples were 4.579, 3.128, 3.357 and 1.777 mg eq/kg at 0, 7, 28, and 38 DALA, respectively. Residues in immature pods and beans were 0.197 and 0.008 mg eq/kg at 28 and 38 DALA, respectively in A ring and 0.148 and 0.006 mg eq/kg at 28 and 38 DALA, respectively, in C ring. At 38 DALA, residues were 0.898 (A ring) and 0.952 (C ring) mg eq/kg in dried, immature pods and 0.009 (A ring) and 0.008 (C ring) mg eq/kg in dried, immature beans.

The methanol surface rinse removed the majority of the radioactivity from all foliage samples; radioactivity in the rinses decreased from 91 to 64 percent TRR from 0 to 38 DALA. The methanol rinse removed 56 percent TRR from immature pod harvested at the 28 DALA and 45 and 39 percent TRR, respectively, from immature beans and dried, immature pods harvested at the 38 DALA. Subsequent extraction of rinsed samples with methanol/water released 8–28, 42, and 53 percent TRR from foliage, immature pod harvested at the 28 DALA, dried, immature pods,

respectively. In bean samples, which were not rinsed, the methanol/water extract released 100 percent TRR from immature and a total of 48 percent TRR, with 15 percent TRR being recovered in the second methanol/water extract for dried, immature beans. Following partitioning of the second extract with ethyl acetate, 10 percent TRR remained in the aqueous phase. TRR remaining in the PES were ≤8.3 percent TRR (≤0.104 mg eq/kg) in all samples of foliage and immature pod and beans and 51.9 percent TRR (0.005 mg eq/kg) in dried, immature bean.

Overall, the extractability of A and C ring labels with acetonitrile:water was good at 97 percent TRR (immature pod) for samples harvested 28 DALA and poor at 19 to 45 percent TRR (immature pods) for samples harvested 38 DALA. The extractability of A and C ring labels with acetonitrile:water was good at 94 to 100 percent TRR (foliage), 91 to 92 percent TRR (mature/dried pods), and suboptimal at 48 to 67 percent TRR (mature/dried beans) across both radiolabels.

Following foliar application, parent ipflufenoquin was detected as the most abundant component in all foliage samples, ranging from 90–91 percent TRR (4.107–4.162 mg/kg) at 0 DALA to 53–59 percent TRR (0.943–0.962 mg/kg) at 38 DALA. Ipflufenoquin was also the major residue detected in pods samples, ranging from 15–52 percent TRR (0.001– 0.104 mg/kg) in immature pods and beans and 33–48 percent TRR (0.309–0.402 mg/kg) in dried, immature pods across all radiolabels. Residues of ipflufenoquin in dried, immature pods beans were detected at 5.5 percent TRR (<0.001 mg/kg) in C ring radiolabelled samples and undetected in A ring radiolabelled samples.

The metabolite QP-1-4 was detected in immature and immature/dried pod samples ranging from 33–44 percent TRR (0.064–0.065 mg eq/kg) and 34–41 percent TRR (0.308–0.392 mg eq/kg), respectively, across all radiolabels. QP-1-4 was also detected in foliage samples ranging from 0.1 to 1.9 percent TRR (0.004–0.031 mg eq/kg) in A ring radiolabelled samples.

The metabolites QP-2, QP-1-2, and QP-1-3 were also detected, ranging from 4.6–14 percent (0.212–0.468 mg eq/kg), 0.2–3.1 percent (0.008–0.005 mg eq/kg), and 3.2–21 percent (0.149–0.381 mg eq/kg) TRR in foliage, 2.1–6.1 percent (<0.001–0.012 mg eq/kg), 0.2–1.2 percent (0.002–0.009 mg eq/kg), and 1.0–1.4 percent TRR (0.002 mg eq/kg) in immature pods and beans, and 4.6–5.6 percent (0.044–0.050 mg eq/kg), 2.2 percent (0.021 mg eq/kg), and 0.9–1.7 percent TRR (0.008–0.015 mg eq/kg) immature, dried pods, respectively, across all radiolabels. QP-2, QP-1-2, QP-1-3, and QP-1-4 were not detected in either A ring or C ring radiolabelled samples or immature, dried beans.

Multiple minor unknowns comprised the majority of residues, with individual unknowns accounting for ≤1.2 percent TRR (≤0.025 mg eq/kg) in foliage and ≤2.2 percent TRR (≤0.019 mg eq/kg) in pods. No residues were identified in immature, bean. Multiple minor unknowns comprised the majority of residues, with individual unknowns accounting for ≤12.4 percent TRR (≤0.001 mg eq/kg).

Paddy rice

The metabolic fate of ^{14}C-ipflufenoquin (SC formulation) in paddy rice was examined following two indoor applications of either A or C ring radiolabelled at an application rate of 74–77 g ai/ha. The two applications were performed at approximately BBCH 41–49 (booting) and BBCH 59–61 (heading to flowering).

The commodities were collected at a suitable harvest. Samples of rice foliage (whole plant) were harvested 0 and 14 DALA, and samples of mature plants were harvested at a 55 DALA.

TRRs in foliage were 1.436 (A ring) and 0.600 (C ring) mg eq/kg at 0 DALA and 0.802 (A ring) and 0.277 (C ring) mg eq/kg at 14 DALA. At 55 DALA, residues were 2.280 (A ring) and 0.759 (C ring) mg eq/kg in straw, 0.244 (A ring) and 0.284 (C ring) mg eq/kg in hulls, 0.098 (A ring) and 0.090 (C ring) mg eq/kg in bran, and 0.012 (A ring) and 0.008 (C ring) mg eq/kg in polished rice.

The methanol surface rinse removed the majority of the radioactivity from the 0 DALA foliage (88 percent TRR) with lower residues removed from the 14 DALA foliage (58 percent TRR), straw (45 percent TRR), and hulls (22 percent TRR). Subsequent extraction of the rinsed foliage, straw, and hulls with methanol/water released 10 and 35 percent TRR from 0 and 14 DALA foliage, 37 percent TRR from straw, and 40 percent TRR from hulls. Extraction with methanol:water released 81 and 54 percent TRR, respectively, from bran and polished rice. The extracts of 14 DALA foliage, straw, hulls, bran and polished rice were hydrolysed with 0.1 mol/L NaOH, which released 4 and 12 percent TRR, respectively, from foliage and straw, 28 percent TRR from hulls, and 15–16 percent TRR from bran and polished rice. TRR remaining in the PES were ≤9.9 percent TRR (≤0.143 mg eq/kg) in samples of foliage, straw, hulls, and bran, and 31.1 percent TRR (0.004 mg eq/kg) in polished rice. Overall, the extractability of A and C ring labels with acetonitrile:water was good at 97–99 percent TRR (foliage), 94 percent TRR (straw), 90–94 percent TRR (hulls), 95–100 TRR (bran), and 70–77 percent TRR (polished rice) across both radiolabels.

Parent ipflufenoquin was detected as the most abundant component in all rice samples, ranging from 83 to 95 percent TRR (0.666– 1.352 mg/kg) in foliage, 71 percent TRR (0.541/1.611 mg/kg) in straw, 78–84 percent TRR (0.203–0.221 mg/kg) in hulls, and 66–72 TRR (0.059–0.070 mg/kg) in bran across all radiolabels. Parent ipflufenoquin was detected as the most abundant component in polished rice at 54 percent TRR (0.006 mg/kg) in the A ring radiolabel. It was also the major residue in C ring labelled polished rice, although quantitative results were not obtained due to the overall low levels of radioactivity.

QP-2 was the only metabolite detected, ranging from 3.2 to 5.2 percent TRR (0.046– 0.042 mg eq/kg) in foliage, 0.9 to 1.7 percent TRR (0.013–0.039 mg eq/kg) in straw, 0.4 to 1.0 TRR (0.001–0.003 mg eq/kg) in hulls across all radiolabels. Residues of Q-2 were not detected in bran or polished rice samples.

In the A ring radiolabel samples, individual unknowns accounted for ≤2.0 percent TRR (≤0.045 mg eq/kg) in foliage and straw and for ≤8.9 percent TRR (≤0.009 mg eq/kg) in hulls and bran.

In the C ring radiolabel samples individual unknowns accounted for ≤2.6 percent TRR (≤0.020 mg eq/kg) in foliage and straw and for ≤3.5 percent TRR (≤0.003 mg eq/kg) in hulls and bran.

Almonds

The metabolic fate of ^{14}C-ipflufenoquin in almonds (SC formulation) was examined following three applications of either A or C ring radiolabelled ipflufenoquin at an application rate of 67–89 g ai/ha (1×). Radiolabel ipflufenoquin was also applied three times to developing almond trees at a rate of 380–389 g ai/ha (5×) using C ring radiolabel. The three applications were performed at approximately BBCH 65 (full flowering, first petals falling), 77 (35 days after petal fall), and 85 (~50 percent of hulls split).

Samples of immature almonds were harvested 96–104 days after the second application (DAA2) and at 7–14 DALA and samples of mature almond hulls and nutmeat were harvested at 28 DALA.

In the 1× rate trials, TRR in immature almonds were 0.028 (A ring) and 0.014 (C ring) mg eq/kg at 104 DALA, and 0.143 (A ring) and 0.095 (C ring) mg eq/kg at 14 DALA. TRR in almond nutmeat were 0.001 mg eq/kg at 28 DALA and in almond hulls were 0.223 (A ring) and 0.233 (C ring) mg eq/kg at 28 DALA.

In the 5× rate trials TRR in immature almonds were 0.096 (C Ring) mg eq/kg at 104 DAA2 and 0.367 (C ring) mg eq/kg at 14 DALA. TRR in almond nutmeat were 0.008 mg eq/kg at 28 DALA. TRR in almond hulls were 1.212 (C ring) mg eq/kg at 28 DALA.

For samples from both labels 1× treatment trees, the acetonitrile surface rinse removed 4–7 percent TRR from first harvest immature almonds, 11–32 percent TRR from second harvest immature almonds, and 27–30 percent from hulls. For samples from the C label 5× tree, the acetonitrile surface rinse removed 20 and 50 percent TRR, respectively, from the first and second harvest of immature almonds, and 24 percent TRR from hulls. Extraction with acetonitrile:water released 36–60 percent TRR from all samples of rinsed fruit and hulls and 50 percent TRR from unrinsed C ring label 5× nutmeat. Sequential base hydrolysis of the extracts of immature fruit and hulls, followed by acid hydrolysis for some samples, released an additional 7–29 percent TRR from immature almonds and 17–22 percent TRR from hulls. To further characterize the hydrolysed residues, the combined hydrolysates were partitioned with ethyl acetate. The distribution of radioactivity between the aqueous and organic phases was generally similar for all samples except first harvest immature fruit from both label 1× trees, where the majority of radioactivity remained in the aqueous phase. Radioactive residues remaining in the PES were ≤10 percent TRR or ≤0.01 mg eq/kg for all samples.

Overall, in the 1× rate trials, the extractability of A and C ring labels with acetonitrile:water was good at 79 to 92 percent TRR (immature fruits) and 92 percent TRR (almond hulls) across all radiolabels. In the 5× rate trials, the extractability of C ring samples with acetonitrile:water was good at 91 to 93 percent TRR (immature fruits) and 91 percent TRR (almond hulls).

Following foliar application in the 1× rate trials, parent ipflufenoquin was the most abundant component in almond samples, ranging from 20–39 percent TRR (0.028– 0.037 mg/kg) in immature almond from second harvest and 27–30 percent TRR (0.060–0.070 mg/kg) in almond hulls across all radiolabels. Mature nutmeat contained negligible TRR (0.001–0.002 mg/kg for) in the 1× rate sample and was not further analysed. Residue of ipflufenoquin were not detected in samples taken at the first harvest.

QP-2 was found at 1.9–6.8 percent TRR (0.003–0.006 mg eq/kg) in immature fruit at the second harvest and at 5.0–9.3 percent TRR (0.012–0.022 mg eq/kg) in almond hulls across all radiolabels. Mature nutmeat contained negligible TRR (0.001–0.002 mg/kg for) in the 1× rate sample and was not further analysed. Residue of Q-2 were not detected in samples taken at the first harvest.

Following foliar application in the 5× rate trials, parent ipflufenoquin was the most abundant component in all almond samples, ranging from 22–41 percent TRR (0.021– 0.151 mg/kg) in immature fruit in the first and second harvests, respectively, and 39 percent TRR (0.473 mg/kg) in almond hulls. Residues of ipflufenoquin were not detected in almond nutmeat samples.

QP-2 was the only metabolite, ranging from 4.6–12 percent TRR (0.005–0.045 mg eg/kg) in immature fruit in the first and second harvest, respectively, and 8.0 percent TRR (0.097 mg eq/kg) in almond hulls. Residues of QP-2 were not detected in almond nutmeat samples.

Multiple minor metabolites comprised the majority of residues in all almond samples, with individual unknowns accounting for ≤6.5 percent TRR (≤0.008 mg eq/kg) in immature fruit, and ≤2.9 percent TRR (≤0.025 mg eq/kg) in hulls, and 16.9 percent TRR (0.001 mg eq/kg) in almond nutmeat.

Oilseed rape

The metabolic fate of ^{14}C-ipflufenoquin (SC formulation) in oilseed rape plants was examined following two outdoor foliar applications of either A or C ring radiolabelled ipflufenoquin at an application rate of 113–117 g ai/ha performed at approximately BBCH 60 and 65 (flowering).

Samples of forage were harvested at 28 DALA, and samples of straw (aerial portion of the plant including pods without seeds) and seed at 60 DALA. In addition, TRR was determined from the surface washes of forage and straw.

TRRs in forage were 0.189 (A ring) and 0.199 (C ring) mg eq/kg at 28 DALA. Residues in straw were 0.318 (A ring) and 0.290 (C ring) mg eq/kg at 60 DALA. Residues in seed were 0.036 (A ring) and 0.029 (C ring) mg eq/kg at 60 DALA.

The acetonitrile surface rinse removed 7–12 percent TRR from forage and ~1 percent TRR from straw. Extraction with acetonitrile:water released 62–70 percent TRR from all rapeseed matrices. Sequential mild and strong base hydrolysis of the extracts released an additional 14–23 percent TRR from all matrices. To further characterize the hydrolysed residues, the combined hydrolysates of forage were partitioned with ethyl acetate; radioactivity was distributed equally between the aqueous and organic phases. Radioactive residues remaining in the PES were ≤10 percent TRR (≤0.04 mg eq/kg) for

all samples. Overall, the extractability of A and C ring labels with acetonitrile:water was good at 94–95 percent TRR (forage), 89–90 percent TRR (straw), and 79–81 percent TRR (seed) across all radiolabels.

Following foliar application, parent ipflufenoquin was detected as the most abundant component in all samples, ranging from 9.3–14 percent TRR (0.017–0.026 mg/kg) in forage, 4.7–7.5 percent TRR (0.015–0.022 mg/kg) in straw, and 13–19 percent TRR (0.005 mg/kg) in seed across all radiolabels.

In seed, QP-2 was detected in the C ring radiolabel samples at 4.9 percent TRR (0.001 mg eq/kg) in seed and not detected in the A ring radiolabelled samples. QP-1-3 was not detected in either A ring or C ring radiolabelled seed samples. QP-2 and QP-1-3 radioactivity ranged from 1.4 to 3.4 percent (0.003–0.007 mg eq/kg) and 8.9–11 percent TRR (0.017–0.021 mg eq/kg) in forage, <0.1–0.1 percent (<0.001 mg eq/kg), and 3.5–4.8 percent TRR (0.010– 0.015 mg eq/kg) in straw, across all radiolabels, respectively.

Multiple minor unknowns accounted for the majority of residues, with individual unknowns accounting for ≤7.2 percent TRR (≤0.014 mg eq/kg) in forage, ≤8.8 percent TRR (≤0.028 mg eq/kg) in straw, and ≤16.4 percent TRR (≤0.005 mg eq/kg) in seed.

Plant metabolism summary

Primary crop metabolism of ipflufenoquin has been investigated in apple, grape, cucumber, kidney bean, paddy rice, almond, and oilseed rape using foliar-applications representative of the agricultural use patterns.

The biotransformation pathways in all crops tested was similar. The most predominant metabolite of ipflufenoquin, QP-2, was generated via photolysis on the plant surface. The minor metabolites QP-1-2, QP-1-3, QP 1-4, QP-1-5, and QP-1-6, were generated via glycosylation and conjugation.

Animal metabolism

The meeting received studies describing the metabolism of ipflufenoquin in rats, lactating goats and laying hens. The metabolism in rats was reviewed in the framework of the toxicological evaluation by the WHO Core Assessment Group.

Lactating goats

The metabolism and excretion of A ring and C ring was investigated in lactating goats as a model for ruminants.

Each radiolabelled test compound was administered orally once daily via gelatin capsule for 5 consecutive days to two goats at doses of 0.50 and 0.57 mg/kg bw/day, respectively, equivalent to 13.3 and 13.9 ppm in the feed (dry-weight basis). The goats received five doses at 24-hour intervals and were sacrificed 7 hours after the last dosing. Milk, urine, and faeces were collected twice daily throughout the dosing period, and subsamples of each milk sample were separated into skim milk and milk fat for analysis.

TRR was 85 percent (A ring) and 95 percent (C ring), mostly associated with faeces (72 and 78 percent, respectively), urine (11 percent and 13 percent, respectively), and gastrointestinal tract and contents (2 percent and 3 percent, respectively).

TRR in whole milk (calculated from skim milk and milk fat data) maximum residues occurred on Day 4 for the A label at 0.004 mg/kg and on Day 2 for the C label at 0.011 mg/kg. Comparison of skim milk and milk fat data showed preference for the fat fraction, with TRR ranging from 0.001 to 0.002 (A ring) and 0.001to 0.004 (C ring) mg eq/kg in skim milk and 0.004 to 0.010 (A ring) and 0.023 to 0.140 (C ring) mg eq/kg in milk fat.

TRR amounted to 0.381 mg eq/kg (A ring) and 0.437 mg eq/kg (C ring) in liver, 0.036 mg eq/kg (A ring) and 0.253 mg eq/kg (C ring) in composite fat (perirenal, subcutaneous, and omental), 0.039 mg eq/kg (A ring) and 0.067 mg eq/kg (C ring) in kidney and 0.006 mg eq/kg (A ring) and 0.016 mg eq/kg (C ring) in composite muscle (loin and flank).

For both A and C ring labels, solvent extractions with acetonitrile:water and acetonitrile released 75–85 percent TRR from liver and 92–100 percent TRR from kidney and muscle, and extractions with hexane:acetone and acetone released ≥99 percent TRR from fat and milk fat samples. Subsequent acid hydrolyses (0.1 and 1.0 mol/L HCl) of liver PES released an additional 8–17 percent TRR. Radioactivity remaining in the PES of tissues and milk fat accounted for ≤8.1 percent TRR (≤0.034 mg/kg). Overall, extractability of milk, liver, kidney, fat and muscle was very good at ranging from >91 to 100 percent TRR.

Ipflufenoquin was the sole component identified in fatty matrices, accounting for 92–95 percent TRR (0.012–0.100 mg/kg) in omental fat and 90–100 percent TRR (0.004–0.055 mg/kg) in milk fat, and accounted for 43 percent TRR (0.003 mg/kg) in muscle. The parent was a minor component in liver (≤1.8 percent TRR, ≤0.008 mg eq/kg), and was not detected in kidney.

Glucuronide metabolites QP-1-11 (29 percent TRR, 0.002 mg eq/kg) and QP-1-10 (14 percent TRR, 0.001 mg eq/kg) were also detected in fatty matrices. Trace amounts (<0.1 percent TRR, <0.001 mg eq/kg) of the acid metabolite QP-1-7 and hydroxy metabolite QP-1-8 were detected in muscle.

Glucuronide metabolites QP-1-11 and QP-1-10 accounted for 26–28 percent TRR (0.106–0.113 mg eq/kg) and 42–52 percent TRR (0.161–0.229 mg eq/kg), respectively in liver, and 49–51 percent TRR (0.020–0.033 mg eq/kg) and 31–36 percent TRR (0.012–0.024 mg eq/kg), respectively in kidney. Minor amounts of QP-1-1 (≤3.9 percent TRR, ≤0.015 mg eq/kg) were also detected in the initial acid hydrolysates from liver, which was attributed to an artifact of the acid hydrolysis.

Minor unknown components together accounted for ≤14.2 percent TRR (≤0.036 mg eq/kg) in tissues and milk fat, with each present at ≤3.4 percent TRR (≤0.014 mg eq/kg).

Laying hen

The metabolism and excretion of A ring and C ring was investigated in laying hens as a model for poultry.

Each radiolabelled test compound was administered orally once daily via gelatin capsule for 7 consecutive days to two groups of hens (10 hens/group) at doses of 0.74 and 0.73 mg/kg bw/day, respectively, equivalent to 11.9 and 11.0 ppm in the feed (dry-weight basis). The hens received 7 doses at 24-hour intervals and were sacrificed 7 hours after the last dosing. Eggs and excreta were collected twice daily throughout the dosing period, and eggs were separated into egg white and yolk samples.

The total recovery of the administered radioactivity was 85 percent and 84 percent for the A ring and C ring, respectively.

In egg whites, TRR plateaued within 3 days, with the highest residues occurring on day 4 (0.582–0.746 mg/kg); TRR in yolks increased steadily throughout the dosing period, with the highest residues occurring on Day 7 (0.405–0.547 mg/kg).

TRR amounted to 0.763 mg eq/kg (A ring) and 0.557 mg eq/kg (C ring) in liver, 3.163 mg eq/kg (A ring) and 3.594 mg eq/kg (C ring) in composite fat (skin and peritoneal) and 0.164 mg eq/kg (A ring) and 0.228 mg eq/kg (C ring) in composite muscle (breast and leg).

For both A and C ring samples, solvent extraction with acetonitrile:water and acetonitrile released 98 percent TRR from egg white, 71–89 percent from liver and muscle, and 95–96 percent from excreta. Extraction with hexane:acetone and acetone released ≥94 percent TRR from egg yolk and fat samples. Subsequent acid and base hydrolyses, each followed by acetonitrile extraction, released an additional 15–22 percent TRR from liver and 8–16 percent TRR from muscle samples. Radioactivity remaining in the PES of tissues and eggs accounted for ≤10.5 percent TRR (≤0.016 mg eq/kg). Overall, the extractability of muscle, liver, fat, egg whites, and egg yolks was very good, ranging from >86 to >99 percent TRR.

In egg yolk and egg whites, ipflufenoquin was the major residue (42–49 percent TRR, 0.109–0.219 mg/kg), along with the hydroxy metabolites QP-1-8 (13–23 percent TRR, 0.033–0.114 mg eq/kg) and QP-1-12 (8.3–19 percent TRR, 0.021–0.090 mg eq/kg), and lesser amounts of QP-1-9 (4.6–10 percent TRR, 0.012–0.049 mg eq/kg).

In leg and breast muscle, the major residues included ipflufenoquin at 26–63 percent TRR (0.009–0.101 mg/kg) and the hydroxy metabolites QP-1-12 (9.7–33 percent TRR, 0.012–0.016 mg eq/kg) and QP-1-8 (8.9–22 percent TRR, 0.007–0.014 mg eq/kg), along with minor amounts of QP-1-9 (≤5.4 percent TRR, ≤0.008 mg eq/kg).

In fat, abdominal and subcutaneous fat, the major residue was ipflufenoquin, accounting for 57–66 percent TRR (0.918–1.175 mg/kg). Hydroxylated metabolites conjugated to fatty acids (QP-1-13, QP-1-16, QP-1-17, and QP-1-18) together accounted for 23–30 percent TRR (0.411–0.491 mg eq/kg) in fat, with QP-1-17 being the principal fatty acid metabolite at 13–17 percent TRR (0.230–0.0271 mg eq/kg). Hydroxy metabolites QP-1-1-8, QP-1-1-9, and QP-1-1-12 were minor residues in fat, each at ≤4.8 percent TRR (≤0.086 mg eq/kg).

In liver, ipflufenoquin accounted for 9.0–13 percent TRR (0.065 mg/kg), and the major metabolites included: two glucuronic acid conjugates, QP-1-15 (14–28 percent TRR, 0.071–0.200 mg eq/kg) and QP-1-10 (4.4–7.2 percent TRR, 0.022–0.053 mg eq/kg); two hydroxy metabolites, QP-1-12 (5.5–9.3 percent TRR, 0.040–0.048 mg eq/kg) and QP-1-8 (5.1–9.0 percent TRR, 0.037–0.046 mg eq/kg); and the acid metabolite QP-1-7 (5.2–5.7 percent TRR, 0.029–0.038 mg eq/kg). Another glucuronic acid conjugate (QP-1-11) and two hydroxy metabolites (QP-1-14 and QP-1-9) were also detected in liver, each at ≤4.8 percent TRR (≤0.035 mg eq/kg).

Minor unknown components together accounted for 21–22 percent TRR in liver samples and A label egg yolk, and ≤9.2 percent TRR in the remaining tissue and egg samples, with each unknown present at ≤6.5 percent TRR (≤0.032 mg eq/kg).

Animal metabolism summary

The distribution and elimination of ipflufenoquin appeared to be similar in the rats, lactating goat and laying hen. In ruminants, radioactivity was consistently observed at highest levels in the fat, followed by lower levels in muscle, followed by liver and kidney. In poultry, radioactivity was consistently observed at highest levels in the liver, followed by lower levels in kidney, followed by fat and muscle. Faeces was the primary route of excretion.

The biotransformation pathway of ipflufenoquin in ruminants and poultry is well understood and consistent with that observed in the rat. Ipflufenoquin undergoes hydroxylation at various positions on the parent molecule to form the hydroxy metabolites QP 1-8, QP-1-9, and QP-1-14, with further hydroxylation of QP 1-8 and/or QP-1-9 forming QP-1-12. Ipflufenoquin, QP-1-8, and QP-1-14 are subsequently conjugated with glucuronic acid to form, respectively, QP-1-10, QP-1-11, and QP-1-15. Metabolite QP-1-8 is also further oxidized to yield the α-hydroxy acid metabolite QP-1-7. Metabolites QP-1-8 and QP-1-9 are also conjugated with linolenic, linoleic, or oleic acids to form lipid conjugates (QP-1-13, QP-1-16, QP-1-17, and QP-1-18).

Environmental fate

The meeting received studies investigating the behavior of ipflufenoquin following hydrolysis, aerobic soil degradation, aqueous photolysis, and terrestrial field dissipation.

Hydrolysis

The hydrolysis of [^{14}C]ipflufenoquin was investigated using sterile aqueous buffer solutions at pH 4, 7 and 9 incubated at 50 ± 0.1 °C under dark conditions. [^{14}C]ipflufenoquin remained stable throughout the study period in all sets tested, representing averages of 98.4, 93.3, and 94.3 percent AR (by HPLC) following 5 days of incubation in the pH 4, 7, and 9 sets, respectively.

The meeting determined ipflufenoquin is hydrolytically stable at the environmental relevant pH 7.

Aerobic soil degradation

Ipflufenoquin degraded with a DT_{50} values >600 days. The meeting concluded that ipflufenoquin is persistent in aerobic soil conditions under laboratory conditions.

Aqueous photolysis

The aqueous photolysis of [^{14}C]ipflufenoquin was investigated under artificial and natural light.

The half-life of A ring labelled ipflufenoquin during aqueous photolysis was 3.7 days under artificial light and 11.0–13.2 days of natural summer sunlight at 20° to 50° north.

The half-life of C ring labelled ipflufenoquin during aqueous photolysis was 2.6 days under artificial light and 8.4–9.3 days of natural summer sunlight at 20° to 50° north.

The overall half-life was approximately 11 days. The meeting concluded that photolysis represents a major route of degradation for ipflufenoquin.

No specific degradation products were identified in the A ring label study. Identified degradation products in the C ring label study were QH-2 (3-fluoro-2-(prop-1-en-2-yl)phenol) up to 8.9 percent AR, and QH-1 (2-(2-fluoro-6-hydroxyphenyl)propan-2-ol) up to 8.7 percent AR.

Terrestrial field dissipation

Ipflufenoquin degraded with a DT_{50} values ranging from 4.3 to 811 days (geometric mean: 59.7 days).

The meeting concluded that ipflufenoquin has the potential to be moderately persistent under field conditions.

Rotational crops

No information concerning residues in confined or field rotational crops were submitted to the meeting.

Methods of residue analysis

For matrices of plant and animal origin, the methods employed solvent extraction with acetonitrile or acetonitrile:water or acetone or hexane or methanol or ethyl acetate, followed by different combinations of clean-up steps, dependent on the matrix type, including hexane or acetonitrile partitioning and/or SPE on silica or C18. Ipflufenoquin and its metabolites were determined by LC-MS/MS, typically with LOQs ranging from 0.005 to 0.01 mg/kg each, including the multi-residue method QuEChERS.

Ipflufenoquin-specific methods are available for the analysis of ipflufenoquin and relevant metabolites in plant and animal matrices. The QuEChERS multi-residue method is suitable for the determination of ipflufenoquin and metabolites QP-2 and QP-1-2, QP-1-3, QP-1-5, and QP-1-6 (expressed as QP-1-1) in plant commodities (apple, grape, cucumber, kidney bean, paddy rice, almond, and oilseed rape). Residues of ipflufenoquin and QP-2 were measured individually while residues of QP-1-2, QP-1-3, QP-1-5, and QP-1-6 were measured as the common moiety QP-1-1.

The QuEChERS method is also suitable for the determination of ipflufenoquin and metabolites QP-1-8, QP-1-9, QP-1-12, QP-1-14, QP-1-10, QP-1-11, QP-1-15, QP-1-13, QP-1-16, QP-1-17, and QP-1-18 in representative animal commodities (poultry egg, poultry muscle, poultry fat, poultry liver, bovine milk, bovine cream, bovine muscle, bovine fat, bovine liver, and bovine kidney).

Stability of pesticide residues in stored analytical samples

The meeting received several studies investigating the concurrent storage stability of ipflufenoquin and relevant metabolites in plant and animal commodities under frozen storage conditions (≤–18 °C).

In mandarin pulp, ipflufenoquin, QP-2, and QP-1-2 (expressed as QP-1-1) were stable for at least 1 month.

In apple and pear commodities, ipflufenoquin, QP-2, and QP-1-2 (expressed as QP-1-1) were stable for at least 3 months.

In dried tea leaves, ipflufenoquin, QP-2, and QP-1-2 (expressed as QP-1-1) were stable for at least 4 months.

In high oil commodities (almond nutmeat), ipflufenoquin, QP-2, and QP-1-2 (expressed as QP-1-1) were stable for at least 12 months.

In almond hulls, ipflufenoquin and QP-1-2 (expressed as QP-1-1) were stable for at least 12 months while QP-2 was stable for up to 75 days.

The meeting concluded that ipflufenoquin, QP-2, and QP-1-2 (expressed as QP-1-1) were stable in plant commodities for the maximum interval of storage for all field trial samples.

Ipflufenoquin and its metabolites QP-1-8, QP-1-9, QP-1-12, QP-1-14, QP-1-10, QP-1-11, QP-1-15, QP-1-13, QP-1-16, QP-1-167ad QP-1-18 in whole milk (bovine), muscle (bovine), liver (bovine), egg yolk (chicken), egg white (chicken), muscle (chicken) and liver (chicken) were stable in frozen storage (≤–18 °C) for at least 133 days.

Residue definition

Plant commodities

The metabolism of ipflufenoquin was similar in the submitted crops (apple, grape, cucumber, kidney bean, paddy rice, almond, and oilseed rape).

Following foliar application, ipflufenoquin was detected in all matrices and accounted for 35–42 percent TRR (0.014–0.017 mg/kg) in immature apples, 38–39 percent TRR (0.014–0.021 mg eq/kg) in mature grapes, 22–90 percent TRR (0.001–0.092 mg/kg) in cucumber, 5.5 percent TRR (<0.001 mg/kg) in immature, dried kidney beans, and 54 percent TRR (0.006 mg/kg) in polished rice. Ipflufenoquin was present at trace levels in mature apples and not detected in almond nutmeat.

The metabolite QP-2 was also identified in all studies and accounted for 9–11 percent TRR in immature apples (0.004 mg eq/kg), 3.6 percent TRR (0.001 mg eq/kg) in mature grapes, and 0.3–1.7 percent TRR (<0.001–0.001 mg eq/kg) in cucumber. QP-2 not detected in immature, dried kidney beans, polished rice, and almond nutmeat.

The metabolite QP-1-3 was only identified in cucumber samples and accounted for 0.3–1.7 percent TRR (<0.001 mg eq/kg).

In supervised field trials, ipflufenoquin and QP-2 and QP-1-2 (expressed as QP-1-1) were the most frequently detected residues. Residues of QP-2 and QP-1-2 were always lower than parent ipflufenoquin residues. The metabolite QP-2 was quantified in all apple and dried tea leaf samples and in one pear and one mandarin (pulp) sample. The metabolite QP-1-2 (expressed as QP-1-1) was only detected in dried tea leaf samples. When detected, QP-2 and QP-1-2 (expressed as QP-1-1) were, on average, 6.6 percent and 1 percent, respectively, compared to parent residues. This ratio was consistent across all processed fractions analysed, demonstrating that with respect to parent no significant concentration or changes were observed with processing.

The meeting concluded that ipflufenoquin was a suitable marker for enforcement purposes. A suitable analytical method using LC-MS/MS is available to determine residues of ipflufenoquin in plant commodities.

The meeting recommended the following definition of the residue for compliance with the MRL for plant commodities: *ipflufenoquin*.

In deciding which compounds should be included in the residue definition for estimation of dietary intake for plants, the meeting considered the likely occurrence of the compounds and the toxicological properties of the candidates: ipflufenoquin, QP-2, and QP-1-2.

The meeting determined that QP-2 has similar toxicity to parent ipflufenoquin and is covered by the HBGVs for ipflufenoquin. The metabolite QP-2 occurred at 11 percent TRR in immature apples and was not detected in mature apple samples. In supervised field trials, QP-2 was present in apple samples at levels approximately 10 percent of parent ipflufenoquin. When detected in the metabolism studies, QP-2 was not present at levels higher than 7.3 percent TRR. In the supervised field trials, QP-2 was not detected in almond nutmeat, detected in only one pear sample and one mandarin pulp sample and all tea samples at an average of 3.5 percent of parent. The meeting concluded that QP-2 does not contribute significantly to the dietary exposure and need not be included into the residue definition for dietary intake.

The meeting determined that QP-1-2 does not have similar toxicity to parent ipflufenoquin and could be assessed using the threshold of toxicological concern for Cramer class III compounds of 1.5 µg/kg bw per day.

The meeting recommended the following definition of the residue for estimation of dietary intake for plant commodities: *ipflufenoquin*.

Animal commodities

The metabolism of ipflufenoquin in lactating goats and laying hens was qualitatively similar. In the lactating goats metabolism study, parent ipflufenoquin was detected as the sole component identified in fatty matrices, accounting for 92–95 percent TRR (0.012–0.100 mg/kg) in omental fat and 90–100 percent TRR (0.004–0.055 mg/kg) in milk fat. Parent compound was also a major residue in muscle, accounting for 42.9 percent TRR (0.003 mg/kg). Minor amounts of ipflufenoquin were detected in liver (≤1.8 percent TRR, ≤0.008 mg/kg), but ipflufenoquin was not detected in kidney.

In muscle, major metabolites included the glucuronide metabolites QP-1-11 (29 percent TRR, 0.002 mg eq/kg) and QP-1-10 (14 percent TRR, 0.001 mg eq/kg). Trace amounts (<0.1 percent TRR, <0.001 mg eq/kg) of the acid metabolite QP-1-7 and hydroxy metabolite QP-1-8 were also detected in muscle.

In liver and kidney, glucuronide metabolites, QP-1-11 and QP-1-10, accounted for 26–28 percent TRR (0.106–0.113 mg eq/kg) and 42–52 percent TRR (0.161–0.229 mg eq/kg) in liver and 49–51 percent TRR (0.020–0.033 mg eq/kg) and 31–36 percent TRR (0.012–0.024 mg eq/kg) in kidney, respectfully. Minor amounts of QP-1-1 (≤3.9 percent TRR, ≤0.015 mg eq/kg) were also detected in the initial acid hydrolysates from liver, which the study author attributed to being an artifact of the acid hydrolysis.

In the laying hens metabolism study, metabolite profile was relatively distinct between the eggs and the various tissue types.

In both egg white and egg yolk, ipflufenoquin was the major residue (42–49 percent TRR, 0.109–0.219 mg/kg), along with the hydroxy metabolites QP-1-8 (13–23 percent TRR, 0.033–0.114 mg eq/kg) and QP-1-12 (8.3–19 percent TRR, 0.021–0.090 mg eq/kg), and lesser amounts of QP-1-9 (4.6–10 percent TRR, 0.012–-0.049 mg eq/kg).

In liver, ipflufenoquin accounted for 9.0–13 percent TRR (0.065 mg/kg), and the major metabolites included two glucuronic acid conjugates, QP-1-15 (14–28 percent TRR, 0.071–0.200 mg eq/kg) and QP-1-10 (4.4–7.2 percent TRR, 0.022–0.053 mg eq/kg); two hydroxy metabolites, QP-1-12 (5.5–9.3 percent TRR, 0.040–0.048 mg eq/kg) and QP-1-8 (5.1–9.0 percent TRR, 0.037–0.046 mg eq/kg); and the acid metabolite QP-1-7 (5.2–5.7 percent TRR, 0.029–0.038 mg eq/kg). Another glucuronic acid conjugate (QP-1-11) and two hydroxy metabolites (QP-1-14 and QP-1-9) were also detected in liver, each at ≤4.8 percent TRR (≤0.035 mg eq/kg).

In leg and breast muscle, the major residues included ipflufenoquin at 26–63 percent TRR (0.009–0.101 mg/kg) and the hydroxy metabolites QP-1-12 (9.7–33 percent TRR, 0.012–0.016 mg eq/kg) and QP-1-8 (8.9–22 percent TRR, 0.007–0.014 mg eq/kg), along with minor amounts of QP-1-9 (≤5.4 percent TRR, ≤0.008 mg eq/kg).

In abdominal and subcutaneous fat, the major residue was ipflufenoquin, accounting for 57–66 percent TRR (0.918–1.175 mg/kg). The hydroxylated metabolite conjugated to fatty acid QP-1-17 accounted for 13–17 percent TRR (0.230–0.0271 mg eq/kg). Additional hydroxylated metabolites conjugated to fatty acids (QP-1-13, QP-1-16, and QP-1-18) were minor residues in fat, each at ≤7.7 percent TRR (≤0.125 mg eq/kg). Hydroxy metabolites QP-1-1-8, QP-1-1-9, and QP-1-1-12 were minor residues in fat, each at ≤4.8 percent TRR (≤0.086 mg eq/kg).

In the cattle feeding study, residues of ipflufenoquin and all tested metabolites (QP-1-8, QP-1-9, QP-1-12, QP-1-14, QP-1-10, QP-1-11, QP-1-15, QP-1-13, QP-1-16, QP-1-17, and QP-1-18) were below the LOQ in all milk and muscle samples.

In liver samples, residues of ipflufenoquin were below LOQ at the lowest feeding dose and ranged from 0.012 to 0.039 mg/kg at the higher feeding dose levels. Residues of QP-1-10 ranged from 0.011 to 0.015 mg eq/kg at the highest dose level and were below LOQ at the lower dose levels. Residues of QP-1-11 ranged from 0.015 to 0.326 mg eq/kg across all dose levels. Residues of QP-1-14 and QP-1-15 were detected at the mid and highest dose levels ranging from 0.021–0.081 mg eq/kg and <0.007–0.055 mg eq/kg, respectively.

In kidney samples, residues of ipflufenoquin were below LOQ at all dose levels. Residues of QP-1-11 ranged from <0.007 to 0.145 mg eq/kg.

In fat samples, residues of ipflufenoquin ranged from <0.01 to 0.014 mg eq/kg at the highest dose level and were below LOQ. at lower dose levels. Residues of all tested metabolites (QP-1-8, QP-1-9, QP-1-12, QP-1-14, QP-1-10, QP-1-11, QP-1-15, QP-1-13, QP-1-16, QP-1-17, and QP-1-18) were below the LOQ in all samples.

In the laying hen feeding study, residues of ipflufenoquin ranged between <0.01 and 0.05 mg/kg in egg samples. Residues of metabolites QP-1-8 and QP-1-12 ranged from <0.01 to 0.02 mg eq/kg. Residues of metabolites QP-1-9, QP-1-12, QP-1-14, QP-1-10, QP-1-11, QP-1-15, QP-1-13, QP-1-16, QP-1-17, and QP-1-18 were not detected or below the LOQ across all dose groups.

In muscle samples, residues of ipflufenoquin and metabolites QP-1-8, QP-1-9, QP-1-12, QP-1-14, QP-1-10, QP-1-11, QP-1-15, QP-1-13, QP-1-16, QP-1-17, QP-1-18, QP-1-14, QP-1-10, QP-1-11, and QP-1-15 were below the LOQ or not detected across all dose groups.

In fat samples, residues of ipflufenoquin ranged between <0.01 and 0.05 mg/kg. Residues of QP-1-16 were 0.011 mg eq/kg at the highest dose level and below LOQ at lower dose levels. Across all dose levels, residues of QP-1-17 ranged from 0.011 to 0.101 mg eq/kg and of QP-1-18 ranged from <0.006 to 0.050 mg eq/kg.

In liver samples, residues of ipflufenoquin and metabolites QP-1-8, QP-1-9, QP-1-12, QP-1-14, QP-1-10, QP-1-11, QP-1-15, QP-1-13, QP-1-16, QP-1-17, QP-1-18, QP-1-14, QP-1-10, QP-1-11, and QP-1-15 were below the LOQ or not detected across all dose groups.

A suitable analytical method using LC-MS/MS is available to determine residues of ipflufenoquin and its metabolites in animal commodities.

In deciding whether the residue for compliance monitoring is regarded as fat soluble, the meeting noted that residue levels in the lactating goat study were 20 times greater in fat compared to muscle. In addition, comparison between in skim milk and milk fat in the lactating goat metabolism study showed preference for the cream fraction, with residues levels in milk fat approximately 14 times greater than residues in skim milk.

In the laying hen metabolism study, residues were in fat samples were approximately 20 times greater than residues in muscle samples.

Data to support the residue definition for compliance with MRL and for estimation of dietary intake for animal commodities arrived at a late stage of the meeting and the definitions could not be concluded.

The residue definition for compliance with MRL and for estimation of dietary intake for plant commodities is ipflufenoquin.

Results of supervised trials on crops

Mandarin

The cGAP for mandarin from Japan is three foliar applications a 2000-fold dilution (rate of 0.1 kg ai/hL), a retreatment interval (RTI) of 7 days, and a PHI of 1 day.

In six independent trials from Japan matching the cGAP, residues of ipflufenoquin in/on mandarin (whole fruit, reconstituted from pulp and peel) were (n = 6): 2.0, 2.4, 3.3, 4.0, 4.7, and 5.0 mg/kg.

Residues of ipflufenoquin in the edible portion (mandarin pulp) for dietary risk assessment, were (n = 6): 0.008, 0.010, 0.012, 0.019, 0.027, and 0.072 mg/kg.

The meeting estimated a maximum residue level of 15 mg/kg (whole fruit), an HR of 0.076 mg/kg (mandarin pulp, from a single sample), a median residue (whole fruit) of 3.75 mg/kg, and an STMR of 0.0155 mg/kg (mandarin pulp) for ipflufenoquin in mandarins (FC 0206).

Apples and pears

The cGAP for apples and pears from Japan is three foliar applications at a 2000-fold dilution (rate of 0.1 kg ai/hL), a RTI of 7 days, and a PHI of 1 day.

Apples

In 6 independent trials from the Japan matching the cGAP, residues of ipflufenoquin in/on apple were (n = 6): 0.252, 0.290, 0.346, 0.494, 0.566, and 0.584 mg/kg (0.585 mg/kg from a single sample).

The meeting estimated a maximum residue level of 1.5 mg/kg, an HR of 0.585 mg/kg and an STMR of 0.402 mg/kg for ipflufenoquin in apples (FP 0226).

Pears

In 6 independent trials from Japan matching the cGAP, residues of ipflufenoquin in/on pears were (n = 6): 0.442, 0.700, 0.707, 0.709, 0.736, and 0.902 mg/kg (0.917 mg/kg from a single sample).

The meeting estimated a maximum residue level of 2 mg/kg, an HR of 0.917 mg/kg and an STMR of 0.708 mg/kg for ipflufenoquin in pears (FP 0230).

Almonds

The cGAP for almonds from the United States is three foliar applications at 0.073 kg ai/ha with a RTI of 7 days and a PHI of 14 days.

In 5 independent trials from the United States matching the cGAP, residues of ipflufenoquin were (n = 5): <0.01 (5) mg/kg.

The meeting estimated a maximum residue level of 0.01* mg/kg and an STMR of 0.01 mg/kg for ipflufenoquin in almond (TN 0660).

Dried tea leaves

The cGAP for tea from Japan is two foliar applications at a 2000-fold dilution (rate of 0.1 kg ai/hL), RTI of 7 days and a PHI of 7 days.

In 8 independent trials from Japan matching the cGAP, residues of ipflufenoquin in dried leaves were (n = 8): 22.8, 23.8, 26.7, 26.8, 27.9, 31.5, 31.6, and 32.8 mg/kg.

The meeting estimated a maximum residue level of 90 mg/kg and an STMR of 27.4 mg/kg for ipflufenoquin in tea, green, black (black, fermented and dried) (DT 1114).

Feed commodities

Almond hulls

The cGAP for almonds from the United States is three foliar applications at 0.073 kg ai/ha with a RTI of 7 days and a PHI of 14 days.

Field trials conducted with almonds in the United States were performed according to the GAP. For estimating maximum residue levels of ipflufenoquin in almond hulls, the ranked order of residues was (n = 5): 0.464, 0.514, 0.648, 0.942, and 1.06 mg/kg.

The meeting estimated a maximum residue level of 4 mg/kg (dw), based on a dry matter content of 90 percent, and a median residue (as received) of 0.648 mg/kg for ipflufenoquin in almond hulls (AM 0660).

Fate of residues during processing

High temperature hydrolysis

The meeting received studies investigating radiolabelled ipflufenoquin following temperatures and pH conditions simulating typical processing procedures. The study demonstrated that A ring radiolabelled ipflufenoquin was found to be hydrolytically stable in buffer solutions at pH 4, 5 and 6 at temperatures simulating pasteurization (90 °C), baking/brewing/boiling (100 °C), and sterilization (120 °C), respectively.

Residues in processed commodities

The meeting received studies that evaluated the effect of processing on ipflufenoquin in apple and tea. The STMR-P, HP and median-P values are calculated by multiplying the processing factor with the RAC STMR or median value. The results are shown in Table 5.22.6.

Table 5.22.6 Processing factors (PF) and estimated maximum residues levels, HRs, and STMRs for apple and tea processed commodities

Raw commodity (HR and STMR)	Processed commodity	Individual PF	Best estimate PF	STMR-P or median (mg/kg)	HR-P or (mg/kg)	Estimated maximum residue level (mg/kg)
Apple (maximum residue level: 1.5 mg/kg) (HR: 0.585 mg/kg) (STMR: 0.402 mg/kg)	Pomace, wet	1.23, 3.58, 5.53	3.58	1.38 (median)	–	–
	Sauce	0.04, 0.14	0.09	0.04	–	–
	Dried	1.18, 1.32, 4.18	1.32	0.53	0.777	2 (rounded)
Dried tea leaves (STMR: 27.4 mg/kg)	Tea Infusion	0.0022, 0.0025[a]	0.00236	0.06	–	–

Notes:

[a] Processing factor = (Mean residue in the processed commodity/60) / Mean residue in the RAC.

Using the estimated maximum residue level in of 1.5 mg/kg in ample and multiplying by median processing factor of 1.32 mg/kg, the meeting estimated maximum residue levels of 2 mg/kg and an HR-P of 0.777 mg/kg for ipflufenoquin in apple, dried (DF 0226).

Animal feeding studies

Cattle

The meeting received a residue transfer study in cattle to determine the magnitude of the residues of ipflufenoquin and its metabolites in whole milk, skim milk, milk fat, muscle, fat (perirenal, subcutaneous, and omental), liver, and kidney of lactating dairy cows that received oral dose at three levels (2.5, 7.5, and 25 ppm) of ipflufenoquin for a minimum of 28 consecutive days.

In whole milk, a plateau for residues could not be determined as residues remained negligible throughout the duration of the study.

In milk (whole milk, fat, and skim) and muscle, ipflufenoquin and QP-1-11 residues were <0.01 mg/kg in all samples and dose groups.

In perirenal fat, residues of ipflufenoquin were <0.01 at the 2.5- and 7.5-ppm dose groups and <0.01(median) and 0.011 (max) mg/kg in the 25-ppm dose group. Residues of QP-1-11 were <0.01 mg/kg in all dose groups.

In omental fat samples, residues of ipflufenoquin were <0.01 mg/kg at the 2.5- and 7.5-ppm dose groups and were <0.01 (median) to 0.014 (max) mg eq/kg in the 25-ppm dose group and. Residues of QP-1-11 were <0.01 mg/kg in all dose groups.

In subcutaneous fat samples, residues of ipflufenoquin and QP-1-11 were <0.01 mg/kg throughout the duration of the study.

In liver samples, combined residues of ipflufenoquin and QP-1-11 were 0.035 (median) and 0.041 (max) mg eq/kg at the 2.5 ppm dose level, 0.069 (median) and 0.132 (max) mg eq/kg at the 7.5-ppm dose level, and 0.221 (median) and 0.365 (max) mg eq/kg at the 25-ppm dose level.

In kidney samples, combined residues of ipflufenoquin and QP-1-11 were 0.017 (median) and 0.023 (max) mg/kg at the 2.5 ppm dose level, 0.036 (median) and 0.041 (max) mg/kg at the 7.5-ppm dose level, and 0.075 (median) and 0.155 (max) mg/kg at the 25-ppm dose level.

Laying hen

The meeting received a residue transfer study in laying hens to determine the magnitude of the residues of ipflufenoquin and its metabolites in eggs, poultry muscle (composite breast and thigh), skin, fat (composite high abdominal and subcutaneous), and liver. Laying hens were fed diets containing ipflufenoquin at three feeding levels (0.03, 0.09, and 3.0 ppm) for a minimum of 28 consecutive days.

Residues of ipflufenoquin reached a plateau in egg white samples at 3 days and between 7 and 10 days in egg yolk. In egg samples, residues of ipflufenoquin were below LOQ at the 0.3 ppm dose level and ranged from <0.01 (median) to 0.02 (max) mg/kg at the 0.9-ppm dose level and from 0.03 (median) to 0.05 (max) mg/kg at the 3.3-ppm dose level. Residues of QP-1-11 were not detected or <0.01 mg/kg across all dose groups.

In muscle and liver samples, residues of ipflufenoquin and QP-1-11were <0.01 mg/kg or not detected across all dose groups.

In fat samples, residues of ipflufenoquin were 0.01 (median) and 0.02 (max) mg/kg at the 0.3 ppm dose level, 0.04 (median and max) mg/kg at the 0.9 ppm dose level, and 0.11 (median) and 0.18 (max) mg/kg at the 3.3 ppm dose level. Residues of QP-1-11 were not detected or <0.01 mg/kg across all dose groups.

Residues in animal commodities

Farm animal dietary burdens

Dietary burdens were calculated for beef cattle and dairy cattle based on feed items evaluated by the meeting. There are no feed items associated with broilers and laying poultry. The dietary burdens, estimated using the OECD diets listed in Appendix IX of the 2016 edition of the FAO manual, are presented in Annex 5 and summarized in Table 5.22.7.

Table 5.22.7 Summary of livestock dietary burden (ppm ipflufenoquin equivalents of dry matter diet)

	United States/Canada		European Union		Australia		Japan	
	Max	Mean	Max	Mean	Max	Mean	Max	Mean
Beef cattle	0.412	0.412	1.08	1.08	1.564[a]	1.564	–	–
Dairy cattle	0.612	0.612	0.952	0.952	1.436	1.436	–	–
Poultry – broiler	No feed items applicable							
Poultry – layer	No feed items applicable							

Notes:

[a] Highest maximum beef or dairy cattle dietary burden used for mammalian milk and tissue MRL calculations.

Recommendations

Data to support the residue definition for compliance with MRL and for estimation of dietary intake for animal commodities arrived at a late stage of the meeting and the definitions could not be concluded. Hence as a complete dietary intake estimation could not be performed, no recommendations were made by the meeting. Table 5.22.8 shows the residues used in the dietary burden calculation.

Definition of the residue for compliance with the MRL for plant commodities and for estimation of dietary intake for plant commodities: *ipflufenoquin*.

Table 5.22.8 Residue levels suitable for estimating the livestock animals dietary burden

Codex group	Feed commodity	Median or STMR(-P) (mg/kg)	Highest or HR(-P) (mg/kg)	% DM assumed
AM/AV	Almond, hulls	0.648	–	90
AB	Apple, pomace, wet	2.16	–	40
AB	Citrus, dried pulp	3.75	–	91

Dietary risk assessment

As the meeting did not have sufficient time to reach a conclusion on residue definitions for animal commodities, a complete dietary risk assessment was not conducted. A dietary risk assessment will be conducted when a conclusion is reached on the residue definition.

5.23 Malathion (049) (T, R)**

Toxicology

Malathion is the common name approved by the International Organization for Standardization (ISO) for S-1,2-bis(ethoxycarbonyl)ethyl *O,O*-dimethyl phosphorothioate (International Union of Pure and Applied Chemistry [IUPAC]), for which the Chemical Abstracts Service (CAS) number is 121-75-5.

Malathion is a non-systemic organophosphorus insecticide whose mode of pesticidal action is the inhibition of cholinesterase activity. It is used to control insects on agricultural crops and stored commodities and for vector control.

The toxicity of malathion was evaluated by the Joint FAO/WHO Meeting on Pesticide Residues (JMPR) in 1963, 1965, 1966, 1997 and 2003. As a result of a public health concerns identified by the International Agency for Research on Cancer and the availability of a significant number of new studies, the compound was re-evaluated in 2016 following the recommendation of an electronic task force of the WHO Core Assessment Group on Pesticide Residues.

As a result of this re-evaluation, the meeting reaffirmed the acceptable daily intake (ADI) of 0–0.3 mg/kg bw per day and the acute reference dose (ARfD) of 2 mg/kg bw, and concluded that the metabolite malaoxon is approximately 30-fold more toxic than malathion. On this basis, a 30-fold factor should be applied to the residue levels for use in both the acute and chronic dietary exposure estimates for malaoxon. These should also be added to the dietary exposures for malathion and compared with the ARfD and ADI for malathion, respectively. Both the ADI and ARfD are established for the sum of malathion and malaoxon (corrected for its potency), expressed as parent malathion.

Malathion was placed on the agenda of the present meeting for residue evaluation at the request of the Codex Committee on Pesticide Residues (CCPR) as part of its periodic review programme. It is noted that since the toxicological evaluation in 2016, new toxicokinetic studies and acute, short-term, reproductive/developmental toxicity and genotoxicity studies on malathion, developmental toxicity and genotoxicity studies on malaoxon were submitted by the sponsor. In addition, acute, short-term, developmental toxicity and genotoxicity studies on the metabolites desmethyl malathion monocarboxylic acid (DM-MMCA) and desmethyl malaoxon dicarboxylic acid (Mox-DCA) were submitted by the sponsor.

The studies with the parent compound malathion and with malaoxon were assessed, and it was concluded that they would not affect the current ADI and ARfD, nor the 30-fold relative potency factor for malaoxon. These studies will be further reviewed in detail as part of the next periodic re-evaluation.

A summary report on physiologically-based pharmacokinetic (PBPK) modelling to support the use of chemical-specific adjustment factors for malathion was submitted by the sponsor for assessment by the JMPR. Following the evaluation of that report, the meeting concluded that the arguments presented were insufficiently robust due to data quality concerns. The meeting also noted concerns about applying the PBPK model to malathion, since this model was originally developed and validated for chlorpyrifos, but lacked sufficient chemical-specific validation for application to malathion. The meeting noted that flow-limited PBPK models of the same general structure have been widely, and validly, used for a range of chemicals. However, without adequate chemical-specific validation, the results of such models are often highly uncertain. This uncertainty does not allow a suitable justification for the derivation of chemical-specific adjustment factors at this time.

As the studies on the general and reproductive/developmental toxicity and genotoxicity of the metabolites may support the establishment of new maximum residue limits (MRLs), these studies were evaluated, and a monograph addendum was prepared.

All critical studies contained statements of compliance with good laboratory practice (GLP) and were conducted in accordance with relevant national or international test guidelines.

Toxicological data on metabolites and/or degradates

A number of general toxicity studies, reproductive/developmental toxicity studies and genotoxicity studies were submitted for the metabolites desmethyl malathion monocarboxylic acid (DM-MMCA) and desmethyl malaoxon dicarboxylic acid (Mox-DCA) derived from malathion.

In addition, nine metabolites of malathion were found on plants at levels that could potentially justify their inclusion in the residue definition for dietary risk assessment. These are:

- Desmethyl malathion,
- malathion monocarboxylic acid (MMCA),
- malathion dicarboxylic acid (MDCA),
- 2-S-(3-(2-hydroxypropanoic acid)-succinate ethyl ester (M-18),
- monoethyl maleate,
- diethyl maleate,
- diethyl fumarate,
- tetraethyl dithiodisuccinate, and
- diethyl methylthiosuccinate.

Most of the information on the toxic and genotoxic potential of these metabolites come from computational predictions.

Desmethyl malathion monocarboxylic acid (DM-MMCA)

In an acute toxicity study that included acetylcholinesterase (AChE) measurements in erythrocytes and brain, rats received gavage doses of 0 or 1556 mg/kg bw. The no-observed-adverse-effect level (NOAEL) was 1556 mg/kg bw, the only dose tested. In the 2016 meeting report (JMPR, 2016) a lethal dose (LD_{50} study higher than 2000 mg/kg bw) and a negative Ames test were reported for DM-MMCA.

In a 28-day toxicity study, that included AChE measurements in erythrocytes and brain, rats received gavage doses of 0, 57, 115 and 229 mg/kg bw. The NOAEL was 229 mg/kg bw per day, the highest dose tested.

In a reproductive/developmental toxicity screening test that included AChE measurements in erythrocytes and brain, rats received gavage doses of 0, 26, 128 and 256 mg/kg bw per day. The NOAELs for parental, offspring and reproductive toxicity were 256 mg/kg bw per day, the highest dose tested.

The genotoxicity of DM-MMCA was tested in an Ames test, a chromosomal aberration test in cultured human lymphocytes and a gene mutation test in mouse lymphoma L5178Y cells. All tests were negative.

Desmethyl malaoxon dicarboxylic acid (Mox-DCA)

In an acute toxicity study that included AChE measurements in erythrocytes and brain, rats received gavage doses of Mox-DCA at 0 or 478 mg/kg bw. The NOAEL was 478 mg/kg bw per day, the only dose tested. The 2016 JMPR meeting report evaluated a lethal dose study with LD_{50} higher than 2000 mg/kg bw and a negative Ames test with Mox-DCA.

In a 28-day toxicity study, that included AChE measurements in erythrocytes and brain, rats received gavage doses of 0, 50, 100 or 199 mg/kg bw per day. The NOAEL was 100 mg/kg bw per day, based on changes in clinical chemistry at 199 mg/kg bw per day.

In a reproductive/developmental toxicity screening test that included AChE measurements in erythrocytes and brain, rats received gavage doses of 0, 50, 100 or 199 mg/kg bw per day. The NOAEL for parental toxicity was 100 mg/kg bw per day based on effects on body weight and food consumption in females at 199 mg/kg bw per day. The NOAEL for offspring toxicity was 100 mg/kg bw per day based on an increase in the number of pups found dead or cannibalized, a decrease in the viability index, decreases in the pup body weights and an increase in the number of pups observed with mild or moderate dehydration at 199 mg/kg bw per day. The NOAEL of reproductive toxicity was 199 mg/kg bw per day, the highest dose tested.

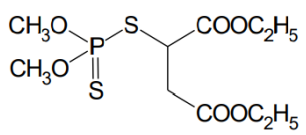
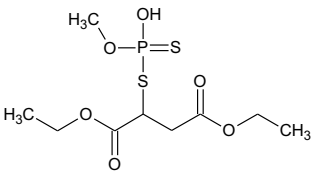
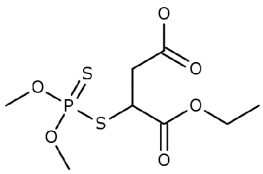
The genotoxicity of Mox-DCA was tested in a chromosomal aberration test in cultured human lymphocytes and a gene mutation test in mouse lymphoma L5178Y cells. Both tests were negative.

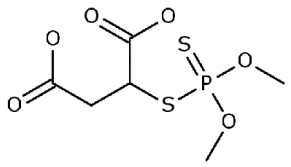
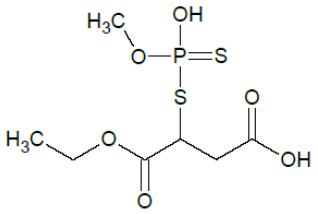
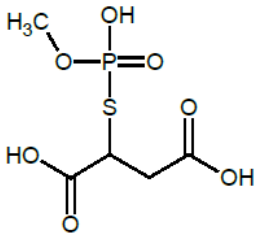
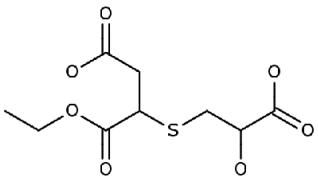
Other metabolites of malathion

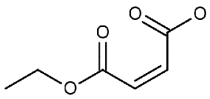
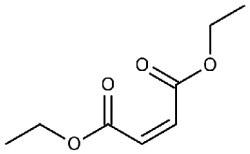
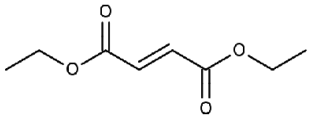
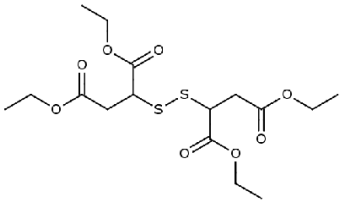
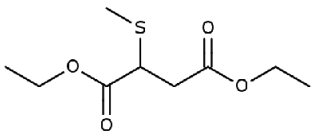
Pending the periodic review of the residue definition of malathion, a number of potentially relevant major metabolites of malathion in crops were identified. Two quantitative structure–activity relationship (QSAR) evaluations were available for these metabolites of malathion.

A toxicological evaluation of the following metabolites was performed. The following table shows an overall summary of the toxicological characterization of the plant/livestock metabolites requested for consideration in the residue definition. This table is compiled using data from the 2016 JMPR and new data; the old data are in italics.

Table 5.23.1 Summary overview of toxicological characterization of plant/livestock metabolites of malathion

Compound, codes and structure	**Major rat metabolite (>10% AD)**	**Genotoxicity assessment (data, QSAR, read-across)**	**General toxicity**	**HBGVs**
Malathion 	*Parent*	*Genotoxicity occurs secondary to the formation of reactive oxygen species, which will exhibit a threshold.*	*Full dataset*	*ADI: 0–0.3 mg/kg bw* *ARfD: 2 mg/kg bw*
Desmethyl malathion (DMM) 	*No*	*Not genotoxic in Ames test*	*Oral LD_{50}: >2000 mg/kg bw* *Acute oral dose of 1500 mg/kg bw* *caused 33% AChE inhibition in erythrocytes*	*At least 2.75-fold less potent than malathion (JMPR 2016)*
Malathion monocarboxylic acid (MMCA) 	*Yes*	*Not genotoxic in Ames test*	*Oral LD_{50}: >2000 mg/kg bw* *Acute oral dose of 1500 mg/kg bw caused 29% AChE inhibition in erythrocytes*	*At least 1.9-fold less potent than malathion (JMPR 2016)*

Malathion dicarboxylic acid (MDCA) 	*Yes*	*Not genotoxic in Ames test*	*Oral LD_{50}: >2000 mg/kg bw* *Acute oral dose of 1500 mg/kg bw caused 12% AChE inhibition in erythrocytes*	*At least 4.6-fold less potent than malathion (JMPR 2016)*
Desmethyl malathion monocarboxylic acid (DM-MMCA) 	No	Not genotoxic (data)	Not more toxic than parent (data)	Parent HBGVs
Desmethyl malaoxon dicarboxylic acid (Mox-DCA) 	No	Not genotoxic (data)	Similar toxicity to parent (data)	Parent HBGVs
2-S-(3-(2-hydroxypropanoic acid)-succinate, ethyl ester (M-18**)** 	No	Not genotoxic (QSAR)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)

Monoethyl maleate 	No	Alert for *in vitro* chromosome damage (QSAR) (see footnote)	No information	TTC for genotoxicity: 0.0025 µg/kg bw per day
Diethyl maleate 	No	Alert for *in vitro* chromosome damage (QSAR) (see footnote)	No information	TTC for genotoxicity: 0.0025 µg/kg bw per day
Diethyl fumarate 	No	Genotoxic (data + QSAR) (see footnote)	No information	TTC for genotoxicity: 0.0025 µg/kg bw per day
Tetraethyl dithiodisuccinate 	No	Not genotoxic (QSAR)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
Diethyl methyl thiosuccinate 	No	Not genotoxic (QSAR)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)

Note: AD: Administered dose; TTC: threshold of toxicological concern; HBGVs: health-based guidance values. The meeting is aware that the genotoxic alerts as identified by the sponsor are likely overly conservative based on public literature.

Toxicological evaluation

In 2016 the meeting reaffirmed the acceptable daily intake (ADI) of 0–0.3 mg/kg bw and the acute reference dose (ARfD) of 2 mg/kg bw, and concluded that the metabolite malaoxon is approximately 30-fold more toxic than malathion. The 2016 meeting concluded that desmethyl malathion, MMCA and MDCA are at least 2.75-, 1.9- and 4.6-fold less potent than malathion. On this basis, factors of 30,

0.36, 0.53 and 0.22-fold should be applied to the residue levels for use in both the acute and chronic dietary exposure estimates for malaoxon, desmethyl malathion, MMCA and MDCA, respectively. These factors should be added to the dietary exposures for malathion and compared with the ARfD and ADI for malathion, respectively.

The present meeting concluded that the ADI and ARfD of malathion apply to metabolites DM-MMCA and Mox-DCA.

The present meeting could not conclude on the relative potency of 2-S-(3-(2-hydroxypropanoic acid)-succinate ethyl ester (M-18), tetraethyl dithiodisuccinate or diethyl methyl thiosuccinate. The meeting concluded that the threshold of toxicological concern (TTC) Cramer class III approach for chronic exposure (1.5 µg/kg bw per day) and for acute exposure (5 µg/kg bw) should be considered in the dietary risk assessment, if necessary.

As a genotoxic potential cannot be excluded for monoethyl maleate, dimethyl maleate, and dimethyl fumarate human exposure via the diet should be limited to the TTC for genotoxicity of 0.0025 µg/kg bw per day.

A toxicological monograph addendum was prepared.

Table 5.23.2 Critical end-points for setting guidance values for exposure to malathion

Studies on toxicologically relevant metabolites	
Desmethyl malathion monocarboxylic acid (DM-MMCA)	LD_{50} >2000 mg/kg bw Acute oral NOAEL 1556 mg/kg bw, highest dose tested (rat) 28-day NOAEL: 229 mg/kg bw per day, highest dose tested (rat) Reproductive/developmental toxicity (rat): NOAEL for parental, offspring and reproductive toxicity: 256 mg/kg bw per day, highest dose tested Not genotoxic (Ames, gene mutation in mouse lymphoma L5178Y cells, micronucleus *in vitro*)

Desmethyl malaoxon dicarboxylic acid (Mox-DCA)	LD_{50} >2000 mg/kg bw Acute oral NOAEL 478 mg/kg bw, highest dose tested (rat) 28-day NOAEL: 100 mg/kg bw per day (rat) Reproduction/developmental toxicity (rat) Parental NOAEL: 100 mg/kg bw per day Offspring NOAEL: 100 mg/kg bw per day Reproductive toxicity: 199 mg/kg bw per day, highest dose tested Not genotoxic (Ames, gene mutation in mouse lymphoma L5178Y cells, micronucleus *in vitro*)

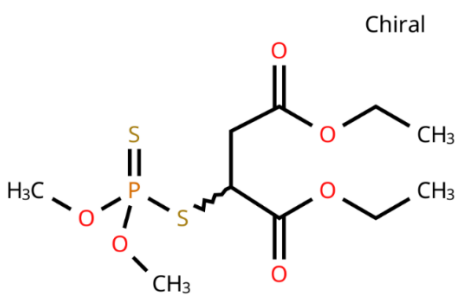
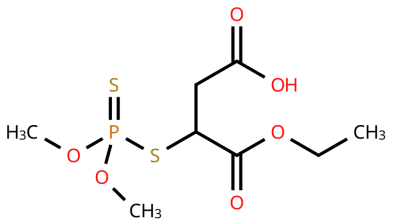
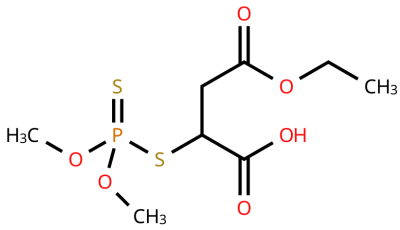
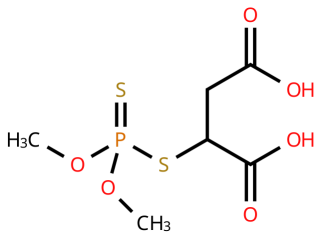
Residue and analytical aspects

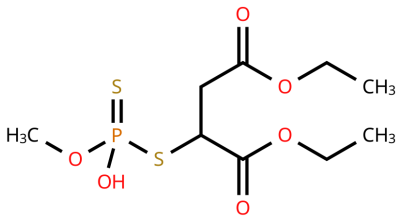
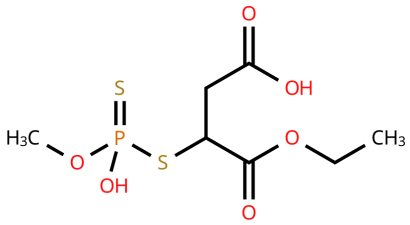
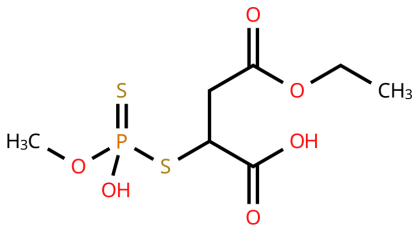
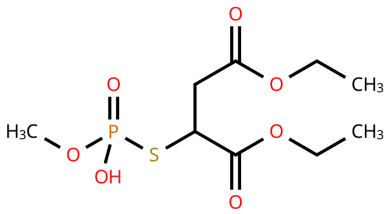
Malathion, a diethyl (IUPAC name: diethyl [(dimethoxyphosphinothioyl)thio]butanedioate), is a non-systemic organophosphorus insecticide with a cholinesterase inhibition mode of pesticidal action. It is used to control insects on agricultural crops and stored commodities, as well as for vector and locust control. Malathion was first evaluated in 1965 (T), and in subsequent years for toxicology and or residues. The compound was evaluated within the Periodic Review Program in 1997 for toxicology and in 2003 for residues and further in 2004 (R), 2005 (R), 2008 (R), 2013 (R), 2016 (T). At the 55th Session of the CCPR (2024), it was scheduled for periodic review evaluation by the 2025 JMPR.

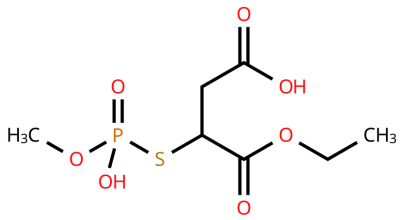
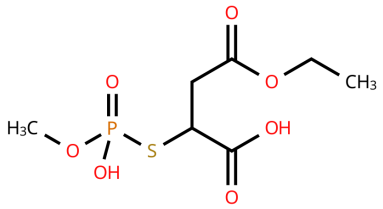
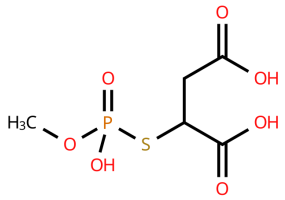
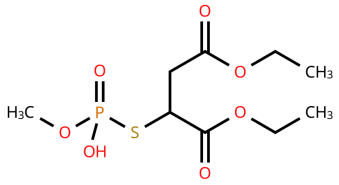
The meeting received information on the metabolism of malathion and its metabolite desmethyl malathion in lactating goats and laying hens, the metabolism of malathion in apple, lettuce, wheat, cotton and alfalfa and follow crops, methods of residue analysis, freezer storage stability, GAP information, supervised residue trials on a range of crops and processing studies.

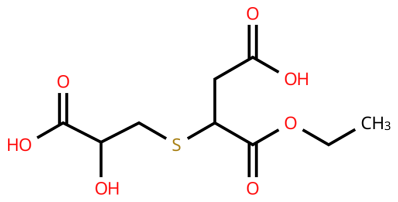
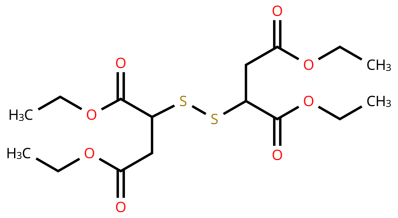
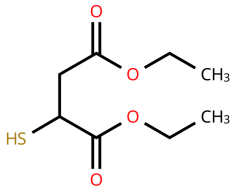
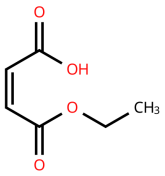
Table 5.23.3 shows the structure of malathion and of the metabolites discussed in this appraisal.

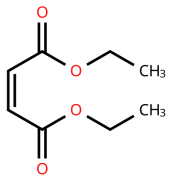
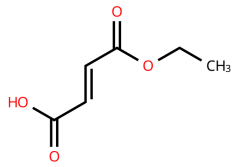
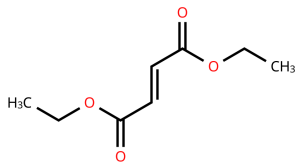
Table 5.23.3 Chemical structures of malathion and its main metabolites of malathion

Name	Chemical structure
Malathion	
Malathion monocarboxylic acid isomers (MMCA)	 
Malathion dicarboxylic acid (MDCA)	

Name	Chemical structure
Desmethyl malathion (DMM)	
Desmethyl malathion monocarboxylic acid (DM-MMCA) isomers	 
Malaoxon	

Name	Chemical structure
Malaoxon monocarboxylic acid isomers	 
Malaoxon dicarboxylic acid	
Desmethyl malaoxon	

Name	Chemical structure
2-S-(3-(2-hydroxypropanoic acid)-succinate, ethyl ester (M18)	
Tetraethyl dithiodisuccinate	
Diethyl mercaptosuccinate	
Monoethyl maleate	

Name	Chemical structure
Diethyl maleate	
Monoethyl fumarate	
Diethyl fumarate	

Based on the information on physical and chemical properties, malathion is not volatile and is moderately lipid soluble with a log Pow of around 2.75. Malathion is hydrolysed at environmental pHs. Aqueous photolysis is unlikely to be a major degradation pathway of malathion in the environment.

Metabolism

Plant

Malathion is typically used for foliar application to crops and post-harvest treatment of stored grain.

The meeting received plant metabolism studies with malathion following foliar application on crops representative of fruits (oranges, apples), leafy vegetables (lettuce), cereals (wheat), oilseeds (cotton) and legume animal feeds (alfalfa). The meeting also received a study on metabolism following post-harvest application to wheat grain. Literature studies metabolism in rice following foliar treatment and on stored wheat, maize and dry beans were also were retrieved and reviewed.

The metabolism of malathion in plants, animals and soils was investigated using [carbonyl-^{14}C]-malathion and [2,3-^{14}C]-malathion. A literature study on rice utilized [UL-^{35}S]-malathion.

Apple – foliar

The metabolic fate of ^{14}C-malathion in apple trees (Gala) maintained outdoors was examined following three foliar applications at 1.8 kg ai/ha at 28 (BBCH 75), 14 (BBCH 77) and 0 days (BBCH 83) prior to first harvest. Fruit was harvested immediately before the last application, and 2 hours, 7, 14 and 21 (DALA).

Residues fruit were 3.64 mg eq/kg respectively at 2 hours after the last application declining to 1.64 mg eq/kg at 21 DALA. The extractability of ^{14}C with acetonitrile:water (including surface wash) was moderate at 52–72 percent of the total radioactive residue (TRR). Additional radioactivity was released following harsh treatments (cellulase, 1 mol/L HCl or cellulase, 0.1 mol/L HCl 37 °C, boiling water, 0.05 mol/L potassium phosphate buffer pH 7); 28 percent TRR at 21 DALA.

Malathion parent compound was a minor component of the ^{14}C in whole fruit and was 2.1 percent TRR (0.05 mg/kg) at 7 DALA and 0.4 to 3.8 percent TRR (0.006–0.07 mg/kg) at 21 DALA. Malaoxon was not detected. Metabolites identified were malathion monocarboxylic acid isomers (0.5–5.0 percent TRR, 0.008–0.11 mg eq/kg), malathion dicarboxylic acid (0.6–6.0 percent TRR, 0.01–0.14 mg eq/kg) and desmethyl malathion (<0.1–0.4 percent TRR, <0.002–0.008 mg eq/kg). In a more recent study, the metabolic fate of ^{14}C-malathion in apple trees (Gala) maintained outdoors was examined following three foliar applications at 1.8 kg ai/ha at 35 (BBCH 75), 21 (BBCH 77) and 7 days (BBCH 83) prior to first harvest. Fruit was collected at 7 DALA (BBCH 87), when fruit were at maturity.

Residues in fruit collected 7-DALA were 0.78 mg eq/kg. The extractability of ^{14}C with acetonitrile:water (including surface wash) was good at 84 percent TRR. An additional 13.7 percent TRR was released following treatment with acid (1 mol/L HCl 3h 100 °C, 6 mol/L HCl 3h 100 °C) and base (1 mol/L ammonium hydroxide 3h 100 °C, 1 mol/L NaOH 3h 100 °C).

Malathion parent compound was a minor component of the ^{14}C in whole fruit harvested at 7 DALA (2.6–5.6 percent TRR, 0.020–0.044 mg/kg) and malaoxon was detected at 0.4–1.3 percent TRR (0.003–0.01 mg eq/kg). Other metabolites identified were malathion monocarboxylic acid isomers (0.6 percent TRR, 0.005 mg eq/kg), malathion dicarboxylic acid (3.6–4.0 percent TRR, 0.028–0.031 mg eq/kg) and 2-S-(3-(2-hydroxypropanoic acid)-succinate, ethyl ester (M18) (9.5–13.6 percent TRR, 0.074–0.106 mg eq/kg). Desmethyl malathion was not detected. Most unidentified metabolites were characterized as being polar anionic compounds.

Lettuce – foliar

In a study on the metabolism of malathion in lettuce (Royal Green) (maintained in greenhouse for 22 days and then outdoors for 39 days) was examined following six foliar applications at 3.5 to 4.0 kg ai/ha, the first when the plants were at the 2–3 leaf stage. Harvest was 14 DALA.

Residues were 437 mg eq/kg at 14 DALA. The extractability of ^{14}C with acetonitrile:water followed by methanol:chloroform:acetone was good for lettuce (89.5 percent TRR), with a further 12.8 percent TRR was released following treatment with 0.05 mol/L potassium phosphate buffer (pH 7).

Malathion was the major component of the radioactivity at 37 percent TRR (161 mg/kg) and malaoxon was detected at 1.2 percent TRR (5.2 mg eq/kg). The major metabolite detected was malathion monocarboxylic acid isomers at 12.8 percent TRR (56 mg eq/kg), with only low levels of malathion dicarboxylic acid (0.9 percent TRR, 3.9 mg eq/kg) and desmethyl malathion (0.3 percent TRR, 1.9 mg eq/kg). All other identified metabolites occurred at ≤5 percent TRR, including monoethyl maleate at 0.3 percent TRR (1.4 mg eq/kg), diethyl maleate at 0.4 percent TRR (1.7 mg eq/kg), diethyl fumerate at 0.1 percent (TRR 0.44 mg eq/kg), tetraethyl dithiosuccinate at 0.2 percent TRR (0.88 mg eq/kg). Natural products were fumerate at 2.4 percent (TRR 10.5 mg eq/kg), succinate at 5.0 percent (TRR 21.8 mg eq/kg), and citrate at 2.6 percent (TRR 11.4 mg eq/kg).

Wheat – foliar

The metabolic fate of ^{14}C-malathion in wheat (Anza) maintained outdoors was examined following three foliar applications of an EW formulation at 1.6–1.7 kg ai/ha. The first application was at late tillering, the second at the boot stage and the third on mature, yellowing crop about 1 week before final harvest. Samples were collected at the forage stage, one week after the second application, with mature plants collected at 8 DALA and separated into straw, chaff and grain.

Residues in forage, straw and grain were 53.7, 134 and 10.4 mg eq/kg respectively. The extractability of ^{14}C sequentially with acidified acetonitrile:water and methanol:chloroform:acetone followed by 0.05 mol/L potassium phosphate buffer (pH 7) was moderate for grain (53 percent TRR), forage (71 percent TRR) and straw (67 percent TRR). Post extraction solids (PES) remaining after solvent extraction were subject to a second buffer wash, enzyme digestion for isolation of starch and protein, treatment with decomplexing reagents and acid hydrolysis for isolation of pectin, lignin, hemicellulose and cellulose. An additional 29 percent TRR (grain), 19 percent TRR (forage) and 19 percent TRR (straw) was released from PES following sequential treatment with amylase, pronase, EDTA, dioxane/HCl, KOH and H_2SO_4.

Malathion parent compound was the major component of the ^{14}C in forage (15 percent TRR, 8.1 mg/kg), straw (11 percent TRR, 14 mg/kg) and grain (27 percent TRR, 2.8 mg/kg). Other significant components (≥10 percent malathion levels) were malathion monocarboxylic acid isomers at 6.0 percent TRR in forage (3.2 mg eq/kg) and 7.3 percent TRR in straw (9.8 mg eq/kg). Malathion dicarboxylic acid was found at 4.9 percent TRR in forage (2.6 mg eq/kg) and 0.1 percent TRR in straw (0.13 mg eq/kg).

Malaoxon was detected at low levels in straw (0.1 percent TRR, 0.1 mg eq/kg) and grain (0.4 percent TRR, 0.4 mg eq/kg) and desmethyl malathion at low levels in forage (0.4 percent TRR, 0.21 mg eq/kg) and straw (0.1 percent TRR, 0.1 mg eq/kg). Other minor identified components were diethyl maleate at 0.6 percent TRR in forage and 0.4 percent in straw, monoethyl maleate at 0.2 percent TRR in straw, diethyl fumerate at 0.2 percent TRR in forage and 0.2 percent TRR in straw, diethylmethylthiosuccinate at 0.1 percent TRR in forage and tetraethyl dithiosuccinate at 0.3 percent TRR in forage and 0.1 percent TRR straw.

Radioactivity was incorporated into natural products as citrate (3.0 percent TRR in forage, 1.6 mg eq/kg), succinate (2.3 percent TRR in forage, 1.2 mg eq/kg, and 3.9 percent TRR in grain, 0.40 mg eq/kg) and fumerate (13 percent TRR in forage, 7.0 mg eq/kg and 3.2 percent TRR in grain, 0.33 mg eq/kg), as well as a range of other natural products including starch, protein, pectin, lignin, hemicellulose and cellulose (12 percent TRR in forage, 12 percent TRR in straw and 24 percent TRR in grain).

Rice – foliar

In a literature report, rice plants (var. Norin No. 1) were treated with an EC formulation of [UL ^{35}S]-malathion at 100 g ai/hL. Prior to treatment the immature heads were covered with plastic and plants were sprayed. Grain was collected at the milky stage. Radioactivity was translocated to grain which contained 14.8 mg eq/kg. Grain was extracted with chloroform:trichloroacetic acid which released 59 percent TRR. Two main metabolites were detected, thiophosphoric acid (about 23 percent TRR) and malathion dicarboxylic acid (about 19 percent TRR).

Cotton – foliar

The uptake and metabolism of ^{14}C-malathion applied to cotton plants (GS-510) maintained outside under plastic cover was studied following ten foliar applications at 1.5 to 1.8 kg ai/ha starting at flowering with the last application 18 hours prior to final harvest. A defoliant was not used prior to final harvest. Mature and immature bolls were collected. Mature bolls were manually separated into seed, lint and gin trash (cotton seedpods).

The TRRs in cotton leaves, cottonseed, immature bolls, lint and gin trash were 2068, 149.8, 55.6, 217 and 428 mg eq/kg, respectively. The extractability of ^{14}C in cotton seed with hexane, acidified acetonitrile:water and potassium phosphate buffer (pH 7) was poor at 52 percent TRR with a further 14 percent TRR released following harsh treatments (phosphate buffer pH 7, amylase, pronase, EDTA, acetic acid/sodium chlorite, KOH/acetic acid, KOH/H_2SO_4). Overall accountability of radioactivity was low due to losses associated with cottonseed oil sticking to laboratory ware surfaces.

Malathion parent compound was the major component of the ^{14}C in cottonseed (32 percent TRR, 49 mg/kg). Main metabolites were malathion monocarboxylic acid isomers (2.6 percent TRR, 3.9 mg eq/kg). Radioactivity was incorporated into natural products as citrate (3.5 percent TRR), succinate (2.9 percent TRR), fumerate (1.3 percent TRR) as well as in PES (starch 1.0 percent TRR, protein 4.1 percent TRR, pectin 1.7 percent TRR, lignin 3.1 percent TRR, hemicellulose 1.0 percent TRR and cellulose 1.1 percent TRR) and oil fraction (linolenic acid 0.1 percent TRR, linoleic acid 6.4 percent TRR, oleic/palmitic acid 6.5 percent TRR, stearic acid 0.4 percent TRR).

Alfalfa – foliar

The metabolism of malathion was investigated in alfalfa maintained outdoors following two foliar applications of an EC formulation of ^{14}C-malathion at 2.0–2.1 kg ai/ha made when the plants were 15–30 cm and 46–61 cm respectively. Plants (bud stage) were harvested 18 hours after the last application.

The TRR in alfalfa forage and hay was 140 and 215 mg eq/kg respectively. The extractability of ^{14}C sequentially with acidified acetonitrile:water and methanol:chloroform;acetone followed by buffer was good for forage (82 percent TRR) and hay (65 percent TRR). An additional 3.8 percent TRR from forage and 16.5 percent from hay was released from PES following harsh treatments (buffer, amylase, pronase, EDTA, acetic acid/sodium chlorite, KOH/acetic acid, KOH/H_2SO_4).

Malathion parent compound was the major component of the ^{14}C in forage (42 percent TRR, 59 mg/kg) and hay (16 percent TRR, 35 mg/kg). Main metabolites were malathion monocarboxylic acid isomers (9.8 percent TRR forage 14 mg eq/kg, 2.7 percent TRR hay 5.8 mg eq/kg). Malaoxon was detected in hay at 0.8 percent TRR (1.8 mg eq/kg) and desmethyl malathion detected in forage at 0.5 percent TRR (0.67 mg eq/kg) and hay at 0.2 percent TRR (0.52 mg eq/kg).

Other identified components present at low levels were diethyl maleate (0.2–0.5 percent TRR), monoethyl maleate (0–0.2 percent TRR), diethyl fumerate (0.1 percent TRR), diethylmethylthiosuccinate (0.1 percent TRR) and tetraethyl dithiosuccinate (<0.1–0.6 percent TRR).

Natural products contained radioactivity as citrate (2.4 percent TRR), succinate (1.8 percent TRR) and fumerate (1.5 percent TRR) in forage and in PES of both forage and hay (starch 0.5–4.0 percent TRR, protein 0.6 percent TRR, pectin 0.4–0.8 percent TRR, lignin 0.4–1.2 percent TRR, hemicellulose 0.1–0.5 percent TRR and cellulose 0.1–0.3 percent TRR).

Wheat – post-harvest

The metabolism of malathion on wheat (spring wheat variety Mulika) during simulated post-harvest storage was studied. Malathion (^{14}C) was applied as a single application of an EC-formulation at an application rate of 5.23 g malathion per tonne (5.23 mg/kg). Two different storage systems were used, both maintained at 20 °C: treated grain was stored in an open vessel in the dark for 6 months or stored in a closed vessel in the dark under compressed air flow through conditions that included traps to collect radiolabelled volatiles. Samples of grain were collected after 0, 1-, 2-, 3- and 6-months storage.

Residues in wheat stored in the open system were 5.02 mg eq/kg at day 0 declining to 4.65 mg eq/kg after 6 months storage at 20 °C. Residues in wheat stored in the closed system were 5.1 mg eq/kg at day 0 declining to 4.73 mg eq/kg after 6 months storage at 20 °C.

The extractability of ^{14}C sequentially using surface wash with acetonitrile followed by extraction of homogenized grain with acetonitrile and acetonitrile:water was good for the day 0 samples at >98 percent TRR, declining to >88 percent TRR for grain after 6 months storage. Treatment of PES with amylase and NaOH (ambient temperature) released an additional 5.1–5.5 percent TRR for the grain stored for 6 months.

Malathion comprised 100 percent TRR in wheat at day 0 for both open and closed storage systems, declining to 55.5 percent TRR for open and 49.0 percent TRR for closed system after 6 months storage at 20 °C. Other major components (≥10 percent malathion) were desmethyl malathion (12.5 percent TRR open, 14.5 percent TRR closed), malathion monocarboxylic acid isomers (6.6 percent TRR open, 7.3 percent TRR closed) with desmethyl malathion monocarboxylic acid isomers the only other components identified (3.3 percent TRR open, 4.0 percent TRR closed).

In a separate literature study, the fate of malathion in wheat (Sakha 69) treated at 30 or 60 mg/kg and stored for up to 32 weeks was studied. Malathion was generally the major constituent (60–65 percent TRR). Malaoxon was detected during the first 4 weeks of storage at 3–5 percent TRR. Other identified metabolites were malathion monocarboxylic acid and α-(O,O-dimethyl phosphorodithio)propionic acid ethyl ester.

The fate of [2,3-^{14}C]-malathion and [methyl-^{14}C]-malathion following post-harvest application to broad beans (dry) was also reported in the literature. Malathion as was applied post-harvest to whole seeds of broad beans (*Vicia faba* [var. Giza I]) at concentrations of 14.5 and 26 mg/kg and samples analysed at different intervals up to 32 weeks storage.

After 32 weeks storage, malathion represented >50 percent TRR, malathion monocarboxylic acid isomers 5–7 percent TRR, malathion dicarboxylic acid 5 percent TRR, dimethyl phosphate 15 percent TRR, dimethyl phosphorothioate 5 percent TRR and dimethyl phosphorodithioate 5 percent TRR. Malaoxon was not detected.

Summary on plant metabolism studies

In apples, alfalfa, cotton, lettuce and wheat the main metabolic pathway proceeded via de-esterification of malathion to form malathion monocarboxylic and dicarboxylic acids as well as incorporation into natural products. Malaoxon was detected at low levels compared to parent malathion, the ratio to malathion ranged from not detected in stored wheat grain to 23 percent in apples.

Rotational crop metabolism

A confined rotational crop study was made available to the meeting. An outdoor plot of sandy loam soil which had been treated with [2,3-^{14}C]-malathion at 8.85 kg ai/ha (ca. 2× seasonal rate) was planted with rotational crops of lettuce (Royal green), turnip (Seven top) and winter wheat (Anza) sown 30, 120 and 365 days after application to the soil (DAA). Radioactive residues were lower in crops planted at 365 DAA compared to those planted at 30 or 120 DAA.

The only organic solvent extracts with sufficient ^{14}C activity to attempt identification of residues were immature turnip, lettuce and wheat from the 30 DAA experiment. Malathion parent compound was detected at 11 to 20 percent TRR (0.03 mg/kg immature turnip, 0.02 mg/kg immature lettuce, 0.02 mg/kg immature wheat foliage). Malaoxon was not detected.

The combined polar extracts (aqueous and buffer) from immature turnip (30 DAA) contained several naturally occurring tricarboxylic acids (citrate, fumarate and succinate) and sugars. Approximately 12 percent TRR (0.03 mg eq/kg) in immature turnip at 30 DAA was identified as malathion monocarboxylic acid isomers. Additional harsh treatment (0.05 mol/L potassium phosphate buffer pH 7, amylase, pronase, EDTA, acetic acid/sodium chlorite, KOH/acetic acid, H_2SO_4/KOH) of PES released further radioactivity that was assigned to natural products, predominantly protein and cellulose.

No field rotation crops studies were available. Residues of malathion in rotational crops are unlikely to be detected above typical LOQ (0.01 mg/kg) when primary crops are treated according to GAP.

Animal metabolism

The meeting received animal metabolism studies on rats, lactating goats and laying hens dosed with malathion or desmethyl malathion. Metabolism in rats was evaluated by the WHO Core Assessment Group of the 2016 and 2025 JMPR.

Lactating goats – malathion

Lactating goats were orally dosed by gavage once daily following morning milking for five consecutive days with ^{14}C-malathion at doses equivalent to 79 or 84 ppm in the diet and sacrificed within 24 hours of the last dose. Sample collection to extraction was about 325 days and freezer storage stability studies were not available for animal commodities.

By 24 hours after the last dose, the majority of the ^{14}C was recovered in urine (54.8 percent) and faeces (10.9 percent). Radioactivity in milk reached a plateau by 3 days of dosing and accounted for 0.5–2.1 percent administered dose (AD) while tissues accounted for 0.7–1.1 percent AD. The material balance was 64.7–71.5 percent AD and the poor accountability may in part be explained by radioactivity in the gastrointestinal tract not being reported.

TRR were 2.23–2.28 mg eq/kg in liver, 1.71–2.21 mg eq/kg in kidney, 0.40–1.59 mg eq/kg in fat and 0.19–0.36 mg eq/kg in muscle. Extractability of milk and fat with diethyl ether:1 percent trifluoroacetic acid (2×) and methanol:1 percent trifluoroacetic acid was good at >70 percent TRR but only 38–54 percent TRR for muscular tissues (including heart), 40 percent TRR for kidney and 25 percent TRR for liver.

Parent malathion was not detected in any tissue or milk samples. The only metabolite detected was malathion dicarboxylic acid as a small component in kidney (11.5 percent TRR). The majority of the radioactive residues were associated with natural products (protein, triglyceride, oleic acid, stearic acid, pyruvic acid. lactic acid, fumaric acid).

Laying hens-malathion

Hens were dosed orally via capsules, once a day for 4 consecutive days with ^{14}C-malathion at doses equivalent to 33 ppm in the diet and sacrificed 24 hours after the final dose. Sample collection to extraction was about 270 days and freezer storage stability studies were not available for animal commodities.

By 24 hours after the last dose, the majority of the ^{14}C was recovered in excreta (28.7 percent AD). Eggs accounted for 0.45 percent AD while tissues for 1.0 percent AD. The material balance was poor (30.2 percent AD). Radioactivity in egg whites reached a plateau after 1 day while residues in yolks continued to rise during the course of the experiment.

Extractability of ^{14}C using organic solvents (diethyl ether:1 percent trifluoroacetic acid, methanol:1 percent trifluoroacetic acid) was generally low at 27–72 percent TRR for egg whites, 33–84 percent TRR for egg yolk, 32 percent TRR for heart, 28 percent TRR for kidney, 51 percent TRR for liver, 45 percent TRR for muscle, 69 percent TRR for skin+fat and 105.6 percent TRR for other fats. Additional radioactivity was released from PES on treatment with 0.2 mol/L NH_4OH or 3 mol/L NaOH (90 °C, 1 hour).

Parent malathion was not detected in tissue and egg samples. Malathion monocarboxylic acid was detected at 7.4–9.1 percent TRR in egg white and was the only metabolite detected at levels above 0.01 mg eq/kg in any tissues or egg samples. The majority of the radioactive residues were associated with natural products (protein, triglyceride, oleic acid, stearic acid, pyruvic acid, lactic acid, fumaric acid).

In summary, the metabolism of [^{14}C]-malathion was similar in lactating goats and laying hens. Malathion was rapidly metabolized and extensively reincorporated into natural products, including fatty acids, tricarboxylic acid cycle intermediates and protein.

Lactating goats – desmethyl malathion

Lactating goats were orally dosed by intubation once daily for seven consecutive days with ^{14}C-desmethyl malathion at doses equivalent to 7.8 ppm in the diet and sacrificed within 22 hours of the last dose. By 22 hours after the last dose, the majority of the ^{14}C was recovered in excreta (faeces 62.5 percent AD, urine 15.5 percent AD). Residues in milk reached a plateau by day 3. Milk accounted for 0.15 percent AD while tissues accounted for 0.6 percent AD. The material balance was 83.2 percent AD.

TRR was 0.466 mg eq/kg in kidney, 0.113 mg eq/kg in liver, 0.022–0.030 mg eq/kg in fat and 0.019 mg eq/kg in muscle. Extractability of milk fat and fat tissue (hexane:acetone) was good at >62 percent TRR. Extractability of liver, kidney, muscle (acetonitrile:water) and skim milk fat (acetone, acetone:water) was >57 percent TRR. Additional radioactivity was released on treatment of PES with pronase (8.8 to 39 percent TRR) suggesting incorporation into natural products.

Desmethyl malathion was not detected in any tissue or milk samples. The majority of the radioactive residues were associated with natural products (fatty acids, protein).

Laying hens – desmethyl malathion

Hens were dosed orally *via* capsules, once a day for 7 consecutive days with ^{14}C-desmethyl malathion at doses equivalent to 11.9 ppm in the diet and sacrificed 23 hours after the final dose. By 23 hours after the last dose, the majority of the ^{14}C was recovered in excreta (78.4 percent AD). Eggs accounted for 0.2 percent AD while tissues for 0.1 percent AD. The material balance was 78.7 percent AD. Residues in eggs reached a plateau by day 7.

Solvent extractability of fat (hexane:acetone) was good at >78 percent TRR, but was poor for liver (acetonitrile:water, acetone:0.1 mol/L HCl, hexane:acetone 35 percent TRR), muscle (acetonitrile:water 29 percent TRR) and eggs (acetonitrile:water, hexane:acetone 58 percent TRR).

Desmethyl malathion was not detected in any tissues or eggs. Fumaric acid was detected at low levels in liver and eggs. Most of the radioactivity was associated with natural products such as lipids and proteins.

In summary, the metabolism of [^{14}C]-desmethyl malathion was similar in lactating goats and laying hens. Desmethyl malathion was rapidly metabolized and the radioactivity extensively incorporated into natural products.

Environmental fate

The meeting received aqueous and soil photolysis, aqueous hydrolysis and aerobic soil studies for malathion and or malaoxon.

In laboratory malathion aerobic soil studies, the major degradates were malathion monocarboxylic acid (up to 25 percent applied radioactivity (AR) after 0.16–0.32 days) and malathion dicarboxylic acid (peaking at 62 percent AR after 0.25–7 days), with mineralization to CO_2 reaching up to 50 percent AR by 92 days incubation at 22 °C. The model gave geometric mean DT_{50} values in different soils at 20 °C (pF 2) of 0.2 days (n = 7, 0.06–1.51 days) for malathion, 0.1 days (n = 7, 0.04–1.15 days) for malathion monocarboxylic acid isomers and 2.0 days (n = 6, 0.77–14.1 days) for malathion dicarboxylic acid, indicating no persistency in soil.

In laboratory malaoxon aerobic soil studies, the major degradates were tentatively identified as methylated malaoxon monocarboxlyic acid isomers and oxidized malaoxon dicarboxylic acid. The malaoxon DT_{50} values ranged from 0.2 to 0.6 days, also indicating no persistency.

In a study on aqueous hydrolysis, malathion was non-persistent and was hydrolysed at environmental pHs with a DT_{50} at pH 7 and 25 °C in the dark of 6.2 days. The major degradation products were malathion monocarboxylic acid isomers, malathion dicarboxylic acid and monoethyl fumerate.

In a study on aqueous hydrolysis, malaoxon was non-persistent and was hydrolysed at environmental pHs with a DT_{50} at pH 7 and 25 °C in the dark of 8.8 days. The major degradation products were diethyl mercaptosuccinate, desmethyl malaoxon, malaoxon monocarboxylic acid isomers and malaoxon disulphide dimers.

Aqueous photolysis is slow and unlikely to be a significant route of degradation of malathion, with a laboratory DT_{50} value in sterile distilled water of 217 days when adjusted to photolysis at 30–30° north. Degradation is more rapid when sensitisers are present.

Malathion does not undergo significant photolytic degradation on moist soil when exposed to artificial sunlight. Photochemical degradation on soil is unlikely to contribute significantly to the degradation of malathion in the environment.

The potential for isomeric enrichment to occur on metabolism or environmental degradation was investigated. The isomeric ratio remained about 1:1 for the two enantiomers in post-harvest wheat grain stored for up to 6 months. Investigations of the isomeric ratio of malathion in water and in soil/water systems indicated rapid interconversion between isomers. In conclusion, enrichment of malathion enantiomers is unlikely due to rapid interconversion.

In summary, malathion is not persistent in soil and uptake from soil is unlikely to give rise to residues in rotated crops. Aqueous hydrolysis at environmental pH is likely to be a significant route of degradation. Malathion is stable to photolysis.

Methods of residue analysis

The meeting received information on analytical methods for malathion in plant and animal matrices.

Malathion and malaoxon were extracted from homogenized plant matrices using a mixture of acetonitrile and water. After clean-up the residues are quantified using GC-FPD (phosphorus mode) or LC-MS/MS. The LOQs are typically 0.01 mg/kg, for each compound. The meeting concluded that the presented methods were sufficiently validated and are suitable to measure malathion and malaoxon in plant commodities.

Additionally, a method was available for determination of malathion, malaoxon, desmethyl malathion in rape seed and wheat grain and aspirated grain fractions. Residues rape seed, plants and pods were extracted using methanol water (1:1), while wheat was extracted using acetonitrile, the extracts filtered and residues determined using LC-MS/MS with an LOQ of 0.01 mg/kg for each analyte.

A method was also available for determination of malathion, malaoxon, desmethyl malathion, malathion monocarboxylic acid isomers, malathion dicarboxylic acid, malaoxon dicarboxylic acid and desmethyl malathion monocarboxylic acid isomers in orange commodities. Samples were extracted using methanol:water:acetic acid (8:1:1) and residues determined using LC-MS/MS with an LOQ of 0.01 mg/kg for each analyte.

For animal commodities, residues of malathion, malathion monocarboxylic acid isomers and malaoxon in liver and eggs are extracted with acetonitrile and for residues of malathion, malaoxon and malathion monocarboxylic acid isomers in kidney, milk, fat and muscle and malathion dicarboxylic acid and desmethyl malathion in kidney, milk, fat, muscle, liver and eggs with methanol/water (1:1). Residues are quantified using LC-MS/MS. The LOQ is 0.01 mg/kg for all analytes.

The methods are suitable for analysis of malathion and metabolites in plant and animal matrices.

Stability of residues in stored analytical samples

The meeting received information on storage stability of malathion, malaoxon and other metabolites in raw/processed plant commodities on freezer storage.

Malathion is stable for at least 12 months in tomato fruit, catsup and juice, lettuce leaf, high oil commodities and wheat forage, for up to 3 months in cabbage and potato tubers, up to one month in carrot roots and in high acid commodities, for at least 30 months in orange fruit, up to 1 month in grapes, at least 1 month in blackberry, at least 1.5 months in raspberry, and at least 2.4 months in strawberry.

Malaoxon is stable in a range of high-water and high oil commodities for at least 12 months, in high acid commodities for at least 30 months and in dry commodities for at least 18 months.

Desmethyl malathion is not stable in apple fruit but stable for up to 243 days in apple juice, up to 38 days in plums, at least 402 days in plum puree and apple pomace (dry), at least 448 days in plums dry, at least 403 days in orange juice, at least 485 days in orange pulp and up to 212 days in orange peel.

Malathion monocarboxylic acid isomers are stable in high-water commodities for at least 13.4 months (402 days), in dry commodities for at least 14.9 months (448 days) and in high acid commodities for at least 13.4 months (403 days).

Malathion dicarboxylic acid is stable in high-water commodities for 8.0 months (239 days), in dry commodities for at least 14.9 months (448 days) and in high acid commodities for at least 3.4 months (403 days).

Samples in supervised residue and processing trials were stored for a maximum: citrus fruit 9 months, cherries 8.1 months, cane fruit 2.5 months, blueberries 4 months, grapes 7.8 months (processing 15 months), strawberries 11 months, wheat grain 11 months, maize grain 15 months, sorghum grain 7.5 months, walnuts 4 months and cotton seed 26 months prior to analysis.

The maximum storage intervals on supervised trial samples of cherries, grapes, strawberries, maize, sorghum and cotton seed for some samples exceed the demonstrated freezer storage stability for malathion residues.

Freezer storage stability studies were not available for animal commodities (lactating goat metabolism sample collection to extraction was about 325 days, laying hen metabolism sacrifice to analysis was about 270 days). The meeting was unable to conclude on the freezer storage stability of malathion residues in animal commodities.

Definition of the residue

Plant commodities

The metabolism of malathion was similar following foliar application in the submitted crops (apple, lettuce, wheat, maize, cotton, alfalfa). Unchanged malathion was a major ^{14}C residue (apple 7 days: 9.5 percent TRR, 0.044 mg/kg, lettuce: 37 percent TRR, 161 mg/kg, wheat forage: 12 percent TRR, 8.1 mg/kg, wheat straw: 11 percent TRR, 14 mg/kg, wheat grain: 27 percent TRR, 2.8 mg/kg, cotton seed: 32 percent TRR, 49 mg/kg, alfalfa forage: 42 percent TRR, 59 mg/kg, alfalfa hay: 16 percent TRR, 35 mg/kg).Following post-harvest application to stored wheat grain, malathion was the major residue

identified at 1 DALA and 6 months after last application (100 percent TRR, 5.1–5.2 mg/kg at 0-day, 49–55 percent TRR, 2.3–2.6 mg/kg at 6 months).

In supervised field trials on citrus, cherries, blackberries, raspberries, blueberries, wheat, maize, sorghum, walnuts and cotton, malathion was the major residue detected, with malaoxon occurring at levels much lower or not detected.

Malathion is the most significant residues among the commodities investigated and validated analytical methods are available for its determination.

The meeting concluded the residue definition for compliance with MRLs in plants should be malathion.

In deciding which compounds should be included in the residue definition for dietary intake, the meeting considered the likely occurrence of the compounds present at 10 percent of the parent compound (malathion) and the toxicological properties of the candidates. Compounds considered were malaoxon, desmethyl malathion, malathion monocarboxylic acid isomers, malathion dicarboxylic acid and desmethyl malathion monocarboxylic acid isomers as well as monoethyl maleate, diethyl maleate, diethyl fumerate, tetraethyl dithiosuccinate, M18, diethyl methylthiosuccinate and diethylmercaptosuccinate.

The meeting considered that malathion, malaoxon, desmethyl malathion, malathion monocarboxylic acid isomers, malathion dicarboxylic acid, desmethyl malathion monocarboxylic acid isomers, desmethyl malaoxon dicarboxylic acid are covered by the HBGVs for malathion and should be considered as a group with potency factors of:

- 30 for malaoxon,
- 0.36 for desmethyl malathion,
- 0.53 for malathion monocarboxylic acid isomers
- 0.22 for malathion dicarboxylic acid and
- 1 for desmethyl malathion monocarboxylic acid isomers and desmethyl malaoxon dicarboxylic acid.

The compounds were detected the plant metabolism studies:

Malaoxon (apple 7 days: 1.3 percent TRR, 0.010 mg eq/kg, lettuce: 1.2 percent TRR, 5.2 mg eq/kg, wheat straw: 0.1 percent TRR, 0.20 mg eq/kg, wheat grain: 0.4 percent TRR, 0.04 mg eq/kg, cotton seed: 0.2 percent TRR 0.30, mg eq/kg, alfalfa hay: 0.8 percent TRR, 1.8 mg eq/kg).

Mesmethyl malathion (lettuce: 0.3 percent TRR, 1.3 mg eq/kg, wheat forage: 0.4 percent TRR 0.21, mg eq/kg, wheat straw: 0.1 percent TRR, 0.11 mg eq/kg, wheat grain Po 6 months: 14 percent TRR, 0.69 mg eq/kg, cotton seed: 0.1 percent TRR, 0.15 mg eq/kg, alfalfa forage: 0.5 percent TRR, 0.67 mg eq/kg, alfalfa hay: 0.2 percent TRR, 0.52 mg eq/kg).

Malathion monocarboxylic acid isomers (apple 7 days: 0.6 percent TRR, 0.005 mg eq/kg, lettuce: 13 percent TRR 56, mg eq/kg, wheat grain Po 6 months: 7.3 percent TRR, 0.35 mg eq/kg, cotton seed: 2.6 percent TRR, 3.9 mg eq/kg, alfalfa forage: 9.8 percent TRR, 14 mg eq/kg, alfalfa hay: 2.7 percent TRR, 5.8 mg eq/kg).

Malathion dicarboxylic acid (apple 7 days: 3.6 percent TRR, 0.028 mg eq/kg, lettuce: 0.9 percent TRR, 3.9 mg eq/kg, alfalfa hay: 1.5 percent TRR, 3.4 mg eq/kg).

Desmethyl malathion monocarboxylic acid isomers (wheat grain Po 6 months: 4.0 percent TRR, 0.19 mg eq/kg).

After adjusting for potency, the sum of malathion and malaoxon represented ≥78 percent of the total residues for the group of compounds covered by the malathion HBGVs detected in metabolism studies following both foliar and post-harvest application. The meeting agreed that the residue definition for dietary risk assessment for plant commodities should be the sum of malathion and 30×malaoxon.

The other compounds identified as of potential concern (monoethyl maleate, diethyl maleate, diethyl fumerate, tetraethyl dithiosuccinate, M18, diethyl methylthiosuccinate and diethylmercaptosuccinate) were present at low levels in the metabolism studies and were not measured in supervised residue trials.

Tetraethyl dithiosuccinate (lettuce: 0.2 percent TRR, 0.88 mg eq/kg, wheat forage: 0.3 percent TRR, 0.16 mg eq/kg, wheat straw: 0.1 percent TRR, 0.13 mg eq/kg, cotton seed: 0.3 percent TRR, 0.45 mg eq/kg, alfalfa hay: 0.6 percent TRR, 1.3 mg eq/kg).

M18 (apple 7: days 9.5 percent TRR, 0.074 mg eq/kg).

Diethylmethylthiosuccinate (wheat forage: 0.1 percent TRR, 0.05 mg eq/kg, alfalfa forage: 0.1 percent TRR, 0.17 mg eq/kg).

Monoethyl maleate (lettuce: 0.3 percent TRR, 1.4 mg eq/kg, wheat grain: 0.2 percent TRR, 0.02 mg eq/kg, cotton seed: 0.2 percent TRR, 0.30 mg eq/kg, alfalfa hay: 0.3 percent TRR, 0.69 mg eq/kg).

Diethyl maleate (lettuce: 0.4 percent TRR, 1.7 mg eq/kg, wheat forage: 0.6 percent TRR, 0.32 mg eq/kg, wheat straw: 0.4 percent TRR, 0.50 mg eq/kg, cotton seed: 0.2 percent TRR, 0.30 mg eq/kg, alfalfa forage: 0.5 percent TRR, 0.74 mg eq/kg, alfalfa hay: 0.2 percent TRR, 0.47 mg eq/kg).

Diethyl fumerate (lettuce: 0.1 percent TRR 0.44 mg eq/kg, wheat forage: 0.2 percent TRR 0.11 mg eq/kg, wheat straw: 0.1 percent TRR 0.22 mg eq/kg, cotton seed: 0.3 percent TRR 0.45 mg eq/kg, alfalfa forage: 0.1 percent TRR 0.21 mg eq/kg, alfalfa hay: 0.1 percent TRR 0.38 mg eq/kg).

Diethylmercaptosuccinate (alfalfa forage: 0.2 percent TRR, 0.23 mg eq/kg, alfalfa hay: 0.1 percent TRR, 0.16 mg eq/kg).

Insufficient toxicological data was available for tetraethyl dithiosuccinate, diethyl methylthiosuccinate, and 2-S-(3-(2-hydroxypropanoic acid)-succinate ethyl ester (M18) and the meeting considered they could be assessed using the threshold of toxicological concern (TTC) approach (Cramer class III 1.5 µg/kg bw/day for chronic and 5 µg/kg bw for acute). Therefore, tetraethyl dithiosuccinate, diethyl methylthiosuccinate and 2-S-(3-(2-hydroxypropanoic acid)-succinate ethyl ester (M18) are not included in the residue definition for dietary intake.

Also, as a genotoxic potential cannot be excluded for monoethyl maleate, diethyl maleate, and diethyl fumarate, human exposure via the diet should be limited to the TTC for genotoxicity of 0.0025 µg/kg bw per day for these compounds. Therefore, monoethyl maleate, diethyl maleate and diethylfumarate are not included in the residue definition for dietary intake.

Monoethyl fumerate and mercaptosuccinic acid were found in processed commodities (malathion processing, sterilization, pH 6 at 120 °C, 67 percent AD and malathion dicarboxylic acid processing, up to 73 percent TRR, sterilization conditions pH 6 at 120 °C, respectively).

The meeting could not conclude on the residue definition for dietary risk assessment since toxicological evaluations for monoethyl fumarate and mercaptosuccinate were not finalized by the meeting.

Animal commodities

The metabolism of malathion in lactating goats (93–99 ppm) and laying hens (33 ppm) was qualitatively similar, with the predominant residues being natural products.

Malathion was not detected in tissues or milk of a lactating goat or tissues or eggs of laying hens.

Malathion dicarboxylic acid was detected in muscle of lactating goat at 11 percent TRR (0.03 mg eq/kg) and kidney at 3.5 percent TRR (0.07 mg eq/kg). Malathion monocarboxylic acid isomers were found in lactating goat kidney at 0.6 percent TRR (0.01 mg eq/kg), milk at 0.4 percent TRR (0.009 mg eq/kg) and in laying hen egg white at 9.1 percent TRR (0.02 mg eq/kg).

The interval between last feeding and slaughter in the laying hen study was 24 hours, longer than commercial practice which is about 8 hours. Malathion is rapidly metabolized and eliminated from laying hens with a literature feeding study with slaughter at 8 hours after feeding detecting malathion in tissues of broiler chickens (dose levels 4 to 32 ppm) and literature animal product monitoring studies also occasionally detecting malathion.

Methods are available for the determination of malathion, malaoxon, malathion monocarboxylic acid isomers and malathion dicarboxylic acid and desmethyl malathion in tissues, milk and eggs.

The meeting agreed the residue for compliance monitoring for tissues, milk and eggs should be the sum of malathion, malathion monocarboxylic acid isomers and malathion dicarboxylic acid.

In deciding which compounds should be included in the residue definition for dietary intake, the meeting considered the likely occurrence of the compounds and the toxicological properties of the candidates: malathion, malathion monocarboxylic acid isomers and malathion dicarboxylic acid.

Malathion is detected in poultry tissues but not in goat matrices from the metabolism study. It should be noted the dose levels in the goat metabolism study are about 50 percent of the estimated livestock dietary burden from the uses considered by the current meeting. No malaoxon was detected in the goat or hen metabolism study, with malathion mono- and dicarboxylic acids the only metabolites detected in tissues, eggs and milk.

The meeting recommended the following residue definitions for malathion.

Definition of the residue for compliance with the MRL for plant commodities: *malathion.*

Definition of the residue for estimation of dietary intake for plant commodities: not concluded.

Definition of the residue for compliance with the MRL for animal commodities: sum of *malathion*, *malathion monocarboxylic acid isomers and malathion dicarboxylic acid.*

The meeting could not conclude on the residue definition for dietary risk assessment since toxicological evaluations for monoethyl fumarate and mercaptosuccinate were not finalized at the meeting.

In deciding whether the residue for compliance monitoring is regarded as fat soluble, the meeting noted residues of malathion and the mono-and di-carboxylic acids were not detected in fat tissues or egg yolk in the lactating goat and laying hen metabolism studies. In a literature broiler chicken transfer study, residues of parent malathion were 2.9 to 5.2 times higher in skin versus thigh muscle and 1.3 to 7.5 times higher compared to breast muscle.

The meeting considers residue for compliance for animal commodities should not be classified as fat soluble.

Results of supervised residue trials on crops

Supervised trials were available for the use of malathion on citrus (orange, mandarin), cherries, cane berries (blackberry, raspberry), bush berries (blueberry), grapes, strawberries, cereal grain (foliar wheat, maize, sorghum; post-harvest wheat, maize), walnuts and cotton crops.

In evaluating the crop residue data, a range of values are required to be derived. Estimates are made for residues of:

- Malathion for estimation of maximum residue levels for plant commodities
- Sum of malathion, malathion monocarboxylic acid isomers and malathion dicarboxylic acid for estimation of livestock dietary burden for estimation of animal commodity maximum residue levels.

No residue trials were available for uses on apple, asparagus, bean (dry), beans with pods (Phaseolus spp.) (immature pods and succulent seeds), cucumber, mustard greens, onion bulb, peppers (subgroup), peppers chili (dried), spices (fruits and berries), spices (roots and rhizomes), spices (seeds), spinach, spring onion, sweet corn (corn-on-the-cob), tomato, tomato juice, turnip greens and turnip (garden). The meeting agreed to withdraw the previous recommendations for these commodities.

Citrus

The critical GAP for malathion on citrus in the United States is one foliar application at 8.4 kg ai/ha with a PHI of 7 days.

Residues of malathion in oranges matching cGAP were (n = 4): 0.285, 0.807, 0.975, 2.26 mg/kg.

There are insufficient trials on oranges to estimate a maximum residue level for malathion in the subgroup of oranges, sweet, sour (including orange-like hybrids).

Residues of malathion in mandarins matching cGAP were (n = 4): 0.553, 1.48, 2.61, 6.45 mg/kg.

There are insufficient trials on mandarins to estimate a maximum residue level for the subgroup Mandarins: Hybrids and related species similar to mandarins.

The meeting agreed to withdraw its previous recommendation for citrus fruit.

Cherries

The cGAP sweet cherries in the United States is four applications at 1.37 kg ai/ha at an interval of 7 days and with a PHI of 1 day. Trials were available that utilized six sprays rather than the maximum of four specified by cGAP. The meeting noted that residues declined rapidly following the last application and that it is only the last two applications that contribute significantly to the terminal residue, so the trials were considered adequate.

Residues in sweet cherries (n = 3, without stone): 0.02, 0.17, 0.19 mg/kg.

The cGAP for malathion on sour cherries in the United States allows for six foliar applications at 1.37 kg ai/ha at an interval of 7 days and with a PHI of 1 day.

In trials on sour (tart) cherries (without stones) with according to GAP residues were: 0.03, 00.42, 0.47 mg/kg.

The meeting considered the results for sweet and sour (tart) cherries could be used for mutual support and agreed to combine the data for estimating maximum residue levels.

Cherries (n = 6, without stone): 0.02, 0.03, 0.17, 0.19, 0.42, 0.47 mg/kg.

The meeting noted the stone represents about 5 percent of the total fruit weight and adjusted the residues accordingly.

Cherries (n = 6, adjusted to whole fruit basis): 0.019, 0.028, 0.1615, 0.180, 0.399, 0.446 mg/kg.

The meeting estimated a maximum residue level of 1 mg/kg for FS 0243 Cherry, Sour and for FS 0244 Cherry, Sweet and to withdraw its previous recommendation of 3 mg/kg for FS 0013 cherries.

Cane berries

The cGAP for malathion on cane berries in the United States allows for three foliar applications at 2.24 kg ai/ha at 7-day intervals with a PHI of 1 day.

Available trials on blackberries and raspberries did not comply with critical GAP as they utilized four

foliar sprays instead of 3 sprays. As flowering to harvest for raspberries is typically 90 to 120 days, and for blackberry 49 to 56 days, fruit would be present at the time of the extra spray. No information was available to allow the meeting to conclude on the impact of the additional spray on terminal residues. The meeting was unable to estimate a maximum residue level for cane berries.

Blueberries

The cGAP for malathion on blueberries in the United States allows for three foliar applications at 2.24 kg ai/ha at 7-day intervals with a PHI of 1 day.

As the application rate in the trials, number of applications and application interval differ from critical GAP, the meeting was unable to estimate a maximum residue level for blueberries and agreed to withdraw its previous recommendation of 10 mg/kg.

Grapes

The cGAP for malathion on grapes in the United States allows for two foliar applications at 2.11 kg ai/ha at 14-day intervals with a PHI of 3 days.

The storage interval for the residue trials exceeded the demonstrated stability interval of 1 month for grapes.

The meeting withdrew its previous recommendation of 5 mg/kg for FB 0269 Grapes.

Strawberries

The GAP for malathion on strawberries in the United States allows for two foliar applications at 2.24 kg ai/ha at 5-day intervals with a PHI of 3 day or four foliar applications at 2.24 kg ai/ha at 7-day intervals with a PHI of 3 day.

The storage interval for the residue trials exceeded the shortest demonstrated stability interval available for high acid commodities of 1 month for grapes.

The meeting withdrew its previous recommendation of 1 mg/kg for FB 0275 Strawberry.

Cereals

The critical GAP for barley, maize, oats, rye and wheat in the United States includes both pre-harvest and post-harvest application. No trials were made available to the meeting according to the critical GAP.

Pre-harvest application

The GAP for malathion on barley allows for two foliar applications at 1.4 kg ai/ha and on oats and rye for two foliar applications at 1.12 kg ai/ha. In both cases, with 7-day intervals and a PHI of 7 days. No trials were conducted in barley, oats and rye.

The GAP for malathion on maize and wheat allows for two foliar applications of an EC at 1.12 kg ai/ha or an ULV formulation at 0.68 kg ai/ha, both at 7-day intervals with a PHI of 7 days.

Maize – foliar

Trials are conducted in maize using an EC formulation according to GAP but with three instead of two foliar applications. Residues in maize grain were <0.01 mg/kg by 14 DALA. The meeting concluded the contribution of an additional foliar application 21 days before harvest to the terminal residue would be negligible.

Residues in maize grain approximating GAP (PHI = 7 days) for foliar ground-based application and using an EC formulation were (n = 6): <0.01, <0.01, <0.01, 0.01, 0.02, 0.02 mg/kg.

Residues in maize grain approximating GAP for foliar application by aircraft and using a ULV formulation were (n = 7): <0.01, <0.01, <0.01, <0.01, <0.01, 0.01, <0.02 mg/kg.

Wheat – foliar

In trials conducted with wheat made available to the meeting, the number of foliar applications was 3 or 4 instead of two specified in GAP. The meeting noted residues did not always decline in the supervised trials and that the available trials would therefore overestimate residues in grain at harvest.

Residues of malathion in wheat grain following foliar application using ground-based equipment, EC formulation (n = 7): <0.01, 0.03, 0.04, 0.04, 0.04, 0.07, 0.10 mg/kg.

Residues of malathion in wheat grain following foliar application using aircraft, ULV formulation (n = 8): <0.01, <0.01, 0.04, 0.06, 0.08, 0.23, 0.26, 0.30 mg/kg.

Post-harvest application

The GAP for malathion on stored grain (barley, maize, oats, rye, wheat) is a combination of a spray application to storage facility surfaces prior to loading grain at a rate of 0.233 kg ai/100 m^2, during loading of grain at 0.27 kg ai/1000 bushels (9.0 g ai/tonne) and an a maximum of two applications to the surface of the grain pile, one at the time of loading and one 60 days later, at a rate of 0.146 kg ai/100 m^2. The maximum number of applications directly to stored grain per year is three, one during loading, one immediately after and a third 60 days later. The surface applications to grain are incorporated to a depth of approximately 15 cm.

Post-harvest supervised trials were conducted on maize and wheat matching the GAP:

Residues of malathion in maize grain were (n = 4): 9.97, 11.8, 14.0, 14.6 mg/kg.

Residues of malathion in wheat grain were (n = 4): 7.48, 11.7, 13.4, 13.9 mg/kg.

Median residues of malathion in maize grain following foliar application to maize crops are about 0.08 percent of median residues following post-harvest application.

Median residues of malathion in wheat grain following foliar application to wheat crops are about 0.5 percent of median residues following post-harvest application.

The meeting concluded the contribution of pre-harvest applications to residues following a combination of pre- and post-harvest applications would be negligible and maximum residue levels could be estimated based on supervised trials using post-harvest application alone.

As the residue in grain following post-harvest application depends on the application rate and is not affected by the size of the grain, the meeting agreed to combine the maize and wheat data to estimate a maximum residue level that applies to barley, maize, oats, rye and wheat.

Residues of malathion in maize and wheat grain as (n = 8): 7.48, 9.97, 11.7, 11.8, 13.4, 13.9, 14.0, 14.6 mg/kg. The median malathion residue is 12.6 mg/kg.

The meeting estimated a maximum residue level of 30 mg/kg Po (mean + 4 × SD) that apply individually to GC 0640 barley, GC 0645 maize, GC 0647 oats, GC 0650 rye and GC 0654 wheat to replace its previous recommendations of 0.05 mg/kg for maize and 10 mg/kg for wheat.

Information on residues of malathion mono- and dicarboxylic acid residues was not available in the supervised residue trials. In the metabolism study on post-harvest treated wheat grain, the malathion monocarboxylic acid to parent malathion ratio was 0.085. No malathion dicarboxylic acid was detected. The meeting agreed to use a scaling factor of 1.085 to scale malathion residues in feed commodities for the purpose of estimating livestock dietary burdens.

The meeting estimated a median residue of 1.085 × 12.6 = 13.7 mg/kg for the sum of malathion and malathion monocarboxylic acid isomers and malathion dicarboxylic acid in wheat, barley, maize, oat and rye grain.

Sorghum – foliar

The GAP for malathion on sorghum in the United States allows for two foliar applications at 1.12 kg ai/ha at 7-day intervals with a PHI of 7 days.

In six supervised trials on sorghum that matched GAP residues of malathion were (n = 6): <0.01, 0.386, 0.711, 2.44, 2.60, 13.4 mg/kg. The median malathion residue is 1.58 mg/kg.

The meeting estimated a maximum residue level of 30 mg/kg, for GC 0651 Sorghum grain to replace its previous recommendation of 3 mg/kg.

Information on residues of malathion mono- and dicarboxylic acid residues was not available in the supervised residue trials. In the metabolism study on foliar treated wheat, malathion monocarboxylic acid isomers and malathion dicarboxylic acid were not detected in grain. The meeting agreed that no residues of the acids are expected and used the malathion residues directly for the purpose of estimating livestock dietary burdens.

The meeting estimated a median residue of 1.085 × 1.58 mg/kg = 1.71 mg eq/kg for the sum of malathion and malathion monocarboxylic acid isomers and malathion dicarboxylic acid in sorghum grain.

Walnuts

The critical GAP for malathion on walnuts in the United States allows for three foliar applications at 2.8 kg ai/ha at 7-day intervals with a PHI of 7 days.

In four supervised trials matching GAP residues of malathion were: (n = 4): 0.0182, <0.05, <0.05, <0.05 mg/kg.

The meeting estimated a maximum residue level of 0.15 mg/kg, for TN 0678 Walnut.

Cotton

The critical GAP for malathion on cotton in the United States allows for twenty-five foliar applications of a ULV formulation at 1.37 kg ai/ha at 3-day intervals with a PHI of 0 days.

In four trials matching GAP, residues of malathion in cotton seed were (n = 4): 4.2, 5.4 (2), 7.1 mg/kg. The median malathion residue is 5.4 mg/kg.

The meeting estimated a maximum residue level of 20 mg/kg for SO 0691 Cotton seed.

Information on residues of malathion mono- and dicarboxylic acid residues was not available in the supervised residue trials. In the metabolism study on foliar treated cotton, the malathion monocarboxylic acid to parent malathion ratio was 0.079. No malathion dicarboxylic acid was detected. The meeting agreed to use a scaling factor of 1.079 to scale malathion residues for the purpose of estimating livestock dietary burdens.

The meeting estimated a median residue of 1.079 × 5.4 = 5.82 mg eq/kg for the sum of malathion and malathion monocarboxylic acid isomers and malathion dicarboxylic acid in cotton seed.

Animal feeds

Wheat forage and straw and maize forage and fodder (stover)

The GAP for malathion on wheat and maize in the United States allows for two foliar applications of an EC formulation at 1.12 kg ai/ha at 7-day intervals with a PHI of 7 days or two foliar applications of

an ULV formulation at 0.68 kg ai/ha at 7-day intervals with a PHI of 7 days.

No trials matched GAP were conducted in wheat or maize as three foliar sprays were used in the supervised trials instead of two.

Fate of residues during processing

The meeting received information on the fate of malathion residues following hydrolysis under conditions simulating commercial processing.

The hydrolytic stability of malathion, malathion monocarboxylic acid isomers and malathion dicarboxylic acid was studied in sterile aqueous buffers at pH 4 at 90 °C for 20 minutes, pH 5 at 100 °C for 60 minutes and pH 6 at 120 °C for 20 minutes to simulate commercial processing practices (pasteurization, baking/brewing/boiling and sterilization).

Malathion was found to degrade to an increasing extent in buffer solutions at pH 4, pH 5 and pH 6 at temperatures simulating pasteurization (90 °C), baking/brewing/boiling (100 °C) and sterilization (120 °C), respectively.

The significant hydrolytic product formed across all incubation groups was desmethyl malathion. The amount of this product varied with changes in temperature and pH (pH 4: 9.7 percent; pH 5: 48.1 percent and pH 6: 35.6 percent AR). A significant hydrolytic product formed only in the pH 6 incubation group was monoethyl fumarate which accounted for 66.7 percent AR. A small amount of malathion monocarboxylic acid (3.7 to 5.0 percent AR) was detected in incubations carried out at pH 5 and pH 6.

The effect of processing on malathion monocarboxylic acid isomers was also studied. Malathion monocarboxylic acid isomers were not degraded during the simulation of pasteurization (pH 4, 90 °C). Malathion monocarboxylic acid isomers comprised 54 percent AR after incubation at pH 5 for 60 minutes at 100 °C simulating baking/brewing/boiling, with desmethyl malathion monocarboxylic acid detected at 41 percent AR. Malathion monocarboxylic acid isomers comprised 18 percent of the applied radioactivity after incubation at pH 6 for 60 minutes at 121 °C simulating sterilization, with desmethyl malathion monocarboxylic acid detected at 71 percent AR.

In addition, the effect of processing on malathion dicarboxylic acid was studied. Malathion dicarboxylic acid is considered hydrolytically unstable under pasteurization; baking, brewing and boiling; and sterilization conditions forming desmethyl malaoxon dicarboxylic acid and mercaptosuccinic acid. Malathion dicarboxylic acid comprised 63 percent AR after incubation at pH 4 (20 minutes at 90 °C) simulating pasteurization, with desmethyl malaoxon dicarboxylic acid, detected at 20.4 percent AR. Malathion dicarboxylic acid was not detected after incubation at pH 5 for 60 minutes at 100 °C, with desmethyl malaoxon dicarboxylic acid and mercaptosuccinic acid, detected at mean 38.8 percent AR and 39.4 percent AR, respectively). Malathion dicarboxylic acid was not detected after incubation at pH 6 for 20 minutes at 120 °C, with desmethyl malaoxon dicarboxylic acid and mercaptosuccinic acid detected at 10.7 percent AR and 73.1 percent AR, respectively. The meeting received information on the fate of malathion residues during processing of oranges, grapes, wheat, maize and cotton seed (Table 5.23.4). Maximum residue levels are only estimated when the processing factor is higher than 1.3.

Table 5.23.4 Processing factors and highest residue values for malathion for estimation of plant commodity maximum residue levels

Processed commodity	Raw commodity maximum residue level (mg/kg)	Processing factor[a]	highest residue-P (mg/kg)
Maize AGF	30	164	4920
Maize grits	–	0.69	–
Maize meal	–	1.79	53.7
Maize flour	–	2.04	61.2
Maize oil – refined bleached	–	0.022	–
Maize starch	–	0.002	–
Wheat AGF	30	179	5370
Wheat bran	–	0.54	–
Wheat germ	–	0.93	–
Cottonseed meal	20	0.07	–
Cottonseed hulls	–	0.68	–
Cottonseed crude oil	–	0.67	–
Cottonseed refined oil	–	0.0076	–

Note: AGF = aspired grain fraction.

[a] Only one processing factor was available.

Using the estimated maximum residue level of 30 mg/kg for maize and applying the processing factors of 164 for aspirated grain fractions, 1.79 for meal and 2.04 for flour for residues of malathion, the meeting estimated a maximum residue levels of 5000 mg/kg for CF 3516 Maize aspirated grain fractions, 60 mg/kg for CF 0645 Maize, meal and 60 mg/kg for CF 1255 Maize, flour.

Using the estimated maximum residue level of 30 mg/kg for wheat and applying the processing factors of 179 for aspirated grain fractions, the meeting estimated a maximum residue level of 5500 mg/kg for CF 3521 Wheat aspirated grain fractions.

Malathion did not concentrate in wheat bran or flour on processing and the meeting agreed to withdraw its previous recommendations for these commodities of 25 mg/kg for CM 0654 Wheat bran, unprocessed and 0.2 mg/kg for CF 1211 Wheat flour.

The available processing studies on maize, wheat and cotton did not measure malathion mono- and dicarboxylic acids. To avoid underestimating dietary burdens, the meeting agreed to utilize the available processing factors until better information becomes available.

Table 5.23.5 Processing factors and highest residue values for the sum of malathion, malathion monocarboxylic acid isomers and malathion dicarboxylic acid for feed levels for dietary burden calculations

Processed commodity	Raw commodity median residue (highest) (mg/kg)	Processing factor[a]	Median residue-P (mg/kg)
Maize AGF	1.085 × 12.6 = 13.7	164	2245
Maize meal	–	1.79	24.5
Maize starch	–	0.002	0.027
Wheat AGF	1.085 × 12.6 = 13.7	179	2452
Wheat bran	–	0.54	7.40
Wheat germ	–	0.93	12.7
Cottonseed meal	1.079 × 5.4 = 5.82	0.07	0.41
Cottonseed hulls	–	0.68	3.96

Note:

[a] Only one processing factor was available.

Residues in animal commodities

Farm animal feeding studies

No study on the transfer of malathion to tissues and milk of dairy cows or tissues and eggs of laying hens was available. The available metabolism study on lactating goats dosed at the equivalent of 93–99 ppm in the diet for 5 days did not detect malathion in any tissues or milk. The available metabolism study on laying hens dosed at the equivalent of 33 ppm in the diet for 4 days did not detect malathion in any tissues or eggs, however the interval between last dosing and slaughter was 24 hours. Commercial practice is close to 8 hours and for rapidly metabolized and eliminated compounds such as malathion, the interval between last feeding and slaughter can make a large difference.

A literature study on the transfer of malathion to tissues of broiler chickens following incorporation into feed was located. Groups of Ross 308 broiler chickens were fed finisher diets containing malathion in the form of treated maize grain ingredient for 21 days. The diets containing 4, 8, 16 or 32 ppm malathion were fed for 21 days with sacrifice around 8 hours after last feeding. Samples of tissues were analysed for parent malathion with an LOQ of 0.01 mg/kg.

Residues were <LOQ in liver at all feed levels. Mean malathion residues in skin were 0.389 mg/kg at the 4 pm feed level increasing to 2.19 mg/kg for the 16 ppm feed level and 1.41 mg/kg at the 32 ppm feed level. Residues in breast muscle were 0.082 mg/kg at the 4 ppm feed level increasing to 1.066 mg/kg at the 32 ppm feed level. Residues in thigh muscle were 0.108 mg/kg at the 4 ppm feed level increasing to 0.485 mg/kg at the 32 ppm feed level. Residues in wings were 0.104 mg/kg at the 4 ppm feed level increasing to 0.680 mg/kg at the 16 ppm feed level.

Farm animal dietary burden

Dietary burdens were calculated for beef cattle, dairy cattle, broilers and laying poultry based on feed items evaluated by the JMPR by the current meeting. The dietary burdens, estimated using the OECD diets listed in Appendix IX of the 2016 edition of the FAO manual, are presented in Annex 6 and summarized in Table 5.23.6.

Table 5.23.6 Estimated maximum and mean dietary burdens of farm animals (sum of malathion, malathion monocarboxylic acid isomers and malathion dicarboxylic acid, ppm of dry matter diet)

	United States/Canada		European Union		Australia		Japan	
	Max	Mean	Max	Mean	Max	Mean	Max	Mean
Beef cattle	165[a]	165[c]	15.6	15.6	20.5	20.5	19.9	19.9
Dairy cattle	14.7	14.7	6.9	6.9	18.7[b]	18.7[d]	15.6	15.6
Broiler	17.3	17.3	10.9	10.9	17.8	17.8	11.5	11.5
Laying hen	17.3	17.3	18.0[e]	18.0[f]	17.9	17.9	12.8	12.8

Notes

[a] Highest maximum beef cattle dietary burden suitable for MRL and HR estimates for mammalian tissues.

[b] Highest maximum dairy cattle dietary burden suitable for MRL and HR estimates for milk.

[c] Median beef cattle dietary burden suitable for STMR estimates for mammalian tissues.

[d] Median dairy cattle dietary burden suitable for STMR estimates for milk.

[e] Highest maximum broiler or laying hen dietary burden suitable for MRL and HR estimates for poultry and eggs.

[f] Median broiler or laying hen dietary burden suitable for STMR estimates for poultry tissues and eggs.

Animal commodity maximum residue levels

Cattle

As a lactating cow feeding study was not available to the meeting and the dose level in the lactating goat metabolism study at 93–99 ppm was much lower than the estimated maximum dietary burden of 165 ppm, the meeting was unable to estimate maximum residue levels for mammalian commodities.

Poultry

The available laying hen metabolism study with slaughter at 24 hours after last dosing rather than 8 hours and broiler chicken feeding study, but the tissues analysed did not match the tissues required for estimation of maximum residue levels for poultry commodities (skin instead of fat, no liver or kidney). The meeting was unable to estimate maximum residue levels for poultry commodities.

Desirable studies

- Farm animal metabolism studies on laying hens at an appropriate dose level with slaughter at 6–8 hours after last dosing
- Feeding studies on lactating cows and laying hens at appropriate dose levels
- Storage stability in plant commodities for which maximum residue levels are sought
- Storage stability in animal commodities
- Analytical methods that measure malathion, malathion monocarboxylic acid isomers and malathion dicarboxylic acid in plant commodities used as animal feeds
- Residue trials on crops used as animal feeds that include malathion, malathion monocarboxylic acid isomers and malathion dicarboxylic acid
- Processing studies on relevant commodities used as animal feeds that include malathion, malathion monocarboxylic acid isomers and malathion dicarboxylic acid

Recommendations

The meeting could not conclude on the residue definition for dietary intake for plant commodities since toxicological evaluations for monoethyl fumarate and mercaptosuccinate were not finalized at this time.

In addition, relevant data to estimate residues in animal commodities were not available to conduct a dietary risk assessment for animal commodities.

Therefore, the meeting did not recommend any maximum residue levels and withdrew its previous recommendations (Table 5.23.7). Table 5.23.8 shows the residues included in the dietary burden calculation.

The meeting recommended the following residue definitions for malathion.

Definition of the residue for compliance with the MRL for plant commodities: *malathion.*

Definition of the residue for compliance with the MRL for animal commodities: *sum of malathion, butanedioic acid, 2-[(dimethoxyphosphinothioyl)thio]-, monoethyl ester (malathion monocarboxylic acid isomers) and butanedioic acid, [(dimethoxyphosphinothioyl)thio] (malathion dicarboxylic acid), expressed as malathion.*

Definition of residue for estimation of dietary intake for plant and animal commodities: not concluded.

The residue is not fat soluble.

Table 5.23.7 Recommendations for malathion

CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
		New	Previous		
FP 0226	Apple	W	0.5	–	–
VS 0621	Asparagus	W	1	–	–
VD 0071	Bean (dry)	W	2	–	–
VP 0061	Beans with pods (Phaseolus spp.) (immature pods and succulent seeds)	W	1	–	–
FB 0020	Blueberries	W	10	–	–
FC 0001	Citrus fruits (group)	W	7	–	–
OC 0691	Cotton seed oil, crude	W	13	–	–
OR 0691	Cotton seed oil, edible	W	13	–	–
VC 0424	Cucumber	W	0.2	–	–
FB 0269	Grapes	W	5	–	–
VL 0485	Mustard greens	W	2	–	–
VA 0385	Onion, bulb	W	1	–	–
VO 0051	Peppers (subgroup)	W	0.1	–	–
HS 0444	Peppers chili, dried	W	1	–	–
HS 0191	Spices, fruits and berries	W	1	–	–
HS 0193	Spices, roots and rhizomes	W	0.5	–	–
HS 0190	Spices, seeds	W	2	–	–
VL 0502	Spinach	W	3	–	–
VA 0389	Spring onion	W	5	–	–
FB 0275	Strawberry	W	1	–	–
VO 0447	Sweet corn (corn-on-the-cob)	W	0.02	–	–
VO 0448	Tomato	W	0.5	–	–
JF 0448	Tomato juice	W	0.01	–	–
VL 0506	Turnip greens	W	5	–	–
VR 0506	Turnip, Garden	W	0.2	–	–
CM 0654	Wheat bran, unprocessed	W	25	–	–
CF 1211	Wheat flour	W	0.2	–	–

Notes: (as) – as received; (dw) – dry weight.

Table 5.23.8 Residue levels of the sum of malathion, malathion monocarboxylic acid isomers and malathion dicarboxylic acid suitable for estimation of animal dietary burdens

Codex group	Feed commodity	Median, in mg/kg	% DM assumed
GC	Barley, grain	13.7	88
CM/CF	Corn, field, asp gr fn	2245	85
GC	Corn, field, grain	13.7	88
CM/CF	Corn, field, hominy meal	24.5	88
SM	Cotton, hulls	3.96	90
SM	Cotton, meal	0.41	89
SO	Cotton, undelinted seed	5.82	88

Codex group	Feed commodity	Median, in mg/kg	% DM assumed
GC	Oat, grain	13.7	89
GC	Rye, grain	13.7	88
GC	Sorghum, grain	1.71	86
CM/CF	Wheat, asp gr fn	2452	85
GC	Wheat, grain	13.7	89

Dietary risk assessment

The meeting could not conclude on the residue definition for dietary risk assessment for plant commodities since toxicological evaluations for monoethyl fumarate and mercaptosuccinate were not finalized at this time.

In addition, relevant data to estimate residues in animal commodities were not available to conduct a dietary risk assessment for animal commodities. Therefore, the meeting did not recommend maximum residue levels.

5.24 Mefentrifluconazole (320) (R)

Residue and analytical aspects

Mefentrifluconazole,
(2RS)-2-[4-(4-chlorophenoxy) -2-(trifluoromethyl)phenyl]-1-(1*H*-1,2,4-triazol-1-yl) propan-2-ol, is a triazole fungicide belonging to the group of the sterol biosynthesis inhibitors. It was first evaluated for toxicology in 2021 and residues by the JMPR in 2022. An ADI of 0–0.04 mg/kg bw and an ARfD of 0.3 mg/kg bw were established.

Definition of the residue for compliance with the MRL and for estimation of dietary intake for plant commodities: *mefentrifluconazole*.

Definition of the residue for compliance with the MRL for animal commodities: *mefentrifluconazole (free and conjugated).*

Definition of the residue for for estimation of dietary intake for animal commodities: sum of *mefentrifluconazole (free and conjugated) +* 2-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl] propane-1,2-diol *(*M750F022*), free and conjugated, expressed as mefentrifluconazole equivalents.* The molecular weight conversion factor to express M750F022 in mefentrifluconazole equivalents = 1.15.

The residue is fat soluble.

At the 55th Session of the CCPR, mefentrifluconazole was scheduled for evaluation of additional uses patterns by the 2025 JMPR. The meeting received information on analytical methods, use patterns and supervised residue trials for grapes, pineapple, broccoli, cauliflower, cabbage, tomato and sugar beet with supporting processing studies.

Methods of residue analysis

The meeting received additional information on analytical methods for mefentrifluconazole in grape, pineapple, broccoli, cauliflower, cabbage, tomato and sugar beet matrices. For all but grape and tomato, the LC-MS/MS method L0076/09 was used. Description and validation of L0076/09 and its modifications were evaluated by the JMPR in 2022. The method LOQ was 0.01 mg/kg.

Two additional methods were provided for the analysis of mefentrifluconazole for grape and tomato. Samples were extracted with acetonitrile and quantified for residues using LC-MS/MS. LOQs were 0.01 mg/kg for tomato and 0.005 mg/kg for grape.

The meeting concluded that the presented methods were sufficiently validated and are suitable to measure mefentrifluconazole in grape, pineapple, broccoli, cauliflower, cabbage, tomato and sugar beet commodity matrices.

Stability of pesticide residues in stored analytical samples

No specific storage stability studies were submitted to the meeting. The 2022 JMPR concluded that residues of parent mefentrifluconazole are stable at ≤–18 °C for at least 24 months in high water content commodities (tomato, apple, wheat whole plant), high oil content commodities (rapeseed), high protein content commodities (dry bean seed, dry pea seed, dry soya bean seed), high starch content commodities (potato tuber), high acid content commodities (grape, lemon), and wheat straw.

The demonstrated storage stability interval covered the storage durations of the crop field trials and processing studies evaluated by the meeting.

Results of supervised residue trials on crops

Supervised trials were available for the use of mefentrifluconazole on grapes, pineapple, broccoli, cauliflower, tomato and sugar beet. Product labels were available from Brazil, China, Guatemala, Mexico and the United States.

Grapes

The 2022 JMPR considered a critical GAP for wine grapes from the United States with three applications at 146 g ai/ha on a 10-day RTI and a 14-day PHI and estimated a maximum residue level of 2 mg/kg.

For table grapes, the 2022 critical GAP was also from the United States with two applications at 112 g ai/ha on a 10-day RTI and a 14-day PHI. A maximum residue level could not be estimated for table grapes.

The meeting recieved a new cGAP for grapes from China consisting of three applications each at 180 g ai/ha, on a 7-day retreatment interval, with a PHI of 7 days.

Residues of mefentrifluconazole in grapes in independent trials approximating this GAP were (n = 10): <0.005, 0.019, 0.111 (2), 0.17, 0.35, 0.36, 0.43, 0.71, 1.6 mg/kg.

The meeting estimated a maximum residue level of 3 mg/kg, an STMR of 0.26 mg/kg and an HR of 1.6 mg/kg for grapes and withdrew its previous recommendation of 2 mg/kg for wine grapes.

Pineapple

The critical GAP for pineapple is from Guatemala and consists of three foliar applications each at 500 g ai/ha, on a 60-day retreatment interval, with a PHI of 15 days.

Residues of mefentrifluconazole in whole pineapple fruit in independent trials approximating the critical GAP were (n = 8): 0.035, 0.040, 0.11, 0.13, 0.15, 0.18, 0.24 and 0.28 mg/kg.

Residues of mefentrifluconazole in the pineapple pulp were calculated by multipying the residue by the pulp-to-whole fruit ratio of 0.02. Residues in the pulp were 0.0007, 0.0008, 0.0022, 0.0026, 0.003, 0.0036, 0.0048 and 0.0056 mg/kg.

The meeting estimated a maximum residue level of 0.5 mg/kg, an STMR of 0.0028 mg/kg (pulp), and an HR of 0.0056 mg/kg (pulp) for mefentrifluconazole in pineapple.

Broccoli

The critical GAP for broccoli is from Mexico and consists of three applications each at 120 g ai/ha, on a 7-day retreatment interval, with a PHI of 14 days.

Residues of mefentrifluconazole in independent trials approximating the critical GAP were (n = 8): <0.01, 0.016, 0.017, 0.023, 0.025, 0.036, 0.046 and 0.078 mg/kg.

The meeting estimated a maximum residue level of 0.15 mg/kg, an STMR of 0.024 mg/kg, and an HR of 0.078 mg/kg for mefentrifluconazole in broccoli.

Cauliflower

The critical GAP for cauliflower is from Mexico and consists of three applications each at 120 g ai/ha, on a 7-day retreatment interval, with a PHI of 14 days.

Residues of mefentrifluconazole in independent trials approximating the critical GAP were (n = 8): <0.01 (8) mg/kg.

The meeting estimated a maximum residue level of 0.01* mg/kg, an STMR of 0.01 mg/kg, and a HR of 0.01 mg/kg for mefentrifluconazole in cauliflower.

Fruiting vegetables, other than Cucurbits, Group of

The 2022 JMPR considered the critical GAP for fruiting vegetables-other than cucurbits from the United States for a "fruiting vegetables" use with three foliar applications at 146 g ai/ha on a 7-day RTI and a 0-day PHI. The 2022 meeting received trials on field tomatoes (including cherry tomatoes [CT]), bell peppers and non-bell peppers [NB] from the United States matching GAP.

Tomatoes, Subgroup of

The 2022 JMPR recommended an maximum residue level of 0.7 mg/kg for the subgroup of tomatoes from field grown tomatoes based on a critical GAP from the United States.

The current meeting recieved a new GAP from China consisting of three applications each at 150 g ai/ha on a 7-day RTI with a 3-day PHI.

Residues of mefentrifluconazole in independent trials approximating the Chinese GAP conducted in field grown tomatoes were (n = 7): 0.11, 0.25, 0.34, 0.35, 0.43, 0.53, and 0.62 mg/kg.

Residues of mefentrifluconazole in independent trials approximating the Chinese GAP conducted in protected cropping were (n = 5): 0.065, 0.068, 0.13, 0.18, and 0.85 mg/kg.

A Kruskal-Wallis H test determined there was no significant difference between the residue levels of mefentrifluconazole in field grown and protected [P] tomatatoes; therefore, the datasets could be combined as (n = 12): 0.065[P], 0.068[P], 0.11, 0.13[P], 0.18[P], 0.25, 0.34, 0.35, 0.43, 0.53, 0.62 and 0.85[P] mg/kg.

The meeting estimated a maximum residue level of 1.5 mg/kg, a STMR of 0.295 mg/kg, and a HR of 0.97 mg/kg (from a single sample) for mefentrifluconazole in tomatoes and withdrew its previous recommendation of 0.7 mg/kg.

Sugar beet

The critical GAP for sugar beet from the United States consists of two applications each at 146 g ai/ha, on a 14-day retreatment interval, with a PHI of 7 days

Residues of mefentrifluconazole in sugar beet roots from independent trials approximating the critical GAP were (n = 16): 0.031, 0.044, 0.045,0.046 (2), 0.049, 0.052, 0.059, 0.067, 0.071, 0.080, 0.087, 0.091, 0.10, 0.11 and 0.26 mg/kg.

The meeting estimated a maximum residue level of 0.3 mg/kg and a STMR of 0.063 mg/kg for mefentrifluconazole in sugar beet.

Sugar beet, leaves or tops

The critical GAP for sugar beet is from the United States and consists of two foliar applications each at 146 g ai/ha, on a 14-day retreatment interval, with a PHI of 7 days.

Mefentrifluconazole residues in sugar beet tops (ar) were (n = 16): 0.85, 0.92, 1.0, 1.1, 1.2 (2), 1.8, 2.3, 2.4, 2.5, 3.2, 4.6 (2), 4.8, 5.6 and 5.7 mg/kg.

The meeting estimated a median residue of 2.35 mg/kg, and a high residue of 5.7 mg/kg for mefentrifluconazol in sugar beet, leaves or tops.

Fate of residues during processing

The meeting received new information on the fate of mefentrifluconazole residues during processing in pineapple and head cabbage (white). Processing factors are not reported for head cabbage (white) as no uses on the commodity are currently supported. New estimates for grape, tomato and sugar beet processing factors have been calculated using processing data derived from the 2022 JMPR (Table 5.24.1). Maximum residue levels in processed commodities are only estimated when they are higher than the maximum residue levels for the RAC.

Table 5.24.1 Estimation of processing factors (PF) for commodities considered at this meeting

Raw commodity	Residues in RAC			Processed commodity	Processing factors			Residues in processed commodity		
	Maximum residue level (mg/kg)	STMR or median (mg/kg)	HR (mg/kg)		Individual [2022 JMPR]	Individual	Best estimate	maxim residue level (mg/kg)	STMR-P or median (mg/kg)	HR-P or highest (mg/kg)
Grape	3	0.26	1.7	Rosé Wine Process						
				Dry pomace	3.09, 3.13, 3.93,	–	3.13	–	0.81	–
				Pasteurized juice	0.04, 0.05, 0.05	–	0.05	–	0.01	–
				Rosé wine	0.02, 0.02, 0.03	–	0.02	–	0.01	–
Grape	3	0.26	1.7	Red Wine Process						
				Dry Pomace	3.55, 4.26, 5.21	–	4.26	15	1.11	
				Pasteurized juice	0.12, 0.13, 0.13	–	0.13	–	0.03	–
				Red wine	0.02, 0.03, 0.03	–	0.03	–	0.01	–
Grape	3	0.26	1.7	Raisins	2.5, 3.73, 3.93,	–	3.73	15	0.97	6.3

Raw commodity	Residues in RAC			Processed commodity	Processing factors			Residues in processed commodity		
	Maximum residue level (mg/kg)	STMR or median (mg/kg)	HR (mg/kg)		Individual [2022 JMPR]	Individual	Best estimate	maxim residue level (mg/kg)	STMR-P or median (mg/kg)	HR-P or highest (mg/kg)
Pineapple	0.5	0.14	0.28	Juice	–	0.58, 0.25, 0.26	0.26	–	0.036	–
				Canned	–	0.01, 0.01, 0.01	0.01	–	0.001	–
				Dry	–	0.13, 0.15, 0.13	0.13	–	0.018	–
				Process residue	–	1.58, 0.91, 1.0	1.0	–	0.140	–
				Peel	–	4.08, 2.36, 2.27	2.36	–	0.330	–
				Pulp	–	0.02, 0.01, 0.04	0.02	–	0.003	–
Tomato	1.5	0.295	0.97	Canned tomatoes	0.06, 0.08, 0.05	–	0.06	–	0.02	0.06
				Ketchup after pasteurization	0.35, 0.68, 0.56	–	0.56	–	0.17	–
				Paste	1.00, 0.49, 0.46	–	0.49	–	0.14	–
				Peeled tomatoes	0.07, 0.06, 0.03	–	0.06	–	0.02	0.06
				Puree	0.31, 0.28, 0.20	–	0.28	–	0.08	–
				Raw juice	0.11, 0.08, 0.08	–	0.08	–	0.02	–
				Sundried tomatoes	6.67, 9.17, 15.97	–	9.17	15	2.71	8.89
				Wet pomace	2.93, 1.75, 7.14	–	2.93	–	0.86	–
Sugar beet	0.3	0.063	0.28	Molasses	0.88, 1.1, 0.53	–	0.88	–	0.06	–
				Raw sugar	<0.06, <0.05, 0.10	–	0.06	–	0.004	–
				Affinated sugar	0.11, 0.11, 0.18	–	0.11	–	0.01	–
				Refined sugar	<0.06, <0.05, 0.10	–	0.06	–	0.004	–
				Dried pulp	4.75, 5.24, 3.24	–	4.75	1.5	0.30	–
				Ensiled pulp	0.88, 1.14, 0.68	–	0.88	–	0.06	–

Using the estimated maximum residue level of 3 mg/kg for grapes and applying the processing factor of 4.26 for dried grape pomace, the meeting estimated a maximum residue level of 15 mg/kg for grape pomace, dried, withdrawing the previous recommendation. The meeting also estimated a median-P of 1.11 mg/kg.

Using the estimated maximum residue level of 3 mg/kg for grapes and applying the processing factor of 3.73 for raisins, the meeting estimated a maximum residue level of 15 mg/kg for grape dried (= Currants, Raisins and Sultanas), a STMR-P of 0.97 mg/kg and a HR-P of 6.3 mg/kg.

Using the estimated maximum residue level of 1.5 mg/kg for the subgroup of tomatoes applying the processing factor of 9.2 for sundried tomatoes, the meeting estimated a maximum residue level of 15 mg/kg for tomato, dried, a STMR-P of 2.71 mg/kg and a HR-P of 8.89 mg/kg.

Using the estimated maximum residue level of 0.3 mg/kg for sugar beets and applying the processing factor of 4.75 for dried pulp, the meeting estimated a maximum residue level of 1.5 mg/kg a median-P of 0.30 mg/kg for sugar beet dried pulp.

Residues in animal commodities

Feeding studies

A dairy cattle feeding study was evaluated by the 2022 JMPR. Lactating cattle were dosed with mefentrifluconazole at the equivalent to 1.5, 7.5, 50 and 150 ppm in the feed. Milk was collected twice daily (am and pm sampling pooled) throughout the 28 days of dosing. On day 21, milk was also separated into cream and skimmed milk. Samples were analysed for the parent compound by LC-MS/MS (LOQ of 0.01 mg/kg). Residues of mefentrifluconazole and its metabolite M750F022 were multiplied by an adjustment factor to account for free and conjugated residues.

Cream (day 21) from the 7.5-ppm level contained a high residue of 0.061 mg/kg and a mean residue of 0.052 mg/kg for mefentrifluconazole with all residues M750F022 below LOQ (0.01 mg/kg). At the 50-ppm level, a high residue of 0.459 mg/kg and a mean residue of 0.424 mg/kg for mefentrifluconazole and a high residue of 0.014 mg/kg and a mean residue of 0.011 mg/kg for M750F022 were observed. At the 150-ppm level, a high residue of 2.16 mg/kg and a mean residue of 1.35 mg/kg for mefentrifluconazole and a high residue of 0.108 mg/kg and a mean residue of 0.099 mg/kg for M750F022 were observed.

Farm animal dietary burden

Animal feed commodities for which the current meeting made recommendations are tomato pomace, grape pomace and sugar beet, leaves and tops. The dietary burdens, estimated using the OECD diets listed in Appendix IX of the 2016 edition of the FAO manual, are presented in Annex 5. Inclusion of the new highest residues and STMRs in the estimation of livestock dietary burden resulted in no changes to the dietary burdens calculated by the 2022 JMPR.

The beef and dairy cattle dietary burden suitable for maximum residue levels, STMR and HR estimates for mammalian tissues and mammalian milk are 67 ppm (maximum) and 28 ppm (mean). The poultry dietary burden suitable for maximum residue levels, STMR and HR estimates for poultry tissues and eggs are 12 ppm (maximum) and 5 ppm (mean).

Estimation of animal commodity residue levels

The maximum residue level and STMR estimation for the group of milk fats was calculated by interpolating the maximum dietary burden (69 ppm) or mean dietary burden (28 ppm) between the relevant feeding levels (7.5, 50 and 150 ppm) from the dairy cow feeding study using the average concentrations (parent + M750F022) from animals within those feeding groups.

Following the new Codex Classification for animal commodities and based on the dietary burden calculation, the meeting estimated a maximum residue level of 0.10 mg/kg for Group of milks with an STMR of 0.07 mg/kg. The meeting withdrew its previous recommendation of 0.10 mg/kg for milks. The meeting estimated a maximum residue level of 3 mg/kg for the Group of milk fats with an STMR of 0.99 mg/kg based on 40 to 60 percent fat in cream.

The meeting estimated maximum residue levels of 2.0 mg/kg for Group of edible offal (mammalian), 0.15 mg/kg for Group of muscle (from mammals other than marine mammals) and 1.5 mg/kg for Group of mammalian fats (except milk fats). The meeting estimated STMRs of 0.61 mg/kg for Group of edible offal (mammalian), 0.04 mg/kg for Group of muscle (from mammals other than marine mammals), and 0.39 mg/kg for Group of mammalian fats (except milk fats). The meeting withdrew its previous recommendations of 2.0 mg/kg for edible offal (mammalian), 0.15 (fat) mg/kg for meat (from mammals other than marine mammals) and 1.5 mg/kg for mammalian fats (except milk fats).

The meeting also estimated maximum residue levels of 0.04 mg/kg for Group of eggs, 0.70 mg/kg for Group of avian edible offal, 0.03 (fat) mg/kg for Group of avian muscle, and 0.20 mg/kg for Group of avian fats with STMRs of 0.032 mg/kg for Group of eggs, 0.12 mg/kg for Group of avian edible offal, 0.012 (muscle) mg/kg for Group of avian muscle, and 0.124 mg/kg for Group of avian fats. The meeting withdrew its previous recommendations for eggs, poultry fats, poultry meat and poultry edible offal.

Recommendations

On the basis of the data obtained from supervised trials, the meeting concluded that the residue levels listed in Table 5.24.2 and in Annex 1 are suitable for establishing maximum residue limits and for estimation of dietary intake. Table 5.24.3 shows the residues included in the dietary burden calculation.

Definition of the residue for compliance with the MRL and for estimation of dietary intake for plant commodities: *mefentrifluconazole*.

Definition of the residue for compliance with the MRL for animal commodities: *mefentrifluconazole (free and conjugated).*

Definition of the residue for estimation of dietary intake for animal commodities: sum of *mefentrifluconazole (free and conjugated) +* 2-[4-(4-chlorophenoxy)-2-(trifluoromethyl) phenyl]propane-1,2-diol *(*M750F022*), free and conjugated, expressed as mefentrifluconazole equivalents.* The molecular weight conversion factor to express M750F022 in mefentrifluconazole equivalents = 1.15.

The residue is fat soluble.

Table 5.24.2 Residue levels suitable for establishing maximum residue limits and for IEDI and IESTI assessments

CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
		New	Previous		
VB 0400	Broccoli	0.15	–	0.024	0.078
VB 0404	Cauliflower	0.01*	–	0.01	0.01
MO 0105	Edible offal (mammalian)	W	2.0	–	–
PE 0112	Eggs	W	0.04	–	–
FB 0269	Grapes	3	–	0.26	1.7
DF 0269	Grape, dried (= Currants, Raisins and Sultanas)	15	–	0.97	6.3
AB 0269	Grape pomace, dried	15	9	–	–
PO 0111	Group of avian, edible offal	0.7	–	0.12	0.844
PF 0111	Group of avian fats	0.2	–	0.124	0.503
PM 0110	Group of avian muscle	0.03	–	0.012	0.053
MO 0105	Group of edible offal (mammalian)	2.0	–	0.61	1.91
PE 0112	Group of eggs	0.04	–	0.032	0.094
MF 0100	Group of mammalian fats (except milk fats)	1.5	–	0.39	1.26
ML 0106	Group of milks	0.1	–	0.07	–
FM 0106	Group of milk fats[a]	3	–	0.99	–
MM 0095	Group of muscle (from mammals other than marine mammals)	0.15	–	0.04	0.14
MF 0100	Mammalian fats (except milk fats)	W	1.5	–	–
MM 0095	Meat (from mammals other than marine mammals)	W	0.15 (fat)	–	–
ML 0106	Milks	W	0.10	–	–
FI 0353	Pineapple	0.5	–	0.0028 (pulp)	0.0056 (pulp)
DF 0353	Pineapple, dried	–	–	0.018	–
JF 0341	Pineapple, juice	–	–	0.036	–
PO 0111	Poultry, edible offal	W	0.7	–	–

CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
		New	Previous		
PF 0111	Poultry, fats	W	0.2	–	–
PM 0110	Poultry, meat	W	0.03 (fat)	–	–
VR 0596	Sugar beet	0.3	–	0.063	0.28
AB 0596	Sugar beet pulp, dry	1.5	–	–	–
	Sugar, refined	–	–	0.004	–
VO 2045	Tomatoes, Subgroup of	1.5	0.7	0.295	0.97
DV 0448	Tomato, dried	15	7	2.73	8.89
	Tomato, canned	–	–	0.02	0.06
JF 0448	Tomato, juice	–	–	0.02	–
VW 0448	Tomato, paste	–	–	0.15	–
DM 3525	Tomato, pomace	–	–	0.87	–
DM 0448	Tomato puree	–	–	0.08	–

Notes:

[a] For monitoring and regulatory purposes, whole milk is to be analysed, and the result compared to the MRL for whole milk.

Table 5.24.3 Residues for livestock dietary burden calculations

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed
AM/AV	Almond, hulls	1.2	–	90
AB	Apple, pomace, wet	3.9	–	40
CM/CF	Barley, bran fractions	2.1	–	90
GC	Barley, grain	0.425	–	88
AF/AS	Barley, hay	10	26	100
AF/AS	Barley, straw	10	26	100
VD	Bean, seed	0.01	–	88
AB	Beet, sugar, dried pulp	0.3	–	88
AM/AV	Beet, sugar, tops	2.367	5.7	23
SM	Brewer's grain, dried	1		92
SM	Canola, meal	0.06		88
VR	Carrot, culls	0.1	0.38	12
AB	Citrus, dried pulp	0.04	–	91
CM/CF	Corn gluten, feed	0.01	–	40
CM/CF	Corn gluten, meal	0.01	–	40
CM/CF	Corn, field, asp gr fn	0.01	–	85
AF/AS	Corn, field, forage/silage	3.1	7.2	100
GC	Corn, field, grain	0.01	–	88

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed
CM/CF	Corn, field, hominy meal	0.01	–	88
CM/CF	Corn, field, milled bypdts	0.01	–	85
AF/AS	Corn, field, stover	8	12	100
GC	Corn, pop, grain	0.01	–	88
AF/AS	Corn, pop, stover	8	12	100
AF/AS	Corn, sweet, cannery waste	0.01	0.01	30
AF/AS	Corn, sweet, forage	4.2	6.6	100
AF/AS	Corn, sweet, stover	1.9	4.2	100
SM	Cotton, hulls	0.0052	–	90
SM	Cotton, meal	0.0008	–	89
SO	Cotton, undelinted seed	0.04	–	88
SM	Flaxseed/linseed, meal	0.06	–	88
AB	Grape, pomace, wet	1.11	–	15
AM/AV	Kale, leaves	6.65	12	15
SM	Lupin seed, meal	0.01	–	85
AF/AS	Millet, forage	1.7	4.8	100
GC	Millet, grain	0.41	–	88
AF/AS	Millet, hay	10	26	100
AF/AS	Millet, straw	10	26	100
GC	Oat, grain	0.425	–	89
AF/AS	Oat, hay	10	26	100
AF/AS	Oat, straw	10	26	100
AL	Pea, hay	9	13	100
VD	Pea, seed	0.015	–	90
AL	Pea, vines	3.5	10	25
AL	Peanut, hay	8	30	100
SM	Peanut, meal	0.01	–	85
AB	Pineapple, process waste	0.14	0.28	25
VR	Potato, culls	0.01	0.05	20
AB	Potato, dried pulp	0.024	–	88
AB	Potato, process waste	0.016	–	12
AM/AV	Rape, forage	6.65	12	30
CM/CF	Rice, bran/pollard	0.44	–	90
GC	Rice, grain	1.2	–	88
CM/CF	Rice, hulls	4.45	–	90
AF/AS	Rice, straw	10	26	100
AF/AS	Rye, forage	2.75	9.6	30
GC	Rye, grain	0.09	–	88

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed
AF/AS	Rye, straw	10	26	100
SM	Safflower, meal	0.01	–	91
SM	Sesame seed, meal	0.01	–	90
CM/CF	Sorghum, grain, asp gr fn	0.41	–	85
AF/AS	Sorghum, grain, forage	1.7	4.8	35
GC	Sorghum, grain, grain	0.41	–	86
AF/AS	Sorghum, grain, stover	4.1	9.1	100
SM	Soybean, asp gr fn	0.93	–	85
AL	Soybean, hay	4.5	12	100
SM	Soybean, hulls	0.0083	–	90
SM	Soybean, meal	0.0083	–	92
VD	Soybean, seed	0.01	–	89
DM	Sugarcane, molasses	0.053	–	75
SM	Sunflower, meal	0.01	–	92
AB	Tomato, pomace, wet	0.86	–	20
GC	Triticale, grain	0.09	–	89
AF/AS	Triticale, hay	10	26	100
AF/AS	Triticale, straw	10	26	100
CM/CF	Wheat gluten, meal	0.026	–	40
CM/CF	Wheat, aspired grain fraction	3.5	–	85
AF/AS	Wheat, forage	9.6	2.75	100
GC	Wheat, grain	0.09	–	89
AF/AS	Wheat, hay	10	26	100
CM/CF	Wheat, milled bypdts	0.32	–	88
AF/AS	Wheat, silage	18	62	100
AF/AS	Wheat, straw	10	26	100

Dietary risk assessment

Long-term dietary exposure

The ADI for mefentrifluconazole is 0–0.04 mg/kg bw. The International Estimated Daily Intakes (IEDIs) for mefentrifluconazole were estimated for the 17 GEMS/Food Consumption Cluster Diets using the STMR or STMR-P values estimated by the JMPR. The results are shown in Annex 3.

The IEDIs ranged from 6 to 40 percent of the maximum ADI. The meeting concluded that long-term dietary exposure to residues mefentrifluconazole from uses considered by the JMPR is unlikely to present a public health concern.

Acute dietary exposure

The ARfD for mefentrifluconazole is 0.3 mg/kg bw. The International Estimate of Short-Term Intakes (IESTIs) for mefentrifluconazole were calculated for the food commodities and their processed commodities for which HRs/HR-Ps or STMRs/STMR-Ps were estimated by the present meeting and for which consumption data were available. The results are shown in Annex 4.

The IESTIs varied from 0 to 40 percent of the ARfD for children and 0 to 20 percent of the ARfD for the general population. The meeting concluded that acute dietary exposure to residues of fluopyram from uses considered by the present meeting is unlikely to present a public health concern.

5.25 Mepiquat chloride (336) (R)

Residue and analytical aspects

Mepiquat chloride, a quaternary ammonium compound, is registered on a variety of crops worldwide. It acts as a plant growth regulator by inhibiting the biosynthesis of gibberellic acid and it is used for prevention of lodging in cereals and for reduction in vegetation height to increase stability and reduce lodging in oilseeds. On grape vines, mepiquat chloride is used to increase the size of grape berries and reduce the amount of top growth of grape vine.

Mepiquat chloride was first evaluated by JMPR in 2023 for residues and toxicology as a new active substance. An ADI of 0–0.3 mg/kg bw and an ARfD of 0.6 mg/kg bw were established. In addition, the meeting agreed to apply the TTC approach (Cramer class III, 1.5 µg/kg bw/d) for toxicity to the metabolite methylpiperidine. The following residue definitions were derived.

Definition of the residue for compliance with the MRL in plant and animal commodities and for the estimation of the dietary intake in plant commodities: *mepiquat cation*.

Definition of the residue for the estimation of the dietary intake in animal commodities: *sum of mepiquat cation and 4–hydroxy–1,1–dimethylpiperidinium cation (4–hydroxymepiquat cation, free and conjugated), expressed as mepiquat cation.*

The residue is not fat soluble.

At the 55th Session of the CCPR, mepiquat chloride was scheduled for consideration by the 2025 JMPR for the use on cotton as a reserve compound. The meeting received use patterns and supervised field trials for cotton from Brazil.

Methods of residue analysis

The current meeting received no new information on analytical methods. Supervised field trials on cotton used method P 3366G reviewed by the 2023 JMPR. The meeting concluded that the method is fit-for-purpose for commodities of high oil content (tested on rape seeds) with a LOQ of 0.01 mg/kg for the analysis of mepiquat chloride.

Stability of pesticide residues in stored analytical samples

The current meeting received no additional information on the storage stability of mepiquat chloride. The 2023 JMPR concluded that the residues were stable for at least 25 months in cottonseed (oil seeds), 22 months in cotton hulls, 23 months in cotton meal, and 28 months in cotton oil (crude and refined) and soapstock when stored at ≤–5 °C.

Cotton seed samples from supervised field trials considered by the current meeting were stored frozen for a maximum period of 7 months, which is covered by the demonstrated storage periods.

Results of supervised residue trials on crops

Cotton

The 2023 JMPR estimated a maximum residue level of 4 mg/kg and a STMR of 1.3 mg/kg for the mepiquat cation in cotton seed based on a use pattern from Greece (1 × 0.075 kg ai/ha foliar spraying

at the end of flowering).

The current meeting received a new use pattern from Brazil, involving ten foliar spray applications at 0.05 kg ai/ha each applied at 7–day interval plus an additional final spraying with 0.5 kg ai/ha in combination with a PHI of 40 days.

Supervised field trials conducted in Brazil approximated the cGAP. Residues of mepiquat cation in cotton seeds were (n = 5): 6.8, 8.0, 10, 12 and 14 mg/kg.

The meeting estimated a maximum residue level of 30 mg/kg and a STMR of 10 mg/kg for mepiquat chloride in cotton seed to replace its previous recommendation. For the purpose of calculating the livestock animal dietary burden, the meeting estimated a highest residue of 14 mg/kg.

Residues in processed commodities

The meeting received no new information on the magnitude of residues following processing of cotton seeds. The 2023 JMPR derived processing factors on cotton matrices, which were used by the current meeting for updated estimations of residues in processed products (Table 5.25.1).

Table 5.25.1 Maximum residue levels and STMR values of mepiquat cation in processed cotton commodities

Raw commodity	Processed commodity	Mepiquat cation		
		Median processing factor (2023 JMPR Report)	STMR-P or median, mg/kg	Maximum residue level, mg/kg
Cotton seed (STMR: 10 mg/kg, MRL: 30 mg/kg)	Delinted seed Cotton hulls Cotton meal Cotton seed oil, crude Cotton seed oil, edible	1.2 0.28 1.9 0.043 0.040	12 2.8 (median) 19 (median) 0.43 0.4	– – 60 – –

The meeting estimated a maximum residue level of 60 mg/kg for mepiquat chloride cotton seed meal to replace its previous recommendation of 8 mg/kg.

Residues in animal commodities

Farm animal feeding studies

Farm animal feeding studies were assessed and summarized in the 2023 JMPR Report. The current meeting received no additional data.

Farm animal dietary burden

Dietary burdens were calculated for beef cattle, dairy cattle, broilers and laying poultry based on feed items evaluated by the meeting. The dietary burdens, estimated using the OECD diets listed in Appendix IX of the 2016 edition of the FAO manual, are presented in Annex 5 and summarized in Table 5.25.2.

Table 5.25.2 Animal dietary burden for mepiquat cation, ppm of dry matter diet

	United States/Canada		European Union		Australia		Japan	
	Max	Mean	Max	Mean	Max	Mean	Max	Mean
Beef cattle	1.8	1.8	1.1	1.1	10.9[a]	10.9[c]	–	–
Dairy cattle	3.3	3.3	2.2	2.2	6.5[b]	6.5	–	–
Poultry – broiler	4.3	4.3	1.1	1.1	2.1	2.1	–	–
Poultry – layer	4.3[e]	4.3[f]	1.1	1.1	2.1	2.1	–	–

Notes:

[a] Highest maximum beef or dairy cattle dietary burden suitable for MRL estimates for mammalian tissues.

[b] Highest maximum dairy cattle dietary burden suitable for MRL estimates for mammalian milk.

[c] Highest mean beef or dairy cattle dietary burden suitable for STMR estimates for mammalian tissues.

[d] Highest mean dairy cattle dietary burden suitable for STMR estimates for milk.

[e] Highest maximum poultry dietary burden suitable for MRL estimates for poultry tissues and eggs.

[f] Highest mean poultry dietary burden suitable for STMR estimates for poultry tissues and eggs.

Estimation of animal commodity residue levels

Cattle

Table 5.25.3 Estimations of residues for mepiquat cation in cattle commodities

	Feed level (ppm) for milk residues	Total residues (mg/kg) in milk	Feed level (ppm) for tissue residues	Total residues (mg/kg)			
				Muscle	Liver	Kidney	Fat
Maximum residue level and HR level							
Feeding study	9.9	0.038	9.9 50	<0.038 0.092	0.144 0.557	0.153 0.916	<0.038 0.04
Dietary burden and estimate of highest residue	6.5	0.025	10.9	0.039	0.15	0.17	0.038
STMR							
Feeding study	9.9	0.038	9.9 50	<0.038 0.075	0.11 0.481	0.11 0.71	<0.038 0.039
Dietary burden and estimate of highest residue	6.5	0.025	10.9	0.039	0.12	0.12	0.038

The meeting recommends a maximum residue level of 0.03 mg/kg and an STMR of 0.025 mg/kg for Group of milks and withdrew its previous recommendation of 0.008* mg/kg for milk.

The meeting estimated a maximum residue level of 0.04 mg/kg, STMR of 0.039 mg/kg and HR of 0.039 mg/kg for Group of muscle (from mammals other than marine mammals) and withdrew its previous recommendation of 0.01 mg/kg for meat (from mammals other than marine mammals).

The meeting estimated a maximum residue level of 0.04 mg/kg, STMR of 0.038 mg/kg and HR of 0.038 mg/kg for Group of Mammalian fats (except milk fats) and withdrew its previous recommendation of 0.04 mg/kg for mammalian fats (except milk fats).

The meeting estimated a maximum residue level of 0.2 mg/kg (based on kidney), STMRs of 0.12 mg/kg (liver and kidney) and HRs of 0.15 mg/kg (liver) and 0.17 mg/kg (kidney), for the Group of Edible offal (mammalian), and withdrew its previous recommendation of 0.04 mg/kg for edible offal (mammalian).

Poultry

Table 5.25.4 Estimations of residue levels of mepiquat cation in poultry commodities

	Feed level (ppm) for eggs residues	Total residues (mg/kg) in eggs	Feed level (ppm) for tissue residues	Total residues (mg/kg			
				Muscle	Liver	Kidney	Fat
Maximum residue level and HR							
Feeding study	3.8 11	<0.038 0.076	3.8 11	<0.038 <0.038	<0.038 <0.038	<0.038 <0.038	<0.038 <0.038
Dietary burden and estimate of highest residue	4.3	0.041	4.3	<0.038	<0.038	<0.038	<0.038
STMR							
Feeding study	3.8 11	<0.038 0.0589	3.8 11	<0.038 <0.038	<0.038 <0.038	<0.038 <0.038	<0.038 <0.038
Dietary burden and estimate of highest residue	4.3	0.039	4.3	<0.038	<0.038	<0.038	<0.038

Even at highest dose level of 11 ppm of mepiquat cation, residues of mepiquat cation were <0.038 mg/kg (<0.05 mg/kg as mepiquat chloride) in all tissues. The meeting concluded that residues of mepiquat cation will be <0.008 mg/kg for all poultry tissues, and noting the availability of a method of analysis for mepiquat chloride with an LOQ of 0.01 mg/kg (0.008 mg mepiquat cation/kg), agreed to recommend maximum residue levels for mepiquat cation of 0.008* mg/kg for the Group of avian muscle, Group of avian, Edible offal and Group of avian fats. Corresponding STMR and HR values were estimated at 0.01 mg/kg for all respective matrices. The meeting withdraws its previous recommendation of 0.008* mg/kg for poultry meat; poultry, edible offal of; and poultry fats.

For the Group of eggs, the meeting recommended a maximum residue level of 0.05 mg/kg, a STMR of 0.039 mg/kg and a HR of 0.041 mg/kg. The meeting withdrew its previous recommendations of 0.008* mg/kg for eggs.

Recommendations

On the basis of the data obtained from supervised trials, the meeting concluded that the residue levels listed in Table 5.25.5 and in Annex 1 are suitable for establishing maximum residue limits and for estimation of dietary intake. Table 5.25.6 shows the residues include in the dietary burden calculation. Additionally, Table 5.25.7 shows the residues used in the TTC calculation for mepiquat chloride metabolites.

Definition of the residue for compliance with the MRL in plant and animal commodities and for the estimation of the dietary exposure in plant commodities: *mepiquat cation*.

Definition of the residue for the estimation of the dietary exposure in animal commodities: *sum of mepiquat cation and 4–hydroxy–1,1–dimethylpiperidinium cation (4–hydroxymepiquat cation, free and conjugated), expressed as mepiquat cation.*

The residue is not fat soluble.

Table 5.25.5 Residue levels suitable for establishing maximum residue limits and for estimation of dietary intake

Commodity		Recommended maximum residue levels, mg/kg		STMR or STMR-P, mg/kg	HR or HR-P, mg/kg
CCN	**Name**	**New**	**Previous**		
SO0691	Cotton seed	30	4	10	–
AM3589	Cotton seed meal	60	8		–
OC0691	Cotton seed oil, crude	–	–	0.43	–
OR0691	Cotton seed oil, edible	–	–	0.4	–
MO 0105	Edible offal (Mammalian)	W	0.04	–	–
PE 0112	Eggs	W	0.008*	–	–
PF 0111	Group of avian fats	0.008(*)	–	0.01	0.01
PM 0110	Group of avian muscle	0.008(*)	–	0.01	0.01
PO 0111	Group of avian, Edible offal	0.008(*)	–	0.01	0.01
MO 0105	Group of Edible offal (mammalian)	0.2	–	Liver: 0.12 Kidney: 0.12	Liver: 0.15 Kidney: 0.17
PE 0112	Group of eggs	0.05	–	0.039	0.041
MF 0100	Group of Mammalian fats (except milk fats)	0.04	–	0.038	0.038
ML 0106	Group of milks	0.03	–	0.025	
MM 0095	Group of Muscle (from mammals other than marine mammals)	0.04	–	0.039	0.039
MF 0100	Mammalian fats (except milk fats)	W	0.01	–	–
MM 0095	Meat (from mammals other than marine mammals)	W	0.01	–	–
ML 0106	Milks	W	0.008*	–	–
PF 0111	Poultry fats	W	0.008*	–	–
PM 0110	Poultry meat	W	0.008*	–	–
PO 0111	Poultry, edible offal of	W	0.008*	–	–

Table 5.25.6 Input values for the calculation of the livestock animal dietary burden

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed
AM/AV	Cotton, gin by-products	10[a]	14[a]	90
SM	Cotton, hulls	2.8	–	90
SM	Cotton, meal	19	–	89
SO	Cotton, undelinted seed	10	–	88
AB	Grape, pomace, wet	0.78	–	15

Note:

[a] Based on cotton seed raw commodity.

Table 5.25.7 Residues of metabolites of mepiquat chloride for TTC and other dietary exposure estimations

Compound	Commodity	STMR (mg/kg)	HR (mg/kg)	Source
Methylpiperidine (Cramer class III, 1.5 µg/kg bw/d)				
Methylpiperidine	Group of avian fats	0	NA	Not detected in metabolism study, STMR assumed as 0
Methylpiperidine	Group of avian muscle	0.000067	NA	Based on laying hens metabolim study muscle at 194 ppm feed level (cation); 0.02 mg eq/kg → 0.013 mg/kg[a] and scaled by dietary burden[b]
Methylpiperidine	Group of avian, Edible offal	0	NA	Not detected in metabolism study, STMR assumed as 0
Methylpiperidine	Group of Edible offal (mammalian)	0.00303	NA	Based on goat metabolim study kidney at 610 ppm feed level (cation); 0.255 mg eq/kg → 0.17 mg/kg[a] and scaled by dietary burden[b]
Methylpiperidine	Group of eggs	0	NA	Not detected in metabolism study, STMR assumed as 0
Methylpiperidine	Group of Mammalian fats (except milk fats)	0.000214	NA	Based on goat metabolim study fats at 610 ppm feed level (cation); 0.018 mg eq/kg → 0.012 mg/kg[a] and scaled by dietary burden[b]
Methylpiperidine	Group of milks[a]	0	NA	Not detected in metabolism study, STMR assumed as 0
Methylpiperidine	Group of Muscle (from mammals other than marine mammals)	0.000715	NA	Based on goat metabolim study muscle at 610 ppm feed level (cation); 0.061 mg eq/kg → 0.04 mg/kg[a] and scaled by dietary burden[b]

Notes:

[a] Based on a molecular weight ration mepiquat cation → methylpiperidine of 0.661.

[b] Scaling factor dietary burden: mammalian matrices 610 ppm → 10.9 ppm = factor 0.0178, avian matrices 194 ppm → 4.3 ppm = factor 0.0222.

Dietary risk assessment

Long-term dietary exposure

The International Estimated Daily Intakes for the 17 GEMS/Food cluster diets, based on the recommendations of the current JMPR, were in the range 0 to 2 percent of the maximum ADI of 0.3 mg/kg bw for mepiquat chloride (or 0.229 mg/kg bw expressed as mepiquat cation). The results are shown in Annex 3.

The meeting concluded that the long-term dietary exposure from residues of mepiquat cation, from uses that have been considered by the JMPR, is unlikely to present a public health concern.

Acute dietary exposure

The International Estimated Short-Term Intake (IESTI) for mepiquat cation was calculated. The results are shown in Annex 4.

The IESTIs for mepiquat cation from the intake of the residue evaluated by the meeting were 0 percent for general population and 0–1 percent for children of the ARfD (0.6 mg/kg bw for mepiquat chloride; or 0.458 mg/kg bw expressed as mepiquat cation). The meeting concluded that acute dietary exposure from the residues of mepiquat chloride, from uses that have been considered by the current meeting, is unlikely to present a public health concern.

Threshold of toxicological concern (TTC) consideration for metabolites

The 2023 JMPR meeting noted that methylpiperidine was not considered to be genotoxic. As no further information was available, the meeting agreed to apply the TTC approach (Cramer class III, 1.5 µg/kg bw/d) for toxicity.

The dietary intake of methylpiperidine calculated using the 17 GEMS/Food cluster diets were up to 0.14 µg/kg bw, significantly lower than the TTC for Cramer class III.

The meeting concluded that the chronic dietary exposure of methylpiperidine arising from uses of mepiquat chloride considered by the meeting is unlikely to present a public health concern.

5.26 Metaflumizone (236) (R)

Residue and analytical aspects

Metaflumizone is a broad-spectrum semicarbazone insecticide composed of two geometric isomers with a ratio E:Z of 90:10. It was first evaluated for residues and toxicology by JMPR in 2009, when the meeting established an ADI of 0–0.1 mg/kg bw and concluded that an ARfD was unnecessary.

The 2009 JMPR also recommended the following residue definition for compliance with MRLs and estimation of dietary intake for plants and animals: metaflumizone, sum of E-isomer and Z-isomer. The residue is fat soluble. Metaflumizone was also considered at the 2019 Extra JMPR, where it was agreed that the metabolites M320I04 and M320I06, and the soil metabolite M320I29, are assessed against the threshold of toxicological concern as Cramer class III compounds.

Metaflumizone was scheduled at the 55th Session of the CCPR for the evaluation of an additional use on Welsh onions by the 2025 JMPR. Analytical methods, freezer storage stability, use pattern, supervised residue trials and processing on Welsh onions were submitted to the present meeting by the government of the Republic of Korea.

The meeting also received a request to extrapolate recommendations made by the 2009 JMPR for the subgroup of peppers and tomato to the subgroup of eggplant.

Methods of residue analysis

The current meeting received a new method validation study based on a QuEChERS multiresidue method capable of determining the residues of the E- and Z-isomers of metaflumizone in fresh and dried Welsh onions. The validated LOQ was 0.01 mg/kg per analyte.

Stability of pesticide residues in stored analytical samples

The 2009 JMPR demonstrated that both isomers of the parent were stable for up to two years in potato tuber, white cabbage and lettuce. Storage stability was demonstrated for one year for the metaflumizone E-isomer in tomato and the E- and Z-isomers in cotton seed. The metaflumizone Z-isomer was unstable in tomatoes stored for greater than 28 days.

The data submitted to the current meeting demonstrate that under frozen conditions, total residues of metaflumizone (E and Z isomers) are stable for at least 46 days in fresh Welsh onions and 34 days in dried Welsh onions. Samples from the supervised residue trials were analysed within these demonstrated intervals.

Residues resulting from supervised trials on crops

Subgroup of eggplant

The critical GAP for fruiting vegetables from the Netherlands is 2 × 0.024 kg ai/h, with a re-treatment interval (RTI) of 7 days and 3-day PHI. The 2009 JMPR received field trials conducted on peppers and tomatoes in Europe according to the GAP.

Total residues of metaflumizone (E- and Z-isomers) in peppers in ranked order (n = 15) were: 0.10 (2), 0.16, 0.18 (5), 0.24 (2), 0.30, 0.34 (2), 0.35 (2) mg/kg. The meeting estimated a maximum residue level of 0.6 mg/kg and a STMR of 0.18 mg/kg for the subgroup of peppers.

Total residues of metaflumizone (E- and Z-isomers) in tomatoes in ranked order (n = 10) were: < 0.02, 0.08, 0.09, 0.10, 0.11, 0.13 (2), 0.17, 0.25, 0.36 mg/kg. The meeting estimated a maximum residue level of 0.6 mg/kg and an STMR of 0.12 mg/kg for tomato.

The 2009 JMPR agreed to use the tomato and pepper data as support for eggplant (aubergine) and estimated and a maximum residue level of 0.6 mg/kg and an STMR of 0.18 mg/kg for eggplant.

The meeting was requested to consider extrapolating recommendations made for eggplant by the 2009 JMPR to the subgroup of eggplants. This extrapolation was presented to the 2024 JMPR as part of an analysis across multiple compounds where such extrapolation might be supported (see 2024 JMPR General Considerations Item 2.3).

The request noted that "The single entry of Eggplant (VO 0440) *Solanum melongena* captures many different cultivars of varying shapes, sizes and colours many of which closely resemble the other members of the subgroup Eggplants (VO 2046)." The request further noted that "…label use patterns that state 'eggplant' would more than likely be interpreted by growers to apply to any eggplant like commodity."

The current meeting considered the rationale provided and concluded that such extrapolation could be supported given the limited commodities in the subgroup of eggplants and the scope covered by the Netherlands label.

The meeting estimated a maximum residue level of 0.6 mg/kg and an STMR of 0.18 mg/kg for residues of metaflumizone for the subgroup of eggplants and withdrew its recommendation for eggplant.

Welsh onions

The critical GAP for Welsh onions is from the Republic of Korea and is a foliar spray with an application rate of 3x 0.010 kg ai/hL, a RTI of 10 days and a PHI of 7 days. Six trials were conducted in the country approximating the critical GAP.

According to the sampling procedure in the study report, fresh Welsh onions were cut 1 cm from the root, and the outer layer was removed. This procedure is not in compliance with the description in the Codex Classification for green onions (Subgroup 009B) and the FAO manual for sampling of green onions, which only allows removal of adherent soil and obviously decomposed or withered leaf parts. The meeting decided to not use the data for fresh Welsh onions and did not estimate a maximum residue level.

Information on the magnitude of residues in dry Welsh onions was also provided. Fresh Welsh onions were trimmed (roots and outer layer removed), washed with water, and cut into slices and air-dried until the moisture content was 8.1–19 percent.The meeting considered removal of the outer layer prior to drying appropriate as this is a common industrial practice in the Republic of Korea.

In trials matching the critical GAP, total residues of metaflumizone (E and Z isomers) in dry Welsh onions were (n = 6): 0.80, 0.86, 0.88, 0.93, 0.99, 1.27 mg/kg.

The meeting estimated a maximum residue level of 3 mg/kg and an STMR-P of 0.905 mg/kg for onions, Welsh, dried.

Fate of residues during processing

The meeting received new information on the fate of metaflumizone residues during processing of fresh Welsh onions to dried Welsh onions, however, considering the sampling procedure of the fresh Welsh onions, prior to processing into dried Welsh onions did not follow the Codex procedure, processing factors could not be derived.

Residues in animal commodities

Farm animal dietary burden

Eggplants and dry Welsh onions are not fed to livestock, nevertheless the dietary burdens were re-calculated for beef cattle, dairy cattle, broilers and laying poultry based on feed items evaluated by 2019 Extra JMPR using the OECD diets listed in Appendix IX of the 2016 edition of the FAO manual. These are presented in Annex 5 and summarized in Table 5.26.1.

Table 5.26.1 Summary of livestock dietary burden (ppm metaflumizone equivalents of dry matter diet)

	United States/ Canada		European Union		Australia		Japan	
	Max	Mean	Max	Mean	Max	Mean	Max	Mean
Beef cattle	0.10	0.10	0.56	0.56	3.30[a]	3.30	0.029	0.029
Dairy cattle	0.27	0.27	0.32	0.32	3.29[b]	3.29	0.029	0.029
Broilers	0.022	0.022	0.034[c]	0.034	0.013	0.013	0.008	0.008
Layers	0.021	0.022	0.033[d]	0.033	0.013	0.013	0.01	0.01

Notes:

[a] Highest maximum and mean beef cattle dietary burden suitable for maximum residue level and STMR estimates for mammalian meat.

[b] Highest maximum and mean dairy cattle dietary burden suitable for maximum residue level ad STMR estimates for mammalian milk.

[c] Highest maximum and mean poultry broiler dietary burden suitable for maximum residue level and STMR estimates for poultry meat.

[c] Highest maximum and mean poultry layer dietary burden suitable for maximum residue level and STMR estimates for poultry eggs.

Estimation of animal commodities residue levels

As the dietary burdens increased slightly beyond those calculated at the 2019 Extra JMPR, the meeting reassessed the previous estimations for animal commodities (Table 5.26.3 and Table 5.26.4).

Table 5.26.2 Residues in mammalian matrices for maximum residue level and dietary intake estimations based on dairy cattle feeding study

Metaflumizone feeding study	Feed level (ppm) for milk residues	Residues (mg/kg) in milk	Residues (mg/kg) in cream	Feed level (ppm) for tissue residues	Metaflumizone residues (mg/kg)			
					Muscle	Liver	Kidney	Fat
Maximum residue level (mg/kg), beef or dairy cattle								
Feeding study[a]	1.0	<0.01	0.0519	1.0	<0.02	<0.02	<0.02	<0.02
	5.5	0.0286	0.242	5.5	<0.02	<0.02	<0.02	<0.02
Dietary burden and high residue	3.29	0.019	0.149	3.30	<0.02	<0.02	<0.02	<0.02
STMR (mg/kg), beef or dairy cattle								
Feeding study[a]	1.0	<0.01	0.0473	1.0	<0.02	<0.02	<0.02	0.0191
	5.5	<0.01	0.117	5.5	<0.02	<0.02	<0.02	0.163
Dietary burden and residue estimate	3.29	<0.01	0.083	3.30	<0.02	<0.02	<0.02	0.092

Note:

[a] From the 2009 JMPR.

Following the new Codex Classification for animal commodities (see 2024 JMPR General Considerations Item 2.4), the meeting estimated maximum residue levels of 0.3 mg/kg for Group of milk fats (0.149 x 2, based on 50 percent fat content in cream) and 0.02 mg/kg for Group of milks. The meeting confirmed its previous STMRs of 0.166 mg/kg (0.083 x 2, based on 50 percent fat content in cream) and 0.01 mg/kg for Group of milk fats and Group of milks, respectively. The meeting withdrew its previous recommendations of 0.6 mg/kg for milk fats and 0.02 mg/kg for milks.

The meeting estimated maximum residue levels of 0.02* mg/kg for Group of edible offal (mammalian), 0.02* (fat) mg/kg for Group of muscle (from mammals other than marine mammals) and 0.15 mg/kg for Group of mammalian fats (except milk fats). The meeting confirmed its previous STMRs of 0.02 mg/kg for Group of edible offal (mammalian) and Group of muscle (from mammals other than marine mammals) and 0.092 mg/kg for Group of mammalian fats (except milk fats). The meeting withdrew its previous recommendations of 0.02* mg/kg for edible offal (mammalian), 0.02* (fat) mg/kg for meat (from mammals other than marine mammals) and 0.15 mg/kg for mammalian fats (except milk fats).

Table 5.26.3 Residues in avian matrices for maximum residue level and dietary intake estimation based on poultry feeding study

Metaflumizone feeding study	Feed level (ppm) for egg	Residues (mg/kg) in egg	Feed level (ppm) for tissue residues	Metaflumizone residues (mg/kg)		
				Muscle	Liver	Fat
Maximum residue level (mg/kg), broiler or layer poultry						
Feeding study[a]	0.1	0.061	0.1	0.021	0.033	0.338
Dietary burden and high residue	0.034	0.020	0.033	0.007	0.011	0.111
STMR (mg/kg), broiler or layer poultry						
Feeding study[a]	0.1	0.035	0.1	0.01	0.031	0.315
Dietary burden and residue estimate	0.034	0.012	0.033	0.003	0.010	0.104

Note:

[a] From the 2009 JMPR.

The meeting also estimated maximum residue levels of 0.02 mg/kg for Group of eggs, 0.02* mg/kg for Group of avian edible offal, 0.02* (fat) mg/kg for Group of avian muscle and 0.2 mg/kg for Group of avian fats and STMRs of 0.012 mg/kg for Group of eggs, 0.010 mg/kg for Group of avian edible offal, 0.003 (fat) mg/kg for Group of avian muscle and 0.104 mg/kg for Group of avian fats. The meeting withdrew its previous recommendations of 0.02 mg/kg for eggs, 0.08 mg/kg for poultry fats, 0.02* (fat) mg/kg for poultry meat and 0.02* mg/kg for poultry edible offal.

Recommendations

On the basis of the data obtained from supervised trials, the meeting concluded that the residue levels listed in Table 5.26.5 and in Annex 1 are suitable for establishing maximum residue limits and for estimation of dietary intake. Table 5.26.6 shows the residues included in the dietary burden calculation.

Definition of the residue for compliance with the MRL and for estimation of dietary intake for plant and animal commodities: metaflumizone, sum of E-isomer and Z-isomer.

The residue is fat soluble.

Table 5.26.4 Residue levels suitable for establishing maximum residue limits and for dietary exposure assessment

Commodity		Recommended maximum residue levels (mg/kg)		STMR or STMR-P (mg/kg)
CCN	Name	New	Previous	
MO 0105	Edible offal (mammalian)	W	0.02*	–
VO0440	Eggplant	W	0.6	0.18
PE 0112	Eggs	W	0.02	
PO 0111	Group of avian, Edible offal	0.02*	–	0.010
PF 0111	Group of avian fats	0.2	–	0.104
PM 0110	Group of avian muscle	0.02* (fat)	–	0.003
MO 0105	Group of edible offal (mammalian)	0.02*	–	Liver and kidney: 0.02
PE 0112	Group of eggs	0.02	–	0.012
MF 0100	Group of mammalian fats (except milk fats)	0.15	–	0.092
ML 0106	Group of milks	0.02	–	0.01
FM 0106	Group of milk fats[a]	0.3	–	0.166
MM 0095	Group of muscle (from mammals other than marine mammals)	0.02* (fat)	–	0.02
MF 0100	Mammalian fats (except milk fats)	W	0.15	–
MM 0095	Meat (from mammals other than marine mammals)	W	0.02* (fat)	–
ML 0106	Milks	W	0.02	–
FM 0106	Milk fats	W	0.6	–
DV 0387	Onion, Welsh, dried	3	–	0.905
PO 0111	Poultry, edible offal of	W	0.02*	–
PF 0111	Poultry fats	W	0.08	–
PM 0110	Poultry meat	W	0.02* (fat)	–
VO2046	Subgroup of Eggplants	0.6	–	0.18

Note:

[a] For monitoring and regulatory purposes, whole milk is to be analysed, and the result compared to the MRL for whole milk.

Table 5.26.5 Residues (as received) used to calculate the animal dietary burden

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed
AB	Apple, pomace, wet	0.97	–	40
AB	Citrus, dried pulp	0.0066	–	91
CM/CF	Corn gluten, feed	0.02	–	40
CM/CF	Corn gluten, meal	0.02	–	40
CM/CF	Corn, field, asp gr fn	0.02	–	85
CM/CF	Corn, field, hominy meal	0.02	–	88
CM/CF	Corn, field, milled bypdts	0.02	–	85
AB	Grape, pomace, wet	2.45	–	15
VR	Potato, culls	0.02	0.02	20
AB	Potato, dried pulp	0.02	–	88
AB	Potato, process waste	0.02	–	12
SM	Soybean, aspired grain fraction	0.02	–	85
SM	Soybean, hulls	0.02	–	90

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed
SM	Soybean, meal	0.02	–	92
SM	Soybean, okara	0.02	–	92
VD	Soybean, seed	0.02	–	89
AB	Tomato, pomace,wet	0.25	–	20

Dietary risk assessment

Long-term dietary exposure

The ADI for metaflumizone is 0–0.1 mg/kg bw. The International Estimated Daily Intakes (IEDIs) for metaflumizone were estimated for the 17 GEMS/Food Consumption Cluster Diets using the STMR or STMR-P values estimated by the JMPR. As consumption data for dry Welsh onion were not available, the meeting agreed to use the fresh green onion consumption data as an estimate of consumption for dry Welsh onion. The results are shown in Annex 3.

The IEDIs ranged from 0 to 3 percent of the maximum ADI. The meeting concluded that long-term dietary exposure to residues of metaflumizone from uses considered by the JMPR is unlikely to present a public health concern.

Acute dietary exposure

An ARfD for metaflumizone is unnecessary. The meeting concluded that the acute dietary exposure to residues of metaflumizone is unlikely to present a public health concern.

Consideration of TTC approach for metabolites

The 2019 Extra JMPR concluded that the metabolites M320I04 and M320I06, evaluated by the present meeting, and soil metabolite M320I29, evaluated by 2009 meeting, are to be assessed using TTC approach. All three metabolites are categorized in Cramer class III, and therefore a TTC of 1.5 µg/kg bw/day applies.

The residues of M320I04 in tomato and pepper, extrapolated to eggplants, were much lower than those of metaflumizone and did not exceed 0.02 mg/kg (15 percent of the parent, 2009 JMPR). The meeting considered the dietary exposure to the metabolite M320I04 based on the long-term dietary exposure to metaflumizone from all food commodities, resulting in a conservative exposure estimate of 0.45 µg/kg bw/day (3 µg/kg bw/day × maximum contribution of 15 percent from M320I04), which is well below the TTC of 1.5 µg/kg bw/day. M320I06 accounted for <1 percent of metaflumizone in the tomato metabolism study and was not measured in either tomato or pepper supervised field trials, extrapolated to eggplants. Therefore, the meeting concluded that long-term dietary exposure to residues of M320I04 and M320I06 would not be expected to be a safety concern.

M320I029 was only found in soil and not detected in plant commodities. Therefore, the meeting concluded that it is unlikely to present a public health concern and will not be considered in future assessments.

5.27 Metarylpicoxamid (346) (T, R)*

Toxicology

Metarylpicoxamid is the common name approved by the International Organization for Standardization (ISO) for [(2*S*,3*S*)-3-(2-methylphenyl)butan-2-yl] (2*S*)-2-[(4-methoxy-3-propanoyloxy-pyridine-2-carbonyl)amino]propanoate (International Union of Pure and Applied Chemistry [IUPAC]), for which the Chemical Abstracts Service (CAS) number is 2376210-14-7. Metarylpicoxamid belongs to the third generation of the novel and naturally-derived picolinamide fungicides. The active ingredient offers a tool for controlling Asian soybean rust and other damaging fungal diseases.

Metarylpicoxamid has not previously been evaluated by the Joint FAO/WHO Meeting on Pesticide Residues (JMPR) and was reviewed by the present meeting at the request of the Codex Committee on Pesticide Residues (CCPR). All studies were performed according to national or international test guidelines and contained statements of compliance with good laboratory practice (GLP), unless otherwise specified. A literature search was performed by the sponsor but no relevant papers were identified.

Biochemical aspects

The oral absorption of ^{14}C-labelled metarylpicoxamid in rats was rapid, with peak concentrations of radioactivity occurring in plasma between 0.5 and 3.1 hours across sexes and radiolabels (pyridine and phenyl positions) in the dose range of 10–100 mg/kg bw. The T_{max} values were slightly higher for the phenyl-labelled compound than for that with the pyridine label, and slightly higher at 100 mg/kg bw compared to 10 mg/kg bw. Oral absorption (as the combined percentage of dose recovered from bile, urine, cage wash, carcass and gastrointestinal tract tissue) ranged from 65 to 92 percent. Absorption for the phenyl label was highest at the low dose (92 percent) and declined about 1.3-fold (72 percent) at the high dose. Absorption for the pyridine label was similar across doses (65–70 percent). These label-specific differences in absorption suggest some (7–25 percent) pre-systemic metabolism of the parent substance across the alanine–hydroxybutyl bridge moiety between the pyridine and phenyl rings, with higher absorption of the resulting phenyl-labelled metabolite(s). Overall, oral absorption of metarylpicoxamid and/or its metabolites was higher than 65 percent in the rat in the dose range 10–100 mg/kg bw.

Plasma concentrations of radioactivity declined rapidly in a biphasic pattern with terminal elimination half-life ($t_{1/2}$) values that ranged from 38 to 46 hours in male rats and 28 to 36 hours in female rats, regardless of dose and label. Dose-normalized values for C_{max} and AUC (area under the concentration–time curve) indicated slight saturation of absorption with increasing dose from 10 to 100 mg/kg bw. There was some evidence of binding of radioactivity to red blood cells.

At the T_{max}, the majority of the dose was associated with the gastrointestinal (GI) contents. By 168 hours, the total tissue burden was very low, ranging from 0.0130 to 0.123 percent of the administered dose (AD). Aside from the GI tissue and GI contents, the liver had the next highest concentrations. Tissue to plasma ratios showed a slight tendency to increase with time, consistent

with re-distribution of ^{14}C residues from the systemic circulation, but not of a magnitude that would suggest long-term retention.

Metarylpicoxamid was rapidly and extensively metabolized. The metabolic pathway included several metabolic reactions, which were Phase I ester and amide hydrolysis, oxidation, reduction and Phase II glucuronide and sulfate conjugation. The parent substance initially undergoes propionic ester hydrolysis to form the primary metabolite containing both rings, X12644507. This was a major rat metabolite (higher than 10 percent AD) in bile. The metabolite X12644507 subsequently undergoes glucuronidation to form X12861687, O-demethylation to X12729779, hydroxylation to X12728263 and ester bridge hydrolysis to form metabolites that contain either just a pyridine ring or just a phenyl ring. In total, eight metabolites were fully identified in faeces, urine, bile (with and without glucuronidase incubation), and plasma. These included metabolites containing both rings, that is (X12644507, X12861687 (glucuronide of X12644507), X12728263 (hydroxylated X12644507), X12729779 (*O*-demethylated X12644507) and X12774597 (hydroxylated X12729779), metabolites with a pyridine ring only (X12485473), and those with a phenyl ring only (X12648727, X12764795). Metabolites X12861687 and X12729779 containing both rings were major rat metabolites (higher than 10 percent AD) in bile. The metabolite that only contains the pyridine ring, X12485473, was a major rat metabolite in both urine and bile. The metabolites that only contain the phenyl ring, X12764795 and X12648727 were major rat metabolites.

Excretion in the rat was rapid with more than 90 percent AD eliminated in the first 48 hours after dosing and substantially complete by seven days after dosing. In the rat, elimination occurred primarily by biliary clearance, with approximately 40–50 percent and 55–79 percent of the dose recovered in bile within 48 hours of dosing for the pyridine and phenyl label, respectively. Urinary excretion accounted for 20–25 percent and 12–24 percent of the dose within 48 hours of dosing for the pyridine and phenyl label, respectively. Biliary elimination was not assessed in the mouse or rabbit, but the data suggest that the urine is the more prominent route of excretion in these species (61–71 percent AD in the mouse and 73–92 percent AD in the rabbit).

In an *in vitro* comparative metabolism study in human, rat, mouse, rabbit and dog hepatocytes, metarylpicoxamid was rapidly and extensively metabolized and was below the limit of quantitation by four hours from the start of the experiment. No unique human metabolite was identified. In an *in vitro* experiment, the hydrolysis of metarylpicoxamid to X12644507 occurred in both gastric and small intestinal fluid from rat, mouse, rabbit and dog. Therefore, pre-systemic hydrolysis is expected to occur *in vivo*. Toxicokinetic (TK) analyses of whole blood, urine and milk were integrated in repeated dose toxicity studies in rats, mice, rabbits and dogs. The blood TK data obtained across the various studies support nearly complete metabolism of the parent to X12644507 by ester hydrolysis, followed by further metabolism to X12729779 and X12774597 (mouse and rat only). The most abundant urinary metabolites found in rat were X12485473 and X12764795, while X12485473, X12764795 and X12771593 were the most abundant metabolites found in dog urine. In the rat and rabbit reproductive/development toxicity studies, the concentrations of the metabolites were generally lower in fetuses than dams/does. Analysis of lactation day (LD) 4 pup blood indicated slight to no maternal transfer of parent or any of the metabolites to nursing rat pups.

Toxicological data

The acute oral median lethal dose (LD_{50}) of metarylpicoxamid in rats was greater than 2000 mg/kg bw and the dermal LD_{50} in rats was greater than 2000 mg/kg bw. The inhalation median lethal concentration (four-hour LC_{50}) of metarylpicoxamid aerosol in rats was greater than 1 mg/ L but less than 5.4 mg/L. Metarylpicoxamid was not irritating to skin and was not irritating to eye in *in vitro* studies but was slightly irritating in *in vivo* studies. Metarylpicoxamid was skin sensitizing in two local lymph node assays (LLNA) in mice.

In oral repeated dose studies, the main targets of toxicity in all species (mice, rats and dogs) were effects on body weights and food consumption. In addition, intestinal lesions and ovary histopathology were observed in mice and kidney toxicity (weight changes and histopathology) and effects on red blood cell parameters were seen in rats.

In a 90-day dietary study in mice, metarylpicoxamid was administered at concentrations of 0, 700, 2100, 4200 or 7000 ppm (equal to 0, 93, 283, 572, and 978 mg/kg bw per day in males, and 0, 118, 355, 718, and 1124 mg/kg bw per day in females). The no-observed-adverse-effect level (NOAEL) was 700 ppm (equal to 93 mg/kg bw per day) based on intestinal lesions at 2100 ppm (equal to 283 mg/kg bw per day) in males.

In a 90-day dietary study in rats, metarylpicoxamid was administered at concentrations of 0, 150, 500 or 1500 ppm (equal to 0, 9, 30 and 82 mg/kg bw per day in males, and 0, 10, 35 and 101 mg/kg bw per day in females). The NOAEL was 500 ppm (equal to 30 mg/kg bw per day) based on effects on body weights, body weight gains, food consumption/efficiency and kidney toxicity (weight changes and histopathology) in both sexes and effects on red blood cell parameters in males at 1500 ppm (equal to 82 mg/kg bw per day).

In a 90-day oral study in dogs, metarylpicoxamid was administered in capsules at doses of 0, 10, 30 or 75 (males), or 60 (females) mg/kg bw per day. The NOAEL was 30 mg/kg bw per day based on one male mortality and effects on body weight and food consumption in both sexes at 60/75 mg/kg bw per day in females/males.

In a 18-month carcinogenicity study in mice, metarylpicoxamid was administered at dietary concentrations of of 0, 200, 700 or 2100 ppm (equal to 0, 23, 80 or 255 mg/kg bw per day) in males and 0, 200, 1000 or 4200 ppm (equal to 0, 28, 143 and 664 mg/kg bw per day) in females. The NOAEL for carcinogenicity was 2100 ppm (equal to 255 mg/kg bw per day), the highest dose tested. The NOAEL for chronic toxicity was 200 ppm (equal to 23 mg/kg bw per day) based on histopathological findings in the small intestine (mucosal hyperplasia, epithelial degeneration/erosion of the villous tips and villous atrophy) at 700 ppm (80 mg/kg bw per day). This combination of microscopic findings suggests that test substance exposure resulted in the presence of a luminal irritant (most likely a mouse-specific metabolite excreted in bile), causing degeneration/erosion of the villus tip epithelium, subsequent increased cellular turnover, mucosal hyperplasia and over time, villus atrophy/fusion.

In a chronic toxicity/carcinogenicity study in rats, metarylpicoxamid was administered at dietary concentrations of 0, 150, 400 or 1000 ppm (equal to 0, 6.5, 17.4 and 42.5 mg/kg bw per day in males, and 0, 7.8, 20.3 and 51 mg/kg bw per day in females) for 12 or 24 months. The NOAEL for carcinogenicity and chronic toxicity was 1000 ppm (equal to 42.5 mg/kg bw per day), the highest dose tested.

The meeting concluded that metarylpicoxamid is not carcinogenic in mice or rats.

Metarylpicoxamid was tested for genotoxicity in an adequate range of *in vitro* and *in vivo* assays. No evidence of genotoxicity was found.

The meeting concluded that metarylpicoxamid is unlikely to be genotoxic.

In view of the lack of carcinogenicity in mice and rats and the fact that the compound is unlikely to be genotoxic, the meeting concluded that metarylpicoxamid is unlikely to pose a carcinogenic risk to humans.

In a two-generation reproduction toxicity study, metarylpicoxamid was given in the diet to rats at concentrations of 0, 150, 500 or 1500 ppm (equal to 0, 8.5, 28.5 and 84.2 mg/kg bw per day). The NOAEL for reproductive toxicity and offspring toxicity was 1500 ppm (equal to 84.2 mg/kg bw per day), the highest dose tested. The NOAEL for parental toxicity was 500 ppm (equal to 28.5 mg/kg bw per day) based on effects on body weights, body weight gains, food consumption/efficiency and kidney histopathology in both generations at 1500 ppm (equal to 84.2 mg/kg bw per day).

In a rat developmental toxicity study, metarylpicoxamid was administered in the diet from gestation day (GD) 6 to 21 at concentrations of 0, 250, 1000 or 2500 ppm (equal to 0, 18, 72 and 174 mg/kg bw per day). The NOAEL for embryo/fetal toxicity was 2500 ppm (equal to 174 mg/kg bw per day), the highest dose tested. The NOAEL for maternal toxicity was 1000 ppm (equal to 72 mg/kg bw per day) based on adverse effects on body weight gains and food consumption occurring in the later stages of the treatment period at 2500 ppm (equal to 174 mg/kg bw per day). More pronounced reductions in body weight gain and food consumption were observed at the start of treatment; however, these were most likely the consequence of palatability and therefore considered non adverse.

In a rabbit developmental toxicity study, metarylpicoxamid was administered in the diet from GD 7 to 29 at concentrations of 0, 1800, 5500 or 17 000 ppm (equal to 0, 62.5, 192 and 542 mg/kg bw per day). The NOAEL for embryo/fetal toxicity was 17 000 ppm (equal to 542 mg/kg bw per day), the highest dose tested. The NOAEL for maternal toxicity was 5500 ppm (equal to 192 mg/kg bw per day) based on reduced body weight gains and food consumption occurring in the later stages of the treatment period at 17 000 ppm (equal to 542 mg/kg bw per day). More pronounced reductions in body weight gain and food consumption were observed at the start of treatment; however, these were most likely the consequence of palatability and therefore not considered adverse.

The meeting concluded that metarylpicoxamid is not a developmental toxicant.

No specific neurotoxicity studies were performed, although motor activity (MA) and functional observational battery (FOB) investigations were conducted in the rat 90-day study. There were no indications of neurotoxicity from this study or any of the other repeated dose or acute toxicity studies. The meeting concluded that metarylpicoxamid is unlikely to be neurotoxic.

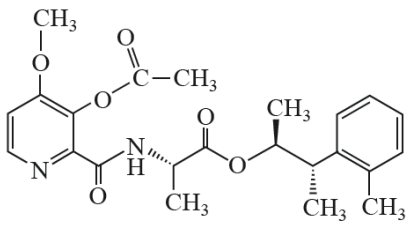
An immunotoxicity investigation was included in the 90-day dietary toxicity study in rats. No immunotoxic potential was observed. The meeting concluded that metarylpicoxamid is not immunotoxic.

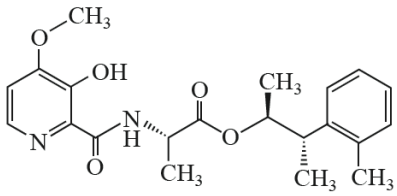
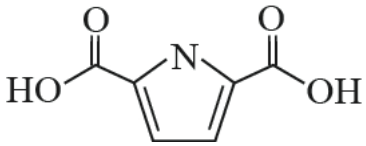
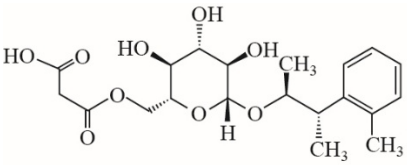
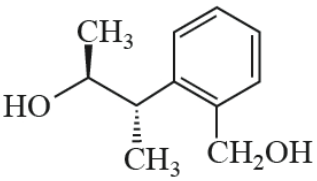
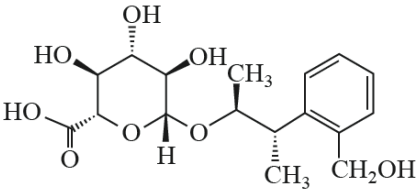
Toxicological data on metabolites and/or degradates

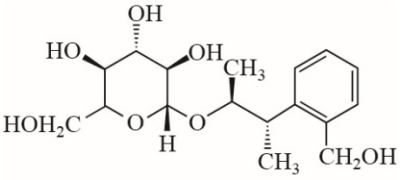
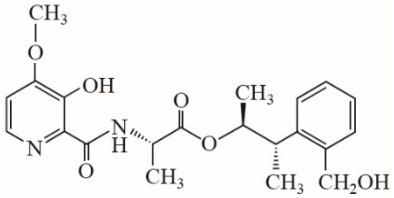
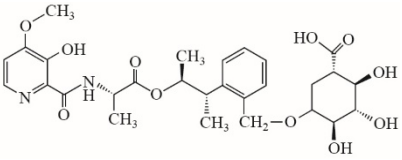
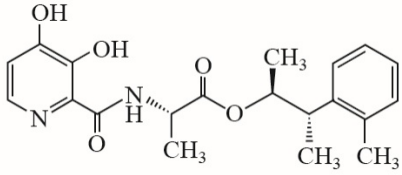
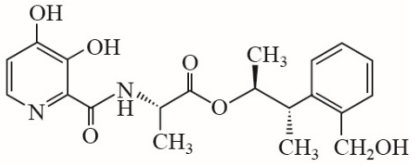
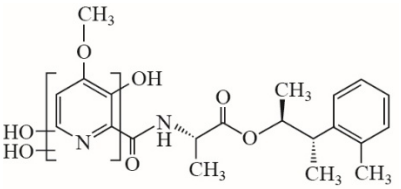
A toxicological characterization of numerous plant and/or livestock metabolites of metarylpicoxamid was performed. The following table shows an overall summary of the toxicological characterization of the metabolites requested for consideration in the residue definition.

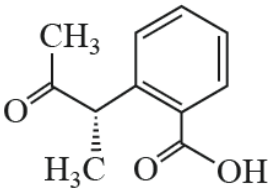
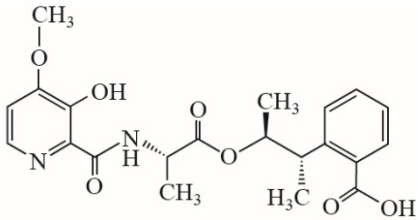
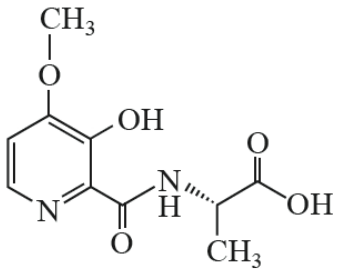
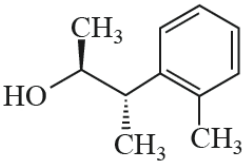
This was achieved mainly through considerations of their occurrence in rat absorption, distribution, metabolism and excretion (ADME) studies, structural similarity to parent compound or major rat metabolites, limited experimental data (Ames and *in vitro* micronucleus study on metabolite X696476), in silico genotoxicity assessment, and via grouping and read-across.

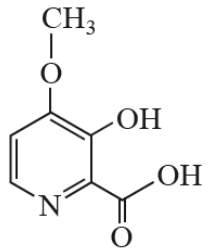
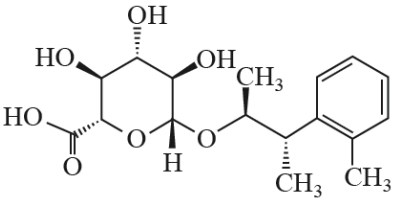
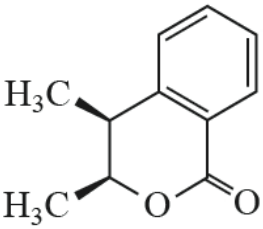
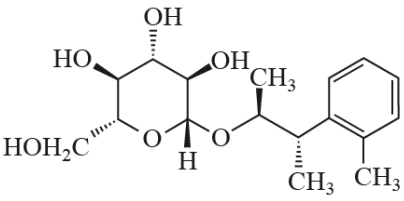
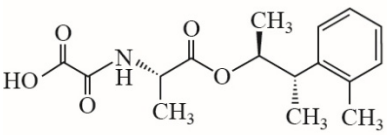
Table 5.27.1 Summary overview of toxicological characterization of plant/livestock metabolites of metarylpicoxamid

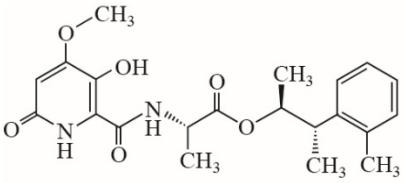
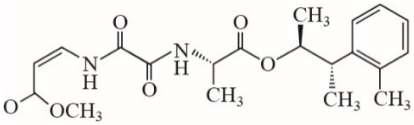
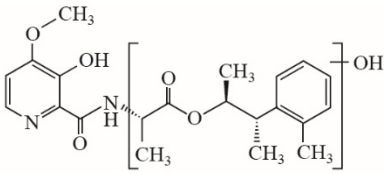
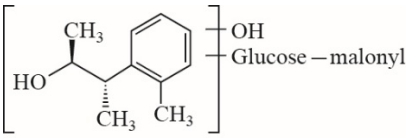
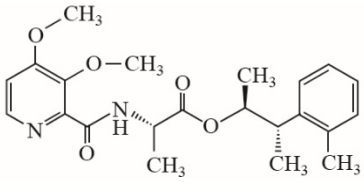
Compound, code and structure	Major rat metabolite (>10% AD)	Genotoxicity assessment (data, QSAR, read-across)	General toxicity	Dietary toxicological reference value
Metarylpicoxamid Parent (XDE-747) 	N/A	Not genotoxic (data)	Full dataset	ADI: 0–0.2 mg/kg bw ARfD: unnecessary
X12644507	Yes (>10% AD in bile)	Not genotoxic (major rat metabolite and QSAR analysis)	Covered by parent (major rat metabolite)	Parent's HBGVs

Compound, code and structure	Major rat metabolite (>10% AD)	Genotoxicity assessment (data, QSAR, read-across)	General toxicity	Dietary toxicological reference value
				
X12777891 	No	Not genotoxic (comparative QSAR analysis)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
X12774135 	No	Not genotoxic (sugar conjugate of major rat metabolite, X12648727)	Covered by parent (sugar conjugate of major rat metabolite X12648727)	Parent's HBGVs
X12797595 	No	Not genotoxic (comparative QSAR analysis)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
X12771593 	No	Not genotoxic (glucuronic acid conjugate of X12797595, which was not genotoxic in QSAR analysis – see row above)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
X12827475	No	Not genotoxic (glucose conjugate	No information	TTC Cramer class III values:

Compound, code and structure	Major rat metabolite (>10% AD)	Genotoxicity assessment (data, QSAR, read-across)	General toxicity	Dietary toxicological reference value
		of X12797595, which was not genotoxic in QSAR analysis – see 2 rows above)		1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
X12745065 	No	Not genotoxic (comparative QSAR analysis)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
X12826475 	No	Not genotoxic (glucuronic acid conjugate of X12745065, which was not genotoxic in QSAR analysis – see row above)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
X12729779 	Yes (>10% AD in bile)	Not genotoxic (major rat metabolite and comparative QSAR analysis)	Covered by parent (major rat metabolite)	Parent's HBGVs
X12774597 	No	Not genotoxic (comparative QSAR analysis)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
XDE-747-MW-418 	No	Not genotoxic (comparative QSAR analysis)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)

Compound, code and structure	Major rat metabolite (>10% AD)	Genotoxicity assessment (data, QSAR, read-across)	General toxicity	Dietary toxicological reference value
X12771309 	No	Not genotoxic (comparative QSAR analysis)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
X12777919 	No	Not genotoxic (comparative QSAR analysis)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
X12485473 	Yes (>10% AD in bile and urine)	Not genotoxic (major rat metabolite and comparative QSAR analysis)	Covered by parent (major rat metabolite)	Parent's HBGVs
X12648727 	Yes (>10% AD in bile)	Not genotoxic (major rat metabolite and comparative QSAR analysis)	Covered by parent (major rat metabolite)	Parent's HBGVs

Compound, code and structure	Major rat metabolite (>10% AD)	Genotoxicity assessment (data, QSAR, read-across)	General toxicity	Dietary toxicological reference value
X696476 	No	Not genotoxic (adequate *in vitro* genotoxicity studies)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
X12764795 	Yes (>10% AD in bile and urine)	Not genotoxic (major rat metabolite)	Covered by parent (major rat metabolite)	Parent's HBGVs
X12851221 	No	Not genotoxic (comparative QSAR analysis)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
X12801717 	No	Not genotoxic (sugar conjugate of major rat metabolite, X12648727)	Covered by parent (sugar conjugate of major rat metabolite X12648727)	Parent's HBGVs
X12781133 	No	Not genotoxic (comparative QSAR analysis)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)

Compound, code and structure	Major rat metabolite (>10% AD)	Genotoxicity assessment (data, QSAR, read-across)	General toxicity	Dietary toxicological reference value
X12728263 	No	Not genotoxic (comparative QSAR analysis)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
X12734587 	No	Not genotoxic (comparative QSAR analysis)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
XDE-747-MW-402 	No	Not genotoxic (comparative QSAR analysis)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
XDE-747-MW-428 	No	Not genotoxic (comparative QSAR analysis)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
X12728845 	No	Not genotoxic (comparative QSAR analysis)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)

Note: AD: Administered dose; TTC: threshold of toxicological concern; HBGVs: health-based guidance values.

Microbiological aspects

A search of the literature available in the public domain identified no relevant information on the potential effects of metarylpicoxamid on the microbiome. No experimental data were submitted by the sponsor in this regard.

Human data

In health surveillance of personnel employed in the manufacture of metarylpicoxamid, no negative impacts have been observed. In addition, there are no data reported in the public domain, concerning incidents or clinical cases of poisoning with metarylpicoxamid.

The meeting concluded that the existing database on metarylpicoxamid was adequate to characterize the potential hazards to the general population, including fetuses, infants and children.

Toxicological evaluation

The meeting established an acceptable daily intake (ADI) of 0–0.2 mg/kg bw based on the NOAEL of 23 mg/kg bw per day from the mouse 18-month carcinogenicity study. A safety factor of 100 was applied. This ADI applies also to the following plant/livestock metabolites: X12644507, X12774135, X12485473, X12648727, X12764795, X12729779 and X12801717.

The meeting considered that an acute reference dose (ARfD) was not necessary. There is no evidence that the substance is acutely toxic, a neurotoxicant or a developmental toxicant. Although early reductions in body weight gain and food consumption were seen at the start of treatment in the maternal animals in the rat and rabbit developmental toxicity studies, these were most likely the consequence of palatability effects and hence, not considered adverse.

The meeting concluded that the threshold of toxicological concern (TTC) Cramer class III approach for chronic exposure (1.5 µg/kg bw per day) and for acute exposure (5 µg/kg bw) should be used in the dietary risk assessment of the following plant/livestock metabolites, if necessary: X12777891, X12797595, X12771593, X12827475, X12745065, X12826475, X12774597, XDE-747-MW-418, X12771309, X12777919, X696476, X12851221, X12781133, X12728263, X12734587, XDE-747-MW-402, XDE-747-MW-428 and X12728845.

A toxicological monograph was prepared.

Table 5.27.2 Levels relevant to risk assessment of metarylpicoxamid

Species	Study	Effect	NOAEL	LOAEL
Mouse	78-week study of carcinogenicity[a]	Toxicity	200 ppm, equal to 23 mg/kg bw per day	700 ppm, equal to 80 mg/kg bw per day
		Carcinogenicity	2100 ppm, equal to 255 mg/kg bw per day[b]	–
Rat	Acute neurotoxicity study	No data	–	–
	Two-year study of toxicity and carcinogenicity[a]	Toxicity	1000 ppm, equal to 42.5 mg/kg bw per day[b]	–
		Carcinogenicity	1000 ppm, equal to 42.5 mg/kg bw per day[b]	–

Species	Study	Effect	NOAEL	LOAEL
	Two-generation study of reproductive toxicity[a]	Reproductive toxicity	1500 ppm, equal to 84.2 mg/kg bw per day[b]	–
		Parental toxicity	500 ppm, equal to 28.5 mg/kg bw per day	1500 ppm, equal to 84.2 mg/kg bw per day
		Offspring toxicity	1500 ppm, equal to 84.2 mg/kg bw per day[b]	–
	Developmental toxicity study[a]	Maternal toxicity	1000 ppm, equal to 72 mg/kg bw per day	2500 ppm, equal to 174 mg/kg bw per day
		Embryo/fetal toxicity	2500 ppm, equal to 174 mg/kg bw per day[b]	–
Rabbit	Developmental toxicity study[a]	Maternal toxicity	5500 ppm, equal to 192 mg/kg bw per day	17000 ppm, equal to 542 mg/kg bw per day
		Embryo/fetal toxicity	17000 ppm, equal to 542 mg/kg bw per day[b]	–
Dog	13-week study of toxicity[c]	Toxicity	30 mg/kg bw per day	60 mg/kg bw per day
Studies on metabolites				
Metabolite X696476		Negative Ames and *in vitro* micronucleus		

Notes:
[a] Dietary administration.
[b] Highest dose tested.
[c] Capsule administration.

Acceptable daily intake (ADI) for metarylpicoxamid:*

0–0.2 mg/kg bw

Acute reference dose (ARfD) for metarylpicoxamid:

Unnecessary

*The ADI also applies to the plant/livestock metabolites, X12644507, X12774135, X12485473, X12648727, X12764795, X12729779 and X12801717, expressed as metarylpicoxamid.

Information that would be useful for the continued evaluation of the compound

Results from epidemiological, occupational health and other such observational studies of human exposure.

Table 5.27.3 Critical end-points for setting guidance values for exposure to metarylpicoxamid

Absorption, distribution, excretion and metabolism in mammals	
Rate and extent of oral absorption	Rapid (T_{max} = 0.5–3.1 hour) and extensive (≥65%)
Dermal absorption	No data
Distribution	Wide; highest concentrations in the gastrointestinal tract and liver
Potential for accumulation	No evidence of accumulation
Rate and extent of excretion	Rapid and nearly complete via bile (40–80%) and urine (12–25%)
Metabolism in animals	Extensive, involving ester and amide hydrolysis, *O*-demethylation, hydroxylation, oxidation, reduction and glucuronide and sulfate conjugation
Toxicologically significant compounds in animals and plants	Parent, X12644507, X12774135, X12485473, X12648727, X12764795, X12729779 and X12801717
Acute toxicity	
Rat, LD_{50}, oral	>2000 mg/kg bw
Rat, LD_{50}, dermal	>2000 mg/kg bw
Rat, LC_{50}, inhalation	>1.0 and <5.4 mg/L
Rabbit, dermal irritation	Not irritating
Rabbit, ocular irritation	Slightly irritating
Mouse, dermal sensitization	Sensitizing (LLNA)
Short-term studies of toxicity	
Target/critical effect	Reductions in body weights and food consumption (mouse, dog and rat) plus kidney toxicity and effects on haematological parameters (rat only) and intestinal lesions (mouse only)
Lowest relevant oral NOAEL	30 mg/kg bw per day (dog, rat)
Long-term studies of toxicity and carcinogenicity	
Target/critical effect	Histopathology of small intestine (mouse)
Lowest relevant NOAEL	23 mg/kg bw per day (mouse)
Carcinogenicity	Not carcinogenic in mice/rats
Genotoxicity	Unlikely to be genotoxic
Reproductive toxicity	
Target/critical effect	No reproductive effects

Lowest relevant parental NOAEL	28.5 mg/kg bw per day (rat)
Lowest relevant offspring NOAEL	84.2 mg/kg bw per day, highest dose tested (rat)
Lowest relevant reproductive NOAEL	84.2 mg/kg bw per day, highest dose tested (rat)
Developmental toxicity	
Target/critical effect	Maternal: body weight and food consumption reductions; embryo/fetal: no effects (rat, rabbit)
Lowest relevant maternal NOAEL	72 mg/kg bw per day (rat)
Lowest relevant embryo/fetal NOAEL	174 mg/kg bw per day (rat)
Neurotoxicity	
Acute neurotoxicity NOAEL	No data
Subchronic neurotoxicity NOAEL	No data
Developmental neurotoxicity NOAEL	No data
Other toxicological studies	
Immunotoxicity	No effects in immunotoxicity assay in the 90-day rat study

Table 5.27.4 Studies on toxicologically relevant metabolites

Metabolite X696476	Negative Ames and *in vitro* micronucleus test
Microbiological aspects	No relevant data
Human data	No clinical cases or poisoning incidents have been reported

Table 5.27.5 Summary

	Value	Study	Safety factor
ADI	0–0.2 mg/kg bw[a]	18-month carcinogenicity study (mouse)	100
ARfD	Not necessary	–	–

Note:
[a] Applies to metarylpicoxamid, X12644507, X12774135, X12485473, X12648727, X12764795, X12729779 and X12801717, expressed as metarylpicoxamid.

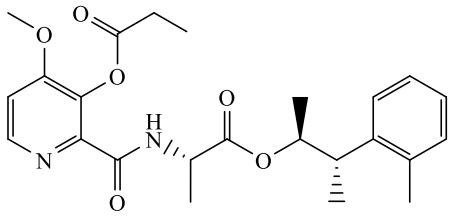
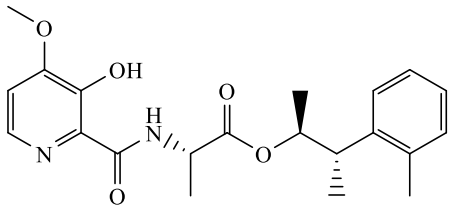
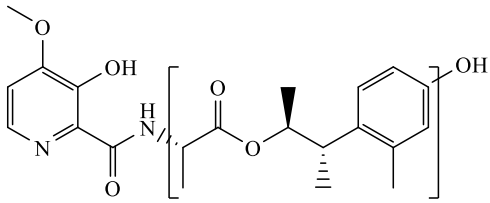
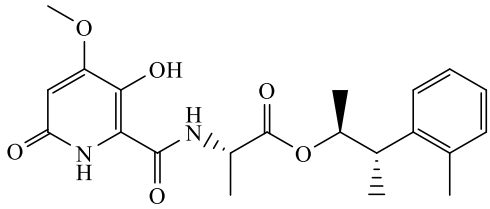
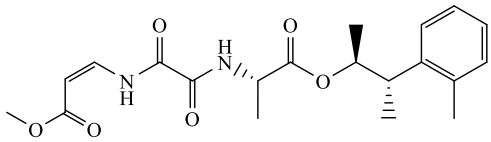
Residue and analytical aspects

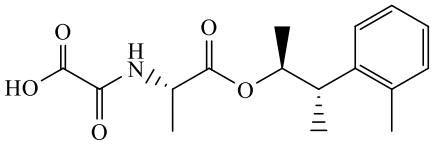
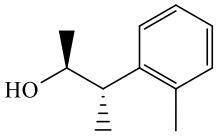
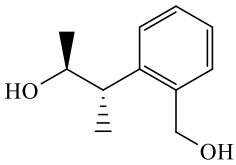
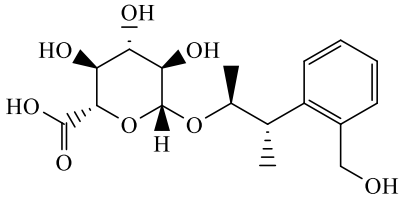
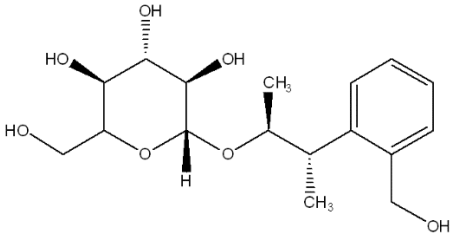
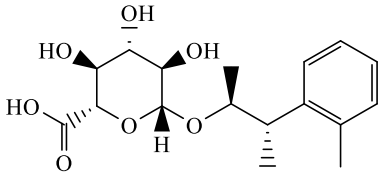
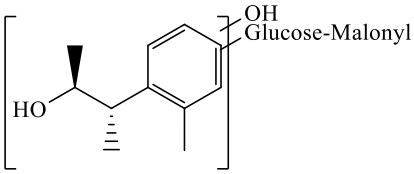
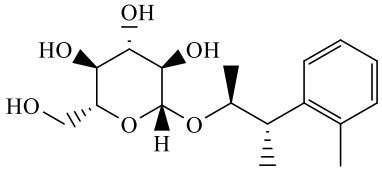
Metarylpicoxamid (IUPAC: (2S,3S)-3-(o-tolyl)butan-2-yl N-{[4-methoxy-3-(propanoyloxy)-2-pyridyl] carbonyl}-L-alaninate) is a fungicide. Metarylpicoxamid acts by inhibition of mitochondrial electron transport complex III at ubiquinone site (inside inhibitor), MET III Qi. At the 55th Session of the CCPR (2024), metarylpicoxamid was scheduled for evaluation as a new compound by the 2025 JMPR.

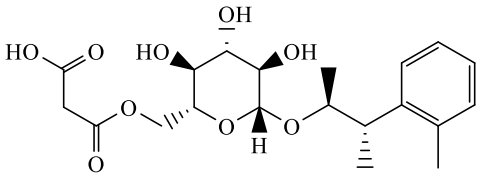
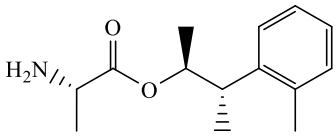
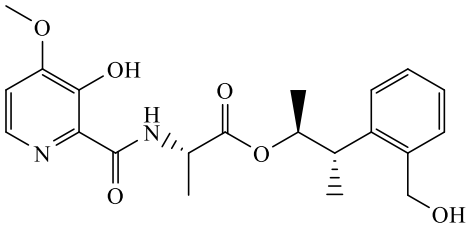
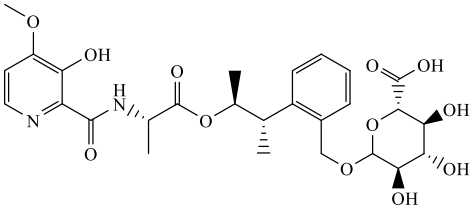
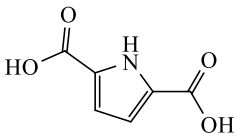
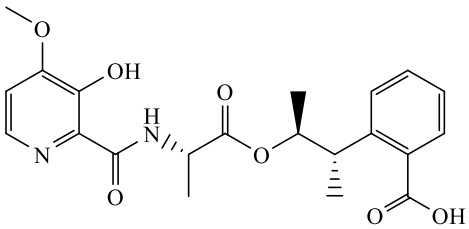
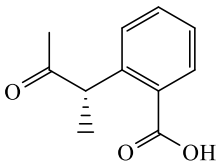
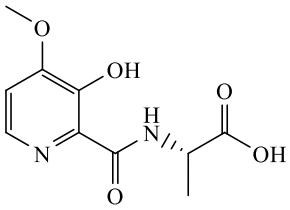
The meeting received information on the identity, physical chemical properties, metabolism (plants, rotational crops and animals), environmental data, methods of analysis, freezer storage data, GAP information, supervised residue trials, fate of residues on processing and animal transfer studies.

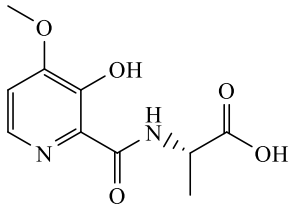
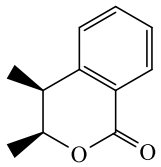
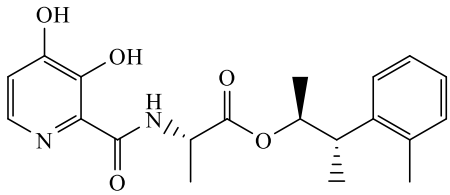
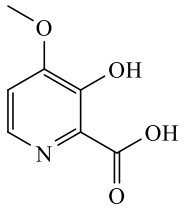
The chemical structure of active and its metabolites/degradates relevant to the appraisal are shown in Table 5.27.6.

Table 5.27.6 Metarylpicoxamid and the identified metabolites/degradates

Chemical name and or code	Structure
Metarylpicoxamid XDE-747	
X12644507	
XDE-747-MW-402 (hydroxylated X12644507)	
X12728263	
X12734587	

Chemical name and or code	Structure
X12781133	
X12648727	
X12797595	
X12771593 (glucuronic acid conjugate of X12797595)	
X12827475 (glucose conjugate of X12797595)	
X12764795	
XDE-747-MW-428 (Glucose-malonyl conjugate of X12648727)	
X12801717	

Chemical name and or code	Structure
X12774135 (aka X12764267)	
X12651475	
X12745065	
X12826475 (glucuronic acid conjugate of X12745065)	
Pyrrole-2,5-dicarboxylic acid X12777891	
X12777919	
X12771309	
X12485473	

Chemical name and or code	Structure
X12485473	
X12851221	
X12729779	
X696476	

Physical and chemical properties

Metarylpicoxamid is not regarded as volatile, is moderately persistent in sterile water at normal environmental condition and aqueous photolysis may play an important role in its degradation. The partition coefficient indicates its potential to sequester in fat (Log Pow 3.9).

Plant metabolism

The meeting received a study on the metabolism of metarylpicoxamid in soya bean, using metarylpicoxamid labelled in the phenyl [^{14}C-PH] ring or pyridine [^{14}C-PY] ring; the phenyl label was uniform throughout the ring, the pyridine label was at position 2 on the ring.

Soya bean

Soya bean grown outdoors was treated with metarylpicoxamid labelled at the [^{14}C-PY-] or [^{14}C-PH-] position. Three applications were made at 60–78 g ai/ha via foliar spray application between BBCH 59 and 80 (first flower petals visible to first pods ripe).

Samples of forage were taken 11 days after the first application (DA1A). Hay and fresh soya beans were harvested at 16 and 34 days after the second application (DA2A), respectively. Mature seeds, straw and pods were harvested at 21 days after the last application (DALA). Total radioactive residues (TRR) was determined for all samples; but detailed extraction and analysis was only conducted for forage, hay and mature seeds.

Homogenized samples were subjected to a six step extraction regime; the first extraction involved four sequential extractions with ACN:water:acetic acid (50:50:0.1); the initial extraction released 66–93 percent TRR. Total extractability was high and ranged from 90 to 101 percent TRR in all matrices. Only the initial extracts were subject to HPLC analysis, except for seeds in the PY experiment, for which the enzyme extract and 1 mol/L HCl reflux extracts were also analysed.

The TRR levels in forage and hay were comparable for each label; the TRR in seeds was 3.7x higher in the PH-label compared to the PY-label. Forage contained between 1.0 and 1.1 mg eq/kg, hay between 3.5 and 3.7 mg eq/kg and seeds between 0.04 and 0.15 mg eq/kg. The TRR was highest in mature straw (4.6–5.5 mg eq/kg), however, no further analysis was conducted on this matrix.

In soya bean seeds, parent metarylpicoxamid was found at 7.6–16 percent TRR (0.006–0.011 mg/kg). The following metabolites were identified individually at levels exceeding 10 percent of the parent: X12777891 (1.8x parent, 0.02 mg eq/kg); X12644507, and its tentatively identified hydroxylated form (XDE-747-MW402) (sum 0.45–0.66x parent, 0.004–0.005 mg eq/kg); X12648727 (free and conjugated) (sum 0.62x parent, 0.003 mg eq/kg); X12781133 (0.13x parent, 0.001 mg eq/kg); X12797595 (free and conjugated) (0.11x parent, <0.001 mg eq/kg).

Various minor metabolites (X12827475, X12728263, X12734587) were identified in the PH-label only, not exceeding 7 percent of the parent TRR (0.001 mg eq/kg). The TRR in the PES ranged from 2.8 to 21 percent TRR (0.004–0.008 mg eq/kg).

In soya bean forage (harvested 11 DA1A), parent metarylpicoxamid was the most predominant compound observed in both labels at 39–51 percent TRR (0.40–0.57 mg/kg). The following metabolites were identified individually at levels exceeding 10 percent of the parent: X12644507 and XDE-747-MW402 (sum 0.21–0.27x parent, 0.11 mg eq/kg); X12648727 (free and conjugated) (sum 0.36x parent, 0.14 mg eq/kg).

Minor metabolites (X12827475, X12797595, X12728263, X12734587, X12781133) did not exceed 5 percent of the parent TRR (0.019 mg eq/kg). The TRR in the PES ranged from 0.59 to 2.2 percent TRR (0.006–0.024 mg eq/kg). X12777891 was not identified in forage.

In soya bean hay (harvested 16 DA2A), parent metarylpicoxamid was the most predominant compound observed in both labels at 23–29 percent TRR (0.84–1.0 mg/kg). The following metabolites were identified individually at levels exceeding 10 percent of the parent: X12644507 and XDE-747-MW402 (sum 0.32–0.4x parent, 0.32–0.39 mg eq/kg); X12648727 (free and conjugated) (sum 0.67x parent, 0.57 mg eq/kg); X12797595 (free and conjugated) (0.13x parent, 0.11 mg eq/kg).

Minor metabolites (X12827475, X12728263, X12734587, X12781133) did not exceed 6 percent of the parent TRR (0.019 mg eq/kg). The TRR in the PES ranged from 0.86 to 3.6 percent TRR (0.032–0.128 mg eq/kg). X12777891 was not identified in hay.

In all matrices, XDE-747-MW402 only comprised a minor fraction of “total” X12644507. Conjugated X12648727 comprised the majority of “total” X12648727, while free and conjugated X12797595 were identified in equivalent proportions. The conjugated components (XDE-747-MW428, X12774135, and X12801717) were released in the initial extraction step.

Summary of plant metabolism

The most predominant route of metarylpicoxamid metabolism in soya beans proceeds via ester hydrolysis to produce X12644507, which is oxidated on the pyridine ring to form X12728263 and hydroxylated to form XDE-747-MW402. X12644507 also undergoes pyridine ring opening, to form X12734587, this subsequently undergoes amide hydrolysis to form X12781133.

X12644507 was also cleaved via hydrolysis across its alanine bridge, forming X12648727 from the phenyl half of the molecule. X12648727 was hydroxylated on the pyridine ring to X12797595, which formed a glucose conjugate, X12827475.

A glucose-malonyl conjugate of hydroxylated X12648727, XDE-747-MW428, was also formed. X12648727 also underwent glucose and malonyl-glucose conjugation directly, producing X12801717, then X12774135. The pyridine half of the molecule eventually cyclized to form X12777891 (1H-pyrrole-dicarboxylic acid), which is also observed to occur naturally.

In crop fractions for human consumption (soya bean seeds); metarylpicoxamid, X12644507 (free and hydroxylated), and X12777891 were identified at >10 percent TRR; X12648727 (free and conjugated) was <10 percent TRR but was >10 percent of the parent TRR.

For animal feed commodities, parent was the predominant compound observed in all cases. X12644507 (free and hydroxylated), X12648727 (free and conjugated) were identified at >10 percent TRR and >10 percent of parent TRR; X12648727 (free and conjugated) and X12797595 (free and conjugated).

Chiral analysis was undertaken for parent metarylpicoxamid and its metabolite X12644507 in soya bean forage, hay and seeds. No significant change in stereoisomeric excess is observed.

Animal metabolism

The meeting received animal metabolism studies of metarylpicoxamid on rats, lactating goats and laying hens where animals were dosed with metarylpicoxamid radiolabelled in the phenyl (PH) or pyridine (PY) position. The metabolism in rats was reviewed in the framework of the toxicological evaluation by the WHO Core Assessment Group.

Lactating goat

Lactating goats received oral doses of [^{14}C]-metarylpicoxamid labelled at the [phenyl – PH] or [pyridine-PY] position via capsule at rates equivalent to 9.5 and 9.9 ppm in the feed for the phenyl and pyridine labels, respectively (0.31 and 0.32 mg kg/bw day). Milk was collected twice a day and tissue samples 7.5 hours after the last dose.

Between 98 and 99 percent of the recovered dose was found in excreta and the GI contents. The TRRs were below 0.01 mg eq/kg in all milk samples, fat and muscle. No identification or characterization work was conducted on these matrices.

The TRR ranged from 0.07 to 0.12 mg eq/kg in liver and from 0.10 to 0.38 mg eq/kg in kidney. Liver and kidney samples were extracted using acetonitrile:water (50:50) with 0.1 percent acetic acid. The organic solvent extractability was 93–97 percent TRR for kidney and 64–84 percent for liver. Liver samples were further extracted with a range of organic solvents, and submitted to enzyme/acid hydrolysis, releasing 19–30 percent TRR; only the protease extract was further analysed by HPLC.

In liver, parent compound was only identified in the PH-label in minor amounts (2.1 percent TRR, 0.002 mg eq/kg). In both labels, X12745065 (free and conjugated) was identified at 18–21 percent TRR (0.013–0.026 mg eq/kg); of which >70 percent as conjugated form. In the PY-label, X12485473 was identified at 17 percent TRR (0.021 mg eq/kg). A range of minor metabolites not exceeding 3 percent TRR (0.004 mg eq/kg) were also identified across both labels. A further 15–33 percent TRR (0.018–0.024 mg eq/kg) was comprised of minor unknown peaks only. Between 6–7 percent TRR (0.006–0.007 mg eq/kg) remained as unextracted.

In kidney, no parent compound was identified in any label. In both labels, X12745065 (conjugated only) was identified at 3.5–25 percent TRR (0.013–0.024 mg eq/kg). In the PY-label, X12485473 was identified at 69 percent TRR (0.264 mg eq/kg). In the PH-label, X12771593 was identified at 29 percent TRR (0.028 mg eq/kg). A range of minor metabolites not exceeding 7 percent TRR (0.007 mg eq/kg) were also identified across both labels. A further 9.3–15 percent TRR (0.015–0.036 mg eq/kg) was comprised of minor unknown peaks only. Between 4–6 percent TRR (0.006–0.015 mg eq/kg) remained as unextracted.

Chiral analysis was undertaken for parent metarylpicoxamid in faeces, and for X12644507 in faeces, liver and kidney. Significant conversion to the R,S,S isomer was observed for metarylpicoxamid in faeces. For X12644507; no stereoisomers were observed in liver or kidney (100 percent S,S,S isomer). Some conversion to the S,R,R isomer was observed in faeces (maximum 1.2 percent of the total stereoisomer for each label). Parent metarylpicoxamid is not expected to be present in any tissue or milk sample in significant quantities; and negligible changes in stereoisomeric ratio were observed for X12644507.

The meeting noted that parent metarylpicoxamid is not stable in liver and kidney, with decline on storage after 4 months by 62 percent and 40 percent, respectively. Initial extracts were analysed within 4 months for liver and kidney. Parent metarylpicoxamid was only identified in liver at 0.002 mg/kg. Assuming a decline of 62 percent; 0.003 mg/kg may have been present in liver prior to storage. The instability of parent compound in liver and kidney does not impact the conclusions.

Poultry

Laying hens received oral doses of [^{14}C]- metarylpicoxamid labelled at the [phenyl-PH] and [pyridine-PY] position via capsule at a rate equivalent to 13.9 and 14.2 ppm in the feed for the phenyl and pyridine labels, respectively (7.52 and 7.94 mg kg/bw day). Eggs were collected twice a day and tissue samples 7.5 hours after the last dose.

The TRR in eggs ranged from 0.01 to 0.060 mg eq/kg, and were higher in the PH-label. TRR was 0.092–0.45 mg eq/kg in liver, 0.004–0.067 mg eq/kg in muscle and 0.029–0.152 mg eq/kg in fat. Muscle was only analysed for the PH-sample, as the TRR in the PY-labelled sample was low (0.004–0.007 mg eq/kg).

Muscle, liver, and fat samples were extracted using acetonitrile:water (50:50) with 0.1 percent acetic acid. Egg samples were extracted using acetonitrile:water (80:20) with 0.1 percent acetic acid, followed by acetonitrile:water (20:80) with 0.1 percent acetic acid. The organic solvent extractability was 68–94 percent TRR for eggs, 90–92 percent TRR for muscle, 80–106 percent TRR for fat, and 49–60 percent for liver (a further 19–29 percent TRR was released from liver via protease extraction).

In eggs, no parent compound was identified. The metabolic profile was similar over the samples from different days. X12771309 was the most predominant metabolite identified (PH-label only), present at up to 25 percent TRR (0.014 mg eq/kg). X12485473 was identified in the PY-label sample up to 6.9 percent TRR (0.002 mg eq/kg). X12644507 was identified in both labels but was more predominant in the PY-label (0.58–17.9 percent TRR, 0.000–0.004 mg eq/kg). X12851221 was identified in the PH-labelled sample only at a maximum of 2.2 percent TRR (0.001 mg eq/kg). A further 19–53 percent TRR (0.003–0.024 mg eq/kg) was comprised of minor unknown peaks. Between 2.1–3.6 percent TRR remained as unextracted.

In liver, no parent compound was identified in any label. Identification was low in liver with both labels (5.7–8.3 percent TRR). Most predominant metabolite was X12485473 (PY-label) at 4.9 percent TRR (0.005 mg eq/kg). X12771309 and X12851221 were identified in the PH-label sample at <4.0 percent TRR; X12644507 was identified in both labels at 0.2–0.8 percent TRR (0.001 mg eq/kg). A further 35–37 percent TRR (0.032–0.103 mg eq/kg) was comprised of minor unknown peaks, indicating extensive metabolism in liver. Between 1.0–2.3 percent TRR remained as unextracted.

In muscle, no parent compound was identified. X12771309 was the most predominant metabolite identified, present at 37–39 percent TRR (0.020–0.027 mg eq/kg). X12851221 and X12644507 were identified in minor (<1 percent TRR, 0.001 mg eq/kg). A further 5.0–31 percent TRR (0.000–0.010 mg eq/kg) was comprised of minor unknown peaks. Between 2.1–3.6 percent TRR remained as unextracted.

In fat, parent compound was only identified in abdominal fat for the PH-label at 0.66 percent TRR (0.001 mg eq/kg). X12644507 was identified in both labels at 10–62 percent TRR (0.016–0.028 mg eq/kg). X12771309 was identified in significant amounts in the PH-labelled sample at 17–42 percent TRR (0.013–0.065 mg eq/kg). X12851221 was also identified in the PH-label at 5.6–17 percent TRR (0.009–0.013 mg eq/kg). A further 2.5–16 percent TRR (0.001–0.015 mg eq/kg) was comprised of minor unknown peaks. Between 2.9–11 percent TRR remained as unextracted.

Chiral analysis was also undertaken for parent metarylpicoxamid in faeces, and for X12644507 in faeces and abdominal fat. No significant changes in stereoisomeric ratio were observed.

The meeting noted that parent metarylpicoxamid is not stable in liver, with a decline on storage after 4 months of 62 percent. Initial extracts were analysed within 4 months for liver. Parent metarylpicoxamid was not identified in liver at (<0.001 mg eq/kg). Assuming a decline of 62 percent; residues above 0.001 mg eq/kg are not expected to have been present in liver prior to storage. The instability of parent compound in liver does not impact the conclusions.

Summary of animal metabolism

In general, the metabolism of metarylpicoxamid in rats, ruminants and poultry is similar. Metabolism proceeds in all cases via ester hydrolysis to form X12644507. Parent compound was only detected in minor amounts in animal commodities (max. 2 percent TRR, 0.001 mg eq/kg in goat liver, and 0.7 percent TRR, 0.001 mg eq/kg in hen fat). X12644507 was a significant metabolite in poultry fat and eggs, indicating limited metabolism in these matrices, as X12644507 is the first metabolite of the parent compound. In poultry, all further metabolites were a result of internal ester hydrolysis of X12644507 (e.g. X12648727 and X12485473). The phenyl-labelled component (X12648727) underwent significant additional transformations, primarily resulting in X12771309. X1248573 and X12771309 were identified in both ruminant and poultry matrices. In ruminant matrices, X12644507 was observed to undergo hydroxylation to form X12745065; which then underwent oxidation to form X12777919, or conjugation to form X12826475. In ruminant, X12797595 was observed in both liver and kidney, this is the reduced precursor of X12771309.

Environmental fate

The meeting received data on hydrolysis, aqueous photolysis, and confined rotational crop studies.

Environmental fate in water

Hydrolytic degradation

At pH 4, 7, and 9 (at 25 °C), the DT50 values for metarylpicoxamid were 68 days, 41.5 days, and 0.93 days, respectively. At environmentally relevant conditions, the metabolites X12644507, X12648727 and X12485743 were the major transformation products, at a maximum of 83, 61, and 61 percent of applied radioactivity (AR,) respectively.

The meeting concluded that at environmentally relevant conditions, metarylpicoxamid was moderately persistent.

Aqueous photolysis

The aqueous photolysis of metarylpicoxamid was investigated in sterile aqueous 0.01 mol/L citrate buffer samples at pH 4 and 25 °C. The samples were continuously exposed to simulated sunlight for 15 days.

The major degradates (>10 percent AR) in the irradiated samples were X12651475 and X12781133 (up to 12 percent AR). A series of minor components not individually exceeding 5 percent AR were also found. Overall, metarylpicoxamid was degraded by at least 90 percent in each radiolabelled irradiated sample.

In the control samples kept in the dark, metarylpicoxamid remained at or above 83 percent AR, the only identified degradate in the control sample was X12644507 (>10 percent AR).

The predicted DT_{50} value for metarylpicoxamid from photolysis at 40° north latitude in the summer sun was 0.74 days. The predicted DT_{90} value was 2.46 days.

The meeting concluded that metarylpicoxamid is degraded quickly, and that aqueous photolysis may play an important role in the degradation.

Rotational crop

A confined rotational crop study was conducted at an application rate of 179–195 g ai/ha to the bare soil. Following crops of leafy lettuce, radish, oilseed rape and wheat were planted 29, 120 and 300 days after treatment (plant back interval, PBI).

TRR in the majority of tested crop matrices were <0.01 mg eq/kg, except for oilseed rape seeds, wheat straw and wheat grain at the 29 and 120 day PBIs.

Parent metarylpicoxamid was not found in any matrix at >0.01 mg/kg. No metabolite was identified or characterized at >0.007 mg eq/kg. Incorporation into starch was observed in wheat grain and oilseed rape seed; in addition, many of the characterized residues are associated with polar compounds, which may be starch pre-cursors.

Overall, the meeting agreed that residues are not expected in rotational crops at levels above typical LOQs of analytical methods (0.01 mg/kg).

Methods of residue analysis

The meeting received analytical method descriptions and validation data for metarylpicoxamid and its metabolites in plant and animal matrices.

In method "202120", residues are extracted from crop samples using acetonitrile:water:acetic acid (50:50:0.1) and analysed by LC-MS/MS. The method was validated at a LOQ of 0.01 mg/kg for metarylpicoxamid and its metabolites X12777891, X12644507, and X12774135, separately in dry commodities (soya bean hay, navy bean dry, wheat grain), commodities of a high-water content (lettuce, soya bean forage, carrot root), commodities of a high acid content (oranges) and commodities of a high oil content (soya bean seed).

Validation data were provided for a method based on QuEChERS that used the same extraction system and LC-MS/MS determination. The method was suitable for the determination of metarylpicoxamid and its metabolite X12644507 in crops of a high-water content (lettuce), high oil content (soya bean seeds), high acid content (lemon) and dry crops (maize grain). The LOQ was 0.01 mg/kg for each metabolite.

The methods employed in the lactating cow feeding study involved the same solvent extraction, sample clean-up and LC-MS/MS. The method was validated for metarylpicoxamid and its metabolites X12644507, X12771593, X12485473, X12745065, and X12797595 in milk, eggs and tissue samples at an LOQ of 0.01 mg/kg for each analyte.

A QuEChERs method (acetonitrile:water [50:50]) was also available for milk, kidney, muscle, fat, eggs, and honey matrices that was suitable for the determination of metarylpicoxamid and its metabolite X12644507 with an LOQ of 0.01 mg/kg.

Stability of pesticide residues in stored analytical samples

The meeting received information on storage stability of metarylpicoxamid and the metabolites X12644507, X12774135, and X12777891 in raw plant commodities (lettuce [high water], soya bean seeds [high oil], navy bean seeds [high protein/dry], carrot roots [high starch], oranges [high acid], wheat grain [high starch/dry]) stored at –18 °C. Storage stability was demonstrated for at least 12 months for all plant commodity/analyte combinations, except for X12644507 in lettuce, for which, stability was only demonstrated for up to 3 months.

The meeting also received information on storage stability of metarylpicoxamid and the metabolites X12644507, X12485473, X12771593, X12745065 and X12797595 in animal commodities stored at –18 °C, demonstrating stability of at least 6 months for all analytes in muscle, fat, milk and cream. In liver and kidney, all metabolites were stable for up to 4 months and the parent compound for up to 2 months.

The meeting agreed that the demonstrated storage stability on plant commodities covered the residue sample storage intervals used in the field trials considered by the current meeting for soya bean seeds and soya bean hay (high starch/dry commodities). For high water (soya bean forage), the available trials data is not supported by the stability data.

The meeting agreed that the demonstrated storage stability for animal commodities covered the residue sample storage intervals for all matrices except kidney in the ruminant feeding study. For kidney, only the stability of parent metarylpicoxamid was not supported; from the animal metabolism study, no residues of metarylpicoxamid are expected in animal commodities; no parent compound was detected in any other sample in the feeding study. Overall, this is not expected to impact the validity of the feeding study.

Definition of the residue

Plant commodities

The metabolism of metarylpicoxamid was investigated in soya beans (forage, hay, and seed) following foliar spray application. Parent metarylpicoxamid was the predominant compound in soya bean hay, forage and seeds (except for pyrazole label) – comprising 16–51 percent TRR (0.011–1.09 mg/kg); it was found at 8.0 percent TRR (0.006 mg/kg) in seeds from the pyrazole label experiment.

In supervised residue trials, metarylpicoxamid is found in soya bean forage, hay and day 0 in seeds and is considered to be a suitable marker compound. Metarylpicoxamid is degraded to X12644507 under hydrolysis conditions representative of industrial processing conditions – however, metarylpicoxamid remains present at between 35 and 90 percent AR; as such, in processed commodities, metarylpicoxamid remains a suitable marker compound. The meeting noted that suitable analytical methods exist to measure metarylpicoxamid in plant commodities; therefore, the meeting decided to define the residue for compliance with the maximum residue level as *metarylpicoxamid*.

In deciding which compounds should be included in the residue definition for dietary intake, the meeting considered the likely occurrence of the compound and its toxicological properties for the metabolites: X12644507, X12777891, X12648727 (and its sugar conjugates X12774135 and X12801717), X12797595, X12781133, X12728263, X12734587, X12729779, X696476, XDE-747-420 and XDE-747-428.

The meeting established an ADI of 0–0.2 mg/kg bw for metarylpicoxamid which also applies to the metabolites: X12644507, and X12648727 (and its sugar conjugates X12774135 and X12801717).

X12644507 (free and hydroxylated) was found at 44–45 percent of the level of parent metarylpicoxamid in soya bean seeds in the metabolism study. In residue field trials, X12644507 was identified at comparable levels to parent metarylpicoxamid in soya bean seeds. In addition, X12644507 was present at >10 percent TRR in soya bean forage and hay. In the residue trials, the metabolite was quantified at up to 1.8 mg/kg and 7.5 mg/kg in soya bean forage and hay, respectively. X12644507 is a major processing degradant (up to 53 percent AR under sterilization conditions) and is also a key step in the metabolic profile of metarylpicoxamid in ruminants and poultry. For the reasons outlined, the meeting concluded that X12644507 should be included in the residue definition for dietary intake and should be considered in the livestock dietary burden calculation.

X12648727 (and its sugar conjugates) comprised 9.6 percent TRR (0.004 mg eq/kg) soya bean seeds, 10.3 percent TRR (0.105 mg eq/kg) in forage and 13.1 percent TRR (0.489 mg eq/kg) in hay. X12648727 was primarily found in its conjugated forms, with X12774135 the predominant conjugate.

Considering the compounds which are covered by the parent ADI, the sum of parent metarylpicoxamid and X12644507 covers 90, 81 and 68 percent of the group toxicity in seeds, forage and hay, respectively (based on the metabolism study). In residue field trials, X12774135 was <LOQ in all soya bean seed samples. As such, the meeting decided the inclusion of X12648727 (free and conjugated) is not necessary for the residue definition dietary intake or the livestock dietary burden calculation.

The meeting decided to define the residue for dietary intake for plant commodities as the sum of *metarylpicoxamid and X12644507 ((2S,3S)-3-(2-methylphenyl)butan-2-yl N- {[3-hydroxy)-4-methoxypyridin-2-yl}-L-alaninate), expressed as metarylpicoxamid*.

The molecular weight conversion to express residues of X12644507 as metarylpicoxamid is 1.145.

Should additional uses be requested in future, additional metabolism data may be required.

The following metabolites are not covered by the parent ADI: X12777891, X12797595, X12781133, X12728263, X12734587, X12729779, X696476, XDE-747-420 and XDE-747-428. The meeting concluded that the TTC Cramer class III value of 1.5 µg/kg bw per day for chronic exposure, and the acute TTC Cramer class III value of 5 µg/kg bw for acute exposure in the diet should be applied to these metabolites.

X12777891 was identified in soya bean seeds at 13 percent TRR (0.02 mg eq/kg) (pyrazole label only). X12777891 was also identified in the residue field trials at up to 0.026 mg/kg, 0.17 mg/kg, and 0.12 mg/kg in soya bean seeds, forage and hay, respectively. However, X12777891 was identified in a large number of control samples in all soyabean matrices. Contamination is considered unlikely on the basis that no other metabolites were identified in control samples.

From published literature, X12777891 was identified as a natural compound in Korean barberry plants (*Berberis koereana*) and in emblica fruit (aka Indian gooseberry; *Phyllanthus emblica*). In addition, in the soya bean metabolism study, the relative intensities of the radiolabelled, and non-radiolabelled peak associated with X12777891 were significantly lower than expected, suggesting the radioactivity was diluted by the presence of endogenous non-radiolabelled X12777891. In soya bean residue trials where residues were >LOQ in the test and control samples, the levels were in the same range. The meeting considered that X12777891 is likely to be an endogenous compound in soya bean. Nevertheless, the meeting assessed this metabolite against the TTC Cramer class III chronic and acute values.

Animal commodities

In goats, the TRR in milk, muscle, and fat was below 0.01 mg eq/kg. Parent metarylpicoxamid was only identified in minor amounts in liver (2.1 percent TRR, 0.002 mg/kg).

X12745065 (free and conjugated) was the most predominant metabolite in kidney (PH-label) and liver (both labels) (18–25 percent TRR, 0.013–0.026 mg eq/kg); in PY-labelled kidney, X12745065 was a minor component in terms of TRR, but on a mg eq/kg basis it was comparable to liver and PH-labelled kidney (3.5 percent TRR, 0.013 mg eq/kg).

X12485473 was a significant metabolite in liver and kidney (PY-label only); 17 percent TRR (0.021 mg eq/kg) and 69 percent TRR (0.264 mg eq/kg) in liver and kidney, respectively. X12771593 was identified in kidney (PH-label only) at 29 percent TRR (0.028 mg eq/kg).

In poultry, parent metarylpicoxamid was only identified in minor amounts in fat (0.7 percent TRR, 0.001 mg/kg). X12771309 was identified in eggs, liver, muscle and fat (4.0–42 percent TRR, 0.001–0.065 mg eq/kg). X12644507 was also identified in all matrices (0.2–62 percent TRR,0.001–0.028 mg eq/kg). X12851221 was also identified in all matrices (0.4–17 percent TRR, 0.001–0.018 mg eq/kg) and X21485473 was only identified in eggs and liver at 4.6 and 46 percent TRR, respectively.

The maximum dietary burden for ruminants and poultry is 0.022 ppm and 0.013 ppm, respectively. The lactating goat and laying hen metabolism studies were dosed at 9.5–9.9 and 13.9–14.2 ppm, respectively, exceeding the calculated dietary burden by a factor of >432x and >1069x, respectively.

The maximum individual residue in the lactating goat was in kidney at 0.264 mg eq/kg (X12485473); in poultry the maximum was 0.065 mg eq/kg in liver (X12771309). In ruminant and poultry, at the maximum dietary burden, no residues >0.01 mg/kg are expected in any matrix based on the metabolism studies.

From the lactating cow feeding study; no residues were identified at the 1.13 or 2.24 ppm feeding levels in any matrix. On this basis, all residues are expected to be <0.01 mg/kg in all ruminant matrices.

In the ruminant feeding study, no metarylpicoxamid residues were observed in milk, skimmed milk or cream; similarly, no residues were identified in muscle or fat. Residues in poultry fat and muscle were not significantly different. The Log P_{ow} is <4.0. The meeting concluded that the metarylpicoxamid residues are not fat soluble.

On the basis that no residues of any metabolite are expected in poultry or ruminant matrices; the meeting decided that the residue definition for compliance with the MRL, and for dietary intake, should be *metarylpicoxamid*. The meeting noted that suitable analytical methods exist to measure metarylpicoxamid in animal commodities.

The meeting noted that should the ruminant and/or poultry dietary burden increase beyond approx. 6.5 ppm or 2.1 ppm, respectively, the conclusion may need to be reconsidered. Furthermore, the meeting notes that the conjugated form of X12745065 (X12826475) may comprise a significant portion of the TRR in ruminants, and this compound was not analysed for in the ruminant feeding study, this aspect may also require further consideration should the dietary burden increase.

In summary, the meeting recommended the following residue definitions for metarylpicoxamid.

Definition of the residue for compliance with the MRL for plant and animal commodities, and for estimation of dietary intake for animal commodities: *metarylpicoxamid.*

Definition of the residue for estimation of dietary intake for plant commodities: *sum of metarylpicoxamid and (2S,3S)-3-(2-methylphenyl)butan-2-yl N- {[3-hydroxy)-4-methoxypyridin-2-yl}-L-alaninate (X12644507), expressed as metarylpicoxamid.*

The residue is not fat soluble.

For the purpose of estimating the farm animal dietary burden, the meeting considered which feed metabolites may give rise to the residues which were identified in the livestock metabolism/feeding studies. The meeting considered that the only relevant compounds in feed are metarylpicoxamid and X12644507.

Results of supervised residue trials on crops

Supervised trials were available for the use of metarylpicoxamid on soya beans. A GAP was available from Paraguay.

Residues reported as <LOQ were assumed to be at the LOQ for calculation purposes. Molecular weight conversions, to express metabolites as parent metarylpicoxamid are as follows: X12644507–1.145. In cases where residues of X12644507 are <LOQ the conversion factor will not apply; the sum of the residues in this case would be <0.02 mg/kg.

Soya bean (dry)

The critical GAP for soya bean in Paraguay allows for 3 applications at 48 g ai/ha (RTI 14 days), with a 21 days PHI. The meeting received supervised residue trials on soya bean conducted in Australia, Argentina, and Brazil.

The available trials are in line with the critical GAP in terms of application rate and PHI; the RTI between the 1st and 2nd application was 12–21 days; the RTI between the 2nd and 3rd application ranged between 6–75 days. The meeting noted that residues were consistent regardless of the RTI between the 2nd and 3rd application.

Furthermore, the meeting noted that, in 10 decline trials, residues of metarylpicoxamid and X12644507 declined rapidly in soya bean seeds by 14 days. In two at-harvest trials, residues of X12644507 were >LOQ. Nevertheless, the meeting concluded that the final application is likely to be driving the residue and that the trials are considered to reflect the GAP for soya bean seeds.

Residues in soya bean seeds for compliance with the MRL were: <0.01 (18) mg/kg; for the purpose of dietary intake the residues were (sum metarylpicoxamid and X12644507): <0.02 (16), 0.034, 0.055 mg/kg (n = 18).

The meeting estimated a maximum residue level of 0.01* mg/kg and an STMR of 0.02 mg eq/kg for metarylpicoxamid in soya bean seeds (dry).

Animal feed

Soya bean forage

The critical GAP for soya bean in Paraguay allows for 3 applications at 48 g ai/ha (RTI 14 days), with a 21 day PHI. The meeting received supervised residue trials on soya bean which were conducted in Australia, Argentina, and Brazil.

Samples of soyabean forage in the trials were harvested at >BBCH 70, which does not comply with the FAO description, where the samples should be harvested up to the beginning of pod formation (up to BBCH 70). It is further noted that residues did not decline as significantly in soya bean forage compared to soya bean seeds, and earlier applications have an impact on the total residue in soya bean forage. As such, no residue trials comply with the GAP. In addition, the trials are not supported by the available stability data for high water commodities.

The meeting concluded that no residue trials are available which approximate the GAP and/or comply with the FAO description of soyabean forage, and did not make any estimation for metarylpicoxamid in soya bean forage.

Soya bean hay

The critical GAP for soya bean in Paraguay allows for 3 applications at 48 g ai/ha (RTI 14 days), with a 21 day PHI. The meeting received supervised residue trials on soya bean which were conducted in Australia, Argentina, and Brazil.

Samples of soyabean hay were harvested at >BBCH 75 in all trials, which does not comply with the FAO description where samples should be harvested up to the beginning of pod formation (up to BBCH 75).

It is further noted that residues did not decline as significantly in soya bean hay compared to soya bean seeds, and earlier applications have an impact on the total residue in soya bean hay. As such, no residue trials comply with the GAP.

The meeting concluded that no residue trials are available which approximate the GAP and/or comply with the FAO description of soyabean hay, and did not make any estimation for metarylpicoxamid in soya bean forage.

Fate of residues during processing

The meeting concluded that metarylpicoxamid is stable under the conditions of pasteurization but not stable under boiling, baking and brewing, or sterilization conditions, forming the breakdown product X12644507. Three minor metabolites were also observed under conditions of pasteurization, not exceeding 3.9 percent AR (X12729779, X696476, X12485473). X12644507 is stable under the conditions of pasteurization, boiling, baking and brewing and sterilization.

The fate of metarylpicoxamid residues has been examined simulating commercial processing of soya bean into oil. No processing factors could be derived as residues were <0.01 mg/kg residues in the RAC.

Residues in animal commodities

Farm animal feeding studies

The meeting received a feeding study with metarylpicoxamid on lactating cows. The animals were dosed at 1.1, 2.2, 11.1, 23.0 ppm (dry matter basis) (equivalent to 0.041, 0.075, 0.408 and 0.754 mg/kg bw day). Samples were analysed for metarylpicoxamid and its metabolites X12644507, X12485473, X12771593, X12745065 and X12797595.

No residues of parent metarylpicoxamid, X12771593 or X12797595 were detected in any matrix at any dose level. No residues of any analyte were detected in muscle, fat (subcutaneous, perirenal and mesenteric), milk, skimmed milk or cream.

X12644507 was detected in liver at the maximum dose group (max 0.011 mg/kg). X12485473 was detected in liver from the 23 ppm animals, with a maximum and median residues of 0.038 mg/kg and 0.028 mg/kg, respectively. In kidney (23 ppm dose), the maximum and median residues were 0.038 mg/kg and 0.028 mg/kg, respectively.

In liver (23 ppm dose), maximum and median residues of X12745065 were 0.024 mg/kg and 0.016 mg/kg, respectively.

Farm animal dietary burden

Dietary burdens were calculated for beef cattle, dairy cattle, broilers and laying poultry based on feed items evaluated by the meeting. The input was based on the intake of metarylpicoxamid and X12644507. The dietary burdens estimated using the OECD diets listed in Appendix IX of the 2016 edition of the FAO manual (OECD 2018 feed calculator, version October 2019) are presented in Annex 5 of the 2025 JMPR Report and summarized in Table 5.27.7.

Table 5.27.7 Estimated maximum and mean dietary burdens of farm animals, sum of metarylpicoxamid and X12644507, expressed as metarylpicoxamid, ppm of dry matter diet

	United States/Canada		European Union		Australia		Japan	
	Max	Mean	Max	Mean	Max	Mean	Max	Mean
Beef cattle	–	0.0045	–	0.0066	–	0.0067	–	0.0218[a]
Dairy cattle	–	0.0044	–	0.0077	–	0.0078	–	0.0153[b]
Poultry – broiler	–	0.01	–	0.0132[c]	–	0.0088	–	0.0076
Poultry – layer	–	0.0099[d]	–	0.0088	–	0.0088	–	0.0065

Notes:

[a] Highest mean beef or dairy cattle dietary burden suitable for STMR estimates for mammalian tissues.

[b] Highest mean dairy cattle dietary burden suitable for STMR estimates for milk.

[c] Highest mean poultry dietary burden suitable for STMR estimates for poultry tissues.

[d] Highest mean poultry dietary burden suitable for STMR estimates for poultry eggs.

Animal commodity maximum residue levels

On the basis that no residues parent metarylpicoxamid are expected in poultry or ruminant matrices, the meeting estimated a maximum residue level of 0.01* mg/kg for Group of milks, Group of milk fats (as no accumulation above the LOQ is expected in cream), Group of muscle (from mammals other than marine mammals), Group of mammalian fats (except milk fat), Group of edible offal (mammalian), Group of avian muscle, Group of avian fats, Group of avian, edible offal of and Group of eggs.

The meeting also estimated an STMR of 0 mg/kg for all livestock commodities.

Recommendations

On the basis of the data obtained from supervised trials, the meeting concluded that the residue levels listed in Table 5.27.8 and Annex 1 are suitable for establishing maximum residue limits and for estimation of dietary intake.

Definition of the residue for compliance with the MRL for plant and animal commodities: *metarylpicoxamid.*

Definition of the residue for estimation of dietary intake for animal commodities: *metarylpicoxamid.*

Definition of the residue for estimation of dietary intake for plant commodities: *Sum of metarylpicoxamid and X12644507 ((2S,3S)-3-(2-methylphenyl)butan-2-yl N- {[3-hydroxy)-4-methoxypyridin-2-yl}-L-alaninate), expressed as metarylpicoxamid.*

The residue is not fat soluble.

Table 5.27.8 Residue levels suitable for establishing maximum residue limits and for exposure assessments

CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P mg/kg
		New	Previous	
PO 0111	Group of avian, Edible offal	0.01*	–	0
PF 0111	Group of avian fats	0.01*	–	0
PM 0110	Group of avian muscle	0.01*	–	0
MO 0105	Group of Edible offal (mammalian)	0.01*	–	0
PE 0112	Group of eggs	0.01*	–	0
MF 0100	Group of Mammalian fats (except milk fats)	0.01*	–	0
ML 0106	Group of milks	0.01*	–	0
FM 0106	Group of milk fats	0.01*	–	0
MM 0095	Group of Muscle (from mammals other than marine mammals)	0.01*	–	0
VD 0541	Soya bean (dry)	0.01*	–	0.02

Note: (ar) – as received; (dw) – dry weight.

Table 5.27.9 Residues used in the livestock dietary burdens calculation

Codex group	Feed commodity	Median or STMR (-P) (mg/kg)	Highest residue (-P) (mg/kg)	DM (%)	Source
SM	Soybean, asp gr fn	0.02	–	85	JMPR 2025 (RAC)
SM	Soybean, hulls	0.02	–	90	JMPR 2025 (RAC)
SM	Soybean, meal	0.02	–	92	JMPR 2025 (RAC)
SM	Soybean, okara	0.02	–	92	JMPR 2025 (RAC)
VD	Soybean, seed	0.02	–	89	JMPR 2025

Table 5.27.10 Residues of metabolites of metarylpicoxamid for TTC and other dietary exposure estimations

Compound	Commodity	STMR (mg/kg)	HR (mg/kg)	Source
X12777891: TTC Cramer class III value of 1.5 µg/kg bw per day for chronic exposure in the diet, and acute TTC Cramer class III value of 5 µg/kg bw per day for acute exposure in the diet.				
X12777891	Soya bean (dry)	0.01	n/a	Field trials

Dietary risk assessment

Long-term dietary exposure

The ADI for metarylpicoxamid is 0–0.2 mg/kg bw. The International Estimated Daily Intakes (IEDIs) for metarylpicoxamid were estimated for the 17 GEMS/Food Consumption Cluster Diets using the STMR or STMR-P values estimated by the JMPR. The results are shown in Annex 3.

The IEDI was 0 percent of the maximum ADI for all consumer groups. The meeting concluded that long-term dietary exposure to residues of metarylpicoxamid from uses considered by the JMPR is unlikely to present a public health concern.

Acute dietary exposure

An ARfD for metarylpicoxamid is unnecessary. The meeting therefore concluded that the acute dietary exposure to residues of metarylpicoxamid from the uses considered is unlikely to present a public health concern.

Threshold of toxicological concern (TTC) consideration for metabolites

The metabolite X12777891, X12797595 (free and conjugated), X12781133, X12728263, X12734587, XDE-747-MW402, and XDE-747-MW428 could be assessed using the TTC approach (Cramer class III value of 1.5 µg/kg bw per day for chronic exposure in the diet, and the acute TTC Cramer class III value of 5 µg/kg bw for acute exposure in the diet).

X12777891

The current meeting calculated a chronic dietary exposure value of 0.0375 µg/kg bw per day, and an acute dietary exposure value of 0.15 µg/kg bw.

The meeting concluded that the estimated dietary exposure to residues of X12777891 from uses considered by the JMPR is below the chronic and acute TTC for Cramer class III compounds and is unlikely to present a public health concern. Should further uses be considered in the future, these conclusions may need to be re-evaluated.

X12797595 (free and conjugated), X12781133, X12728263, X12734587, X12729779, X696476, *XDE-747-MW402, and XDE-747-MW428*

In seeds the maximum occurrence of the aforementioned metabolites was XDE-747-428 at 7 percent TRR (0.003 mg eq/kg). The meeting noted that the maximum individual occurrence of these metabolites is not expected to exceed the level of X12777891 in soya bean seeds (0.01 mg/kg). As such, the exposure calculated for X12777891 will be greater than the exposure for the noted metabolites.

The meeting concluded that the estimated dietary exposure to residues of X12797595 (free and conjugated), X12781133, X12728263, X12734587, X12729779, X696476, XDE-747-MW402, and XDE-747-MW428 from uses considered by the JMPR is below the chronic and acute TTC for Cramer class III compounds and is unlikely to present a public health concern. Should further uses be considered in the future, these conclusions may need to be re-evaluated.

5.28 Metconazole (313) (R)

Residue and analytical aspects

Metconazole is a systemic triazole fungicide and plant growth regulator, which acts by inhibiting the ergosterol biosynthesis. It was first evaluated by JMPR in 2019 when an ADI of 0–0.04 mg/kg bw and an ARfD of 0.04 mg/kg bw were established and uses on a wide range of crops were evaluated.

The residue definition for compliance with the MRL for plant and animal commodities and for estimation of dietary intake for plant commodities is *metconazole (sum of cis and trans isomer)*.

The residue definition for estimation of dietary intake for animal commodities is *Sum of metconazole (sum of cis and trans isomer) and metabolites (1SR,2SR,5RS)-5-(4-chlorobenzyl)-2-(hydroxymethyl)-2-methyl-1-(1H-1,2,4-triazol-1-ylmethyl)cyclopentanol (M1) and (1RS,2SR,3RS)-3-(4-chlorobenzyl)-2-hydroxy-1-methyl-2-(1H-1,2,4-triazol-1-ylmethyl)cyclopentanecarboxylic acid (M12), expressed as metconazole.*

The residue is not fat soluble.

Metconazole was scheduled at the 55th Session of the CCPR for evaluation of new uses by the 2025 JMPR. The current meeting received information on GAP and supervised residue trials on Welsh onion.

Methods of residue analysis

The meeting received new information on a QuEChERS-like LC-MS/MS method where Welsh onions are extracted with acetonitrile with the addition of $MgSO_4$ and NaCl. The method was demonstrated as being suitable for measuring residues of metconazole (sum of *cis* and *trans* isomers) in both fresh and dried Welsh onion samples, with an LOQ of 0.01 mg/kg.

Stability of pesticide residues in stored analytical samples

The 2019 JMPR concluded that *cis*- and *trans*- metconazole residues are stable in freezer storage (–18 °C) in high water matrices for least 12 months (lettuce) and in dried matrices for at least 12 months (wheat grain). Additionally, storage stability in wheat hay was demonstrated for at least 26 months.

The periods of demonstrated stability cover the frozen storage intervals used in the residue studies on fresh and dried Welsh onions (41 days), and was confirmed with concurrent storage stability data for the Welsh onion trials.

Results of supervised residue trials on crops

Welsh onion

The critical GAP for metconazole on Welsh onion in Republic of Korea is 3 applications of 133 g ai/ha, on a 7-day retreatment interval, with a PHI of 7 days. Six trials were provided approximating the critical GAP.

The meeting decided to not use the data, since parts being exposed to spray treatment (outer leaves) were removed during sampling, which would result in an underestimation of the residue. The meeting considered the protocol and the additional clarification provided by the Republic of Korea government on the sample handling and preparation of Welsh onions in the field trial. It was unclear to the meeting how extensive the removal of withered leaves and adjacent green parts was. The provided pictures of the final samples suggested complete stripping of the outer leaves. Such a procedure for sampling of the raw commodity is not in line with the description in the Codex Classification for green onions (Subgroup 009B) and the FAO manual for sampling of green onions, which only allows removal of adherent soil and obviously decomposed or withered leaf parts. For these reasons, the meeting could not estimate a maximum residue level for fresh Welsh onions.

The meeting received new information on the magnitude of residues following drying of Welsh onions. Fresh Welsh onions were trimmed (roots and outer layer removed), washed with water, cut into slices and air-dried until the moisture content was 8.1–19 percent. The meeting considered removal of the outer layer prior to drying appropriate as this is a common industrial procedure in the Republic of Korea. Six trials were provided approximating the critical GAP.

Residues of metconazole in independent in dried Welsh onions were 0.23, 0.29, 0.29, 0.36, 0.40, and 0.58 mg/kg (n = 6).

The meeting estimated a maximum residue level of 1.5 mg/kg, an STMR-P of 0.33 mg/kg and an HR-P of 0.58 mg/kg for metconazole in dried Welsh onions.

Fate of residues during processing

The meeting received new information on the fate of metaflumizone residues during processing of fresh Welsh onions to dried Welsh onions, however, considering the sampling procedure of the fresh Welsh onions, prior to processing into dried Welsh onions did not follow the Codex procedure, processing factors could not be derived.

Residues in animal commodities

Farm animal dietary burden

The meeting noted that dried Welsh onion is not listed in the OECD feeding table and would not result in a change of dietary burdens of farm animals. Additionally, the 2019 meeting used the current dietary burden calculator. Nevertheless, the dietary burdens were recalculated to include the values from RACs in relevant food commodities where processing factors had not previously been calculated for the associated feed commodities. The results are shown in Annex 5 and summarized in Table 5.28.1.

Table 5.28.1 Summary of livestock dietary burden (ppm metconazole equivalents of dry matter diet)

	United States/Canada		European Union		Australia		Japan	
	Max	Mean	Max	Mean	Max	Mean	Max	Mean
Beef cattle	2.4	1.2	8.6	3.2	15[a]	6.7[b]	0.017	0.17
Dairy cattle	6.7	3.1	7.9	2.5	15[a]	6.7[b]	3.8	1.4
Broilers	0.034	0.034	0.027	0.027	0.045	0.045	0.012	0.012
Layers	0.034	0.034	2.4[c]	1.1[d]	0.045	0.045	0.014	0.014

Nores:

[a] Highest maximum beef or dairy cattle burden suitable for MRL estimates for mammalian meat and milk.

[b] Highest mean beef or dairy cattle burden suitable for STMR estimates for mammalian meat and milk.

[c] Highest maximum broiler or laying hen burden suitable for MRL estimates for poultry products and eggs.

[d] Highest mean broiler or laying hen burden suitable for STMR estimates for poultry products and eggs.

Estimation of residues in animal commodities

For beef and dairy cattle, the maximum and mean dietary burden were unchanged. For poultry, the dietary burdens were slightly increased from 2.2 ppm to 2.4 ppm for maximum, and 0.94 ppm to 1.1 ppm for mean burdens. As the 2019 JMPR noted that no metconazole residues were found in egg and poultry tissues even at the 20 ppm dosing levels, the current recommendations for poutry can remain unchanged.

Following the update of the Codex Classification the meeting estimated a maximum residue levels of 0.04* mg/kg and an STMR of 0 mg/kg for the Group of milks, Group of muscle (from mammals other than marine mammals), Group of Mammalian fats (except milk fats), and Group of Edible offal (mammalian). The meeting withdrew its previous recommendations of 0.04* mg/kg for milks, meat (from mammals other than marine mammals), mammalian fats (except milk fats), and edible offal (mammalian).

The meeting estimated a maximum residue level of 0.04* mg/kg in the Group of eggs, Group of avian, Edible offal, Group of avian fats and Group of avian muscle with STMRs of 0 mg/kg for these commodities. The meeting withdrew its previous recommendations of 0.04* mg/kg for poultry meat, poultry fats, poultry, Edible offal of, and eggs.

Recommendations

On the basis of the data obtained, the meeting concluded that the residue levels listed in Table 5.28.2 and in Annex 1 are suitable for establishing maximum residue limits and for estimation of dietary intake. Table 5.28.3 shows the residues included in the dietary burden calculation.

Residue definition for compliance with the MRL for plant and animal commodities and for estimation of dietary intake for plant commodities: *Metconazole (sum of cis and trans isomer).*

Residue definition for estimation of dietary intake for animal commodities: *Sum of metconazole (sum of cis and trans isomer) and metabolites (1SR,2SR,5RS)-5-(4-chlorobenzyl)-2-(hydroxymethyl)-2-methyl-1-(1H-1,2,4-triazol-1-ylmethyl)cyclopentanol (M1) and (1RS,2SR,3RS)-3-(4-chlorobenzyl)-2-hydroxy-1-methyl-2-(1H-1,2,4-triazol-1-ylmethyl)cyclopentanecarboxylic acid (M12), expressed as metconazole.*

The residue is not fat soluble.

Table 5.28.2 Residue levels suitable for establishing maximum residue limits and for dietary exposure assessment

Commodity		MRL, mg/kg		STMR or STMR-P, mg/kg	HR or highest residue, mg/kg
CCN	**Name**	**New**	**Previous**		
MO 0105	Edible offal (mammalian)	W	0.04*	–	–
PE 0112	Eggs	W	0.04*	–	–
PM 0110	Group of avian muscle	0.04*	–	0	0
PO 0111	Group of avian edible offal	0.04*	–	0	0
PF 0111	Group of avian fats	0.04*	–	0	0
MO 0105	Group of edible offal (mammalian)	0.04*	–	0	0
PE 0112	Group of eggs	0.04*	–	0	0
MF 0100	Group of mammalian fats (except milk fats)	0.04*	–	0	0
ML 0106	Group of milks	0.04*	–	0	0
MM 0095	Group of muscle (from mammals other than marine mammals)	0.04*	–	0	0
MF 0100	Mammalian fats (except milk fats)	W	0.04*	–	–
MM 0095	Meat (from mammals other than marine mammals)	W	0.04*	–	–
ML 0106	Milks	W	0.04*	–	–
DV 0387	Onion, Welsh, dried	1.5		0.33	0.58
PO 0111	Poultry, Edible offal of	W	0.04*	–	–
PF 0111	Poultry fats	W	0.04*	–	–
PM 0110	Poultry meat	W	0.04*	–	–

Table 5.28.3 Residue levels suitable for estimation of livestock dietary feed burden calculations (taken from the 2019 JMPR)

Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed
Almond, hulls	0	0	90
Barley, hay	5.9	13	88
Barley, straw	2.3	8.5	89
Bean, seed	0.04	–	88
Beet, sugar, dried pulp	0.02	–	88
Beet, sugar, ensiled pulp	0.02	–	15
Beet, sugar, molasses	0.02	–	75
Beet, sugar, tops	0.15	1.2	23
Canola, meal	0.02	–	88
Corn gluten, feed	0.01	–	40
Corn gluten, meal	0.01	–	40
Corn, field, asp gr fn	0.01	–	85
Corn, field, forage/silage	0.91	2.7	40
Corn, field, grain	0.01	–	88
Corn, field, hominy meal	0.01	–	88
Corn, field, milled bypdts	0.01	–	85
Corn, field, stover	1.85	3.2	83
Corn, sweet, cannery waste	0.01	0.01	30
Cotton, gin by-products	2.65	4.1	90
Cotton, hulls	0.0345	–	90
Cotton, meal	0.0345	–	89
Cotton, undelinted seed	0.0345	–	88
Oat, hay	5.9	13	90
Oat, straw	2.3	8.5	90
Pea, seed	0.041	–	90
Peanut, meal	0.04	–	85
Potato, culls	0	0	20
Rape, forage	0.09	0.13	30
Rape, meal	0.02	–	88
Rye, straw	2.3	8.5	88
Soybean, asp gr fn	0.01	–	85
Soybean, forage	1	1.8	56
Soybean, hay	1.7	3.1	85
Soybean, hulls	0.01	–	90
Soybean, meal	0.01	–	92
Soybean, okara	0.01	–	92
Soybean, seed	0.01	–	89
Soybean, silage	1	1.8	30
Sunflower, meal	0.068	–	92
Triticale, hay	5.9	13	88
Triticale, straw	2.3	8.5	90
Wheat, hay	5.9	13	88

Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed
Wheat, straw	2.3	8.5	88

Dietary risk assessment

Long-term dietary exposure

The ADI for metconazole is 0–0.04 mg/kg bw. The International Estimated Daily Intakes (IEDIs) for metconazole were estimated for the 17 GEMS/Food Consumption Cluster Diets using the STMR or STMR-P values estimated by the JMPR. The results are shown in Annex 3.

The IEDIs ranged from 0 to 2 percent of the maximum ADI. The meeting concluded that long-term dietary exposure to residues of metconazole from uses considered by the JMPR is unlikely to present a public health concern.

Acute dietary exposure

The ARfD for metconazole is 0.04 mg/kg bw. The International Estimate of Short-Term Intake (IESTI) for metconazole was calculated for food commodities and their processed commodities for which HRs/HR-Ps or STMRs/STMR-Ps were estimated at the present meeting and for which consumption data were available. No consumption data are available for Welsh onion (dried), and STMRs/HRs for animal commodities are 0.

The meeting concluded that acute dietary exposure to residues of metconazole from uses considered by the meeting is unlikely to present a public health concern.

5.29 Permethrin (120) (T)**

Toxicology

Permethrin is the common name approved by the International Organization for Standardization (ISO) for 3-phenoxybenzyl(1*RS*,3*RS*;1*RS*,3*SR*)-3-(2,2-dichlorovinyl)-2,2- dimethylcyclopropanecarboxylate a synthetic pyrethroid insecticide (International Union of Pure and Applied Chemistry [IUPAC]), for which the Chemical Abstracts Service (CAS) number is 52645-53-1.

Permethrin is a synthetic pyrethroid insecticide. Chemically, permethrin is an ester of the dichloro analogue of chrysanthemic acid. Technical materials are a mixture of four stereoisomers. However, the 1R, *cis*-isomer is the most insecticidally active and the 1*R*, *trans* is also active. The insecticidal mechanism of action of synthetic pyrethroids is primarily via an interaction with ion channels on axons of the peripheral and the central nervous system. The FAO specification for permethrin indicates that two pairs of diastereomers (each consisting of a racemic pair of enantiomers) are present in a ratio of approximately 40 to 60.

Permethrin was evaluated by the Joint FAO/WHO Meeting on Pesticide Residues (JMPR) in 1979, 1981, 1982, 1987, 1999 and 2002. An acceptable daily intake (ADI) of 0–0.05 mg/kg bw was established in 1982 for the 40/60 cis/trans mixture based on a no-observed-adverse-effect-level (NOAEL) of 5 mg/kg bw per day in a two-year study in rats and a NOAEL of 5 mg/kg bw per day in a one-year study in dogs. The 1987 meeting included permethrin mixtures in which the cis:trans ratio was nominally 25:75 in establishing the ADI of 0–0.05 mg/kg bw. The 2002 meeting established an acute reference dose (ARfD) of 1.5 mg/kg bw based on a NOAEL of 150 mg/kg bw in an acute neurotoxicity study in rats.

Permethrin was evaluated by the present meeting within the periodic review programme of the Codex Committee on Pesticide Residues (CCPR). The present meeting reviewed all previous studies and new data have been included in the monograph. All studies were conducted according to internationally recognized guidelines and complied with good laboratory practice (GLP) (or were otherwise quality audited), except where indicated. Some reports contained raw data that was not legible. In case the illegible data was critical to the outcome of the study, such studies were not considered acceptable and were not included in the evaluation. Overall, the quality and breadth of data was considered sufficient to conduct an evaluation.

Biochemical aspects

Permethrin was rapidly absorbed following administration of doses up to 4.8 mg/kg bw per day. Absorption was 52 percent for *cis*-permethrin and approximately 80 percent for trans-permethrin and is saturated at high doses (20–28 percent absorption at a single dose of 100 mg/kg bw permethrin of cis:trans ratio 40:60). Concentrations of radioactivity in tissues were low (tissues/carcass 0.3–0.8 percent of administered radioactivity), with the highest concentrations detected in fat. The radioactivity content of fat was greater following the administration of radiolabelled forms of *cis*-permethrin than *trans*-permethrin. The elimination half-life of radioactivity in blood was seven hours, whereas the half-life in fat was up to 18 days. Urine was the major route of

excretion (52–84 percent) and faeces a minor route (9–27 percent). The majority of radioactivity was eliminated within 12 days. *Trans*-permethrin appeared to be more rapidly eliminated than *cis*-permethrin. Permethrin metabolism proceeds almost exclusively via carboxylesterases rather than oxidative metabolism routes and eliminated as a hydrolytic product of the parent ester. *Trans*-permethrin is more rapidly hydrolysed than *cis*-permethrin. As a result, up to 71 percent of the trans isomer is eliminated in the urine as hydrolytic products.

Toxicological data

The acute oral median lethal dose (LD_{50}) of permethrin is dependent on the cis:trans ratio, with the *cis*-isomer showing a higher acute toxicity. It is also dependent on the vehicle used with permethrin diluted in corn oil showing higher acute toxicity. In the mouse, the oral LD_{50} ranged from 232 mg/kg bw for *cis*-permethrin to 1744 mg/kg bw for 10:90 cis:trans ratio.

In the rat the acute oral LD_{50} ranged from 225 mg/kg bw for 80:20 cis:trans ratio to 6000 mg/kg bw for 20:80 cis:trans ratio. Corn oil decreases the oral LD_{50} value by a factor of five to seven.

The dermal acute LD_{50} was higher than 2000 mg/kg bw in rabbits. The inhalation acute LC_{50} was higher than 23.5 mg/L in rats. Permethrin was not irritating to skin, or to eye in the rabbit; it did not cause skin sensitization in the guinea pig.

In repeat-dose oral toxicity studies in mice, rats and dogs, the main effects were clinical signs of neurotoxicity, decreased body weight gain and liver toxicity.

In a 90-day toxicity study in rats, permethrin (cis:trans ratio 55:45) was administered via diet at concentrations of 0, 50, 75, 100 and 500 ppm (equivalent to 0, 5, 7.5, 10 and 50 mg/kg bw per day). The NOAEL was 500 ppm (equivalent to 50 mg/kg bw per day), the highest dose tested.

In a 96-day oral toxicity study in dogs, permethrin (cis:trans ratio 40:60) was administered via gelatin capsules at dose levels of 0, 5, 50 and 500 mg/kg bw per day. The NOAEL was 50 mg/kg bw per day based on clinical signs (tremors) at 500 mg/kg bw per day.

In a 90-day oral toxicity study in dogs, permethrin (cis:trans ratio 54:46) was administered via capsules at dose levels of 0, 5, 50 and 500 mg/kg bw per day (the dose was lowered to 364 mg/kg bw per day on the ninth day of dosing). The NOAEL was 5 mg/kg bw per day based on clinical signs of neurotoxicity at 50 mg/kg bw per day. It is noted that clinical signs were already observed in males on the first day of dosing.

In a one-year oral toxicity study in dogs, permethrin (cis:trans ratio 32.3:60.2) was administered via capsule at dose levels of 0, 5, 100 and 1000 mg/kg bw per day. The NOAEL was 5 mg/kg bw per day based on body weight reduction in females and liver toxicity in males and females at 100 mg/kg bw per day.

In a 24-month long-term toxicity and carcinogenicity study in mice, permethrin (cis:trans ratio 40:60) was administered via the diet at concentrations of 0, 20, 500 and 4000 ppm (equivalent to 0, 3, 75 and 600 mg/kg bw per day). The NOAEL for chronic toxicity was 500 ppm (equivalent to 75 mg/kg bw per day) based on mortality at 4000 ppm (equivalent to 600 mg/kg bw per day). The NOAEL for carcinogenicity was 4000 ppm (equivalent to 600 mg/kg bw per day), the highest dose tested.

In a 24-month chronic toxicity and carcinogenicity study in mice, permethrin (cis:trans ratio 40:60) was administered via diet at concentrations of 0, 20, 500 or 2000 ppm in males (equivalent to 0, 3, 75 and 310 mg/kg bw per day) and 0, 20, 2500 or 5000 ppm in females (equivalent to 0, 3, 380 and 750 mg/kg bw per day). The NOAEL for chronic toxicity was 500 ppm (equivalent to 75 mg/kg bw per day) based on increased mortality in males at 2000 ppm (equivalent to 310 mg/kg bw per day). The NOAEL for carcinogenicity was 20 ppm (equivalent to 3 mg/kg bw per day) based on the equivocal evidence of bronchioalveolar carcinoma and hepatocellular adenoma in females at 2500 ppm (equivalent to 380 mg/kg bw per day).

In a 98-week chronic toxicity and carcinogenicity study in mice, permethrin (cis:trans ratios ranging from 44:55 to 36:61) was administered via the diet at concentrations of 0, 250, 1000 or 2500 ppm (equivalent to 0, 38, 150 and 375 mg/kg bw per day). The NOAEL for chronic toxicity was 1000 ppm (equivalent to 150 mg/kg bw per day) based on reduced body weight gain at 2500 ppm (equivalent to 375 mg/kg bw per day). The NOAEL for carcinogenicity was 2500 ppm (equivalent to 375 mg/kg bw per day), the highest dose tested.

The overall NOAEL for chronic toxicity in the mouse was 75 mg/kg bw per day and the overall NOAEL for carcinogenicity in the mouse was 3 mg/kg bw per day.

In a two-year chronic toxicity and carcinogenicity study in rats, permethrin (cis:trans ratios ranging from 36.2:61.0 to 43.9:55.0) was administered via the diet at concentrations of 0, 500, 1000 or 2500 ppm (equivalent to 0, 25, 50 and 125 mg/kg bw per day). The NOAEL for chronic toxicity was 1000 ppm (equivalent to 50 mg/kg bw per day) based on clinical signs of neurotoxicity observed at 2500 ppm (equivalent to 125 mg/kg bw per day). The NOAEL for carcinogenicity was 2500 ppm (equivalent to 125 mg/kg bw per day), the highest dose tested.

In a two-year chronic toxicity and carcinogenicity study in rats, permethrin (cis:trans ratio 40:60) was administered via diet at concentrations of 0, 20, 100 or 500 ppm (equal to 0, 1, 5 and 29 mg/kg bw per day in males and 0, 1, 7 and 35 mg/kg bw per day in females). The NOAEL for chronic toxicity was 100 ppm (equal to 5 mg/kg bw per day) based on clinical signs of neurotoxicity at 500 ppm (equal to 29 mg/kg bw per day). The NOAEL for carcinogenicity was 500 ppm (equal to 29 mg/kg bw per day), the highest dose tested.

The overall NOAEL for chronic toxicity in the rat was 5 mg/kg bw per day, the overall NOAEL for carcinogenicity in the rat was 125 mg/kg bw per day, the highest dose tested.

The meeting concluded that permethrin is possibly carcinogenic in female mice, but not carcinogenic in male mice or in rats.

Mode of action (MOA) analysis was conducted for the liver and lung tumours found in females in one of the available studies in mice. Regarding the liver tumours, the proposed MOA involves PPARα activation, increased hepatocellular proliferation, formation of preneoplastic foci and liver tumour formation. The available data were considered sufficient to support this MOA which, due to qualitative differences, is considered not relevant to humans. For the lung tumours, the proposed MOA involves interaction with Club cells CYP2F2, leading to increased proliferation, hyperplasia and lung tumours. The available data were considered sufficient to support this MOA, which is not relevant to human.

Permethrin was tested for genotoxicity in an adequate range of *in vitro* and *in vivo* assays. No evidence of genotoxicity was found. The meeting concluded that permethrin is unlikely to be genotoxic.

In view of the lack of genotoxicity, the absence of carcinogenicity in rats, and the absence of carcinogenicity by a human-relevant MOA in mice, the meeting concluded that permethrin is unlikely to pose a carcinogenic risk to humans.

In a three-generation study in rats, permethrin (cis:trans ratio 26:74) was administered via diet at concentrations of 0, 5, 30 or 180 mg/kg bw per day. The NOAEL for parental, reproductive and offspring toxicity was 180 mg/kg bw per day, the highest dose tested.

In a three-generation study in rats, permethrin (cis:trans ratio 40:60) was administered via diet at concentrations of 0, 500, 1000 and 2500 ppm (equivalent to 0, 33, 66 and 165 mg/kg bw per day). No parental NOAEL could be identified, as tremors were seen at all dose levels tested. The lowest-observed-adverse-effect-level (LOAEL) for parental toxicity was 500 ppm (equivalent to 33 mg/kg bw per day), based on tremors. The NOAEL for reproductive toxicity was 2500 ppm (equivalent to 165 mg/kg bw per day), the highest dose tested. The NOAEL for offspring toxicity was 1000 ppm (equivalent to 66 mg/kg bw per day) based on tremors observed at 2500 ppm (equivalent to 165 mg/kg bw per day).

In a developmental toxicity study in rats, permethrin (cis:trans ratio 40:60) was administered via gavage (in corn oil) at dose levels of 0, 4, 41 or 83 mg/kg bw per day. The NOAEL for maternal and embryo/fetal toxicity was 83 mg/kg bw per day, the highest dose tested.

In a developmental toxicity study in rats, permethrin (cis:trans ratio not reported) was administered via gavage (in corn oil) at dose levels of 0, 22.5, 71 or 225 mg/kg bw per day. The NOAEL for maternal and embryo/fetal toxicity was 225 mg/kg bw per day, the highest dose tested.

In a developmental toxicity study in rabbits, permethrin (cis 40 : 60 trans ratio) was administered via gavage (in aqueous Tween 80) at dose levels of 0, 600, 1200 or 1800 mg/kg bw per day. No maternal NOAEL could be identified, as mortality was observed at all dose levels tested. The LOAEL for maternal toxicity was 600 mg/kg bw per day based on mortality. The NOAEL for embryo/fetal toxicity was 600 mg/kg bw per day based on increased resorptions and post-implantation loss at 1200 mg/kg bw per day, secondary to severe maternal toxicity.

The meeting concluded that permethrin is not a developmental toxicant.

In an acute neurotoxicity study in rats, permethrin (cis:trans ratio 36:59) was administered via gavage (in corn oil) at dose levels of 0, 10, 150 or 300 mg/kg bw. The NOAEL for neurotoxicity was 150 mg/kg bw based on clinical signs (tremors, staggered gait, splayed hindlimbs, exaggerated hindlimb flexion and hypersensitivity to sound) and functional observation battery (FOB) findings at 300 mg/kg bw.

In a 90-day neurotoxicity study in rats, permethrin (cis:trans ratio not reported) was administered via diet at concentrations of 0, 250, 1500 or 2500 ppm (equal to 0, 12.6, 74 and 123 mg/kg bw per day in males, and 0, 16.1, 99.5 and 164 mg/kg bw per day in females). The NOAEL for neurotoxicity was 250 ppm (equal to 12.6 mg/kg bw per day) based on clinical signs (splayed hindlimbs, staggered gait, tremors) and FOB findings at 1500 ppm (equal to 74 mg/kg bw per day).

In another 90-day neurotoxicity study in rats, permethrin (cis:trans ratio 40:60) was administered via diet at nominal concentrations of 0, 100, 200 or 400 mg/kg bw per day (actual concentrations were 0, 92, 172 and 368 mg/kg bw per day in males, and 0, 111, 184 and 365 mg/kg bw per day in females). The NOAEL for neurotoxicity was 92 mg/kg bw per day based on clinical signs (tremors, hyperexcitability, twitching, irritability) at 172 mg/kg bw per day.

In a 90-day neurotoxicity study in rats, permethrin (cis:trans ratio 40:60) was administered via diet at nominal concentrations of 0, 100, 200 or 400 ppm (actual concentrations were 0, 86, 165 and 343 mg/kg bw per day in males, 0, 110, 172 and 350 mg/kg bw per day in females). The NOAEL for neurotoxicity was 86 mg/kg bw per day based on tremors observed at 165 mg/kg bw per day.

In an acute delayed neurotoxicity study in hens, permethrin (cis:trans ratio 36:59) was administered via gavage at a dose of 15 ml (maximum possible dose). Permethrin did not cause delayed neurotoxicity in hens.

Additional mechanistic information on potential neurotoxicity effects for permethrin and the group of pyrethroid pesticides was retrieved from public literature. These studies did not impact the identification of points of departure.

The meeting concluded that permethrin is neurotoxic.

No specific data were provided regarding immunotoxicity, but no evidence of immunotoxicity was reported in the routine toxicological studies with permethrin. The meeting concluded that permethrin is unlikely to be immunotoxic.

Studies focusing on endocrine disruption (aromatase, steroidogenesis, Hershberger, pubertal male and female rat) were provided and showed negative results.

Toxicological data on metabolites and/or degradates

No data were provided.

Metabolites DVCA, 3-phenoxybenzoic acid and 3-phenoxybenzyl alcohol (common pyrethroid metabolites) were concluded to be of no toxicological concern, as these metabolites do not contain the toxicophore for neurotoxicity present in the parent pyrethroids.

Microbiological aspects

There is insufficient information available in the public domain, and no experimental data were submitted, to address the possible impact of permethrin residues on the human intestinal microbiome.

Human data

In reports on manufacturing plant personnel, no adverse health effects were noted.

Information on accidental or intentional poisoning in humans is available. These health effects primarily involved the dermal, neurological and respiratory systems. In terms of epidemiological data, there is little evidence of a positive association between dietary exposure to permethrin and risk of cancers or non-cancer-related adverse health outcomes in case-control and cohort studies.

Many studies used urine biomonitoring data as a marker of exposure, analysing for common pyrethroid metabolites/environmental degradates (3-PBA and cis- and trans-DCCA). Overall, there is insufficient evidence to suggest a clear associative or causal relationship between exposure to pyrethroid and carcinogenic and non-carcinogenic health outcomes, including the neurodevelopmental effects.

The meeting concluded that the existing database on permethrin was adequate to characterize the potential hazards to the general population, including fetuses, infants and children.

Toxicological evaluation

The meeting re-affirmed the acceptable daily intake (ADI) of 0–0.05 mg/kg bw established by the 2002 meeting, based on a NOAEL of 5 mg/kg bw per day in a two-year study in rats and 90-day and one-year studies in dog and applying a safety factor of 100.

The meeting established an acute reference dose (ARfD) of 0.05 mg/kg bw based on a NOAEL of 5 mg/kg bw per day in the 90-day dog study where clinical signs including tremors were observed after single dosing, using a safety factor of 100. The previous ARfD of 1.5 mg/kg bw was withdrawn.

A toxicological monograph was prepared.

Table 5.29.1 Levels relevant to risk assessment of permethrin

Species	Study	Effect	NOAEL	LOAEL
Mouse	24-month study of toxicity and carcinogenicity[a, d]	Toxicity	500 ppm, equivalent to 75 mg/kg bw per day	2000 ppm, equivalent to 310 mg/kg bw per day
		Carcinogenicity	20 ppm, equivalent to 3 mg/kg bw per day	2500 ppm, equivalent to 380 mg/kg bw per day
Rat	Acute neurotoxicity study[b]	Neurotoxicity	150 mg/kg bw	300 mg/kg bw
	Two-year studies of toxicity and carcinogenicity[a, d]	Toxicity	100 ppm, equal to 5 mg/kg bw per day	500 ppm, equal to 29 mg/kg bw per day
		Carcinogenicity	2500 ppm, equal to 125 mg/kg bw per day[c]	–
	Three-generation study of reproductive toxicity[a]	Reproductive toxicity	2500 ppm, equivalent to 165 mg/kg bw per day[c]	–
		Parental toxicity	–	500 ppm, equivalent to 33 mg/kg bw per day[e]
		Offspring toxicity	1000 ppm, equivalent to 66 mg/kg bw per day	2500 ppm, equivalent to 165 mg/kg bw per day
	Developmental toxicity study[b]	Maternal toxicity	83 mg/kg bw per day[c]	–
		Embryo/fetal toxicity	83 mg/kg bw per day[c]	–
Rabbit	Developmental toxicity study[b]	Maternal toxicity	–	600 mg/kg bw per day[e]
		Embryo/fetal toxicity	600 mg/kg bw per day	1200 mg/kg bw per day
Dog	13-week study of toxicity[f]	Toxicity	5 mg/kg bw per day	50 mg/kg bw per day

Notes:

[a] Dietary administration.

[b] Gavage administration.

[c] Highest dose tested.

[d] Two or more studies combined.

[e] Lowest dose tested.

[f] Capsule administration.

Acceptable daily intake (ADI) applies to permethrin:

0–0.05 mg/kg bw

Acute reference dose (ARfD) applies to permethrin:

0.05 mg/kg bw

Information that would be useful for the continued evaluation of the compound

Results from epidemiological, occupational health and other such observational studies of human exposure.

Table 5.29.2 Critical end-points for setting guidance values for exposure to permethrin

Absorption, distribution, excretion and metabolism in mammals	
Rate and extent of oral absorption	Rapid absorption (52% *cis*-permethrin, approximately 80% *trans*-permethrin), saturation at higher dose level
Distribution	Widely distributed; however at low concentrations of radioactivity, highest levels detected in fat
Potential for accumulation	Low potential
Rate and extent of excretion	Rapid excretion mainly via urine (52–84%), minor route via faeces (9–27%); rate of excretion dependent on isomer (*trans*-permethrin more rapidly eliminated)
Metabolism in animals	Almost exclusively via carboxylesterases. *Trans*-permethrin is hydrolysed more rapidly than *cis*-permethrin
Toxicologically significant compounds in animals and plants	Permethrin
Acute toxicity	
Mouse, LD_{50}, oral	Ranging from 232 mg/kg bw to 1744 mg/kg bw, dependent on the cis:trans ratio
Rat, LD_{50}, oral	Ranging from 225 mg/kg bw to 6000 mg/kg bw, dependent on the cis:trans ratio
Rat, LD_{50}, dermal	>2000 mg/kg bw
Rat, LC_{50}, inhalation	>23.5 mg/L
Rabbit, dermal irritation	Not irritating
Rabbit, ocular irritation	Not irritating
Mouse, dermal sensitization	No data

Guinea pig, dermal sensitization	Not sensitizing (Magnusson & Kligman)
Short-term studies of toxicity	
Target/critical effect	Clinical signs of neurotoxicity, decreased body weight gain, liver toxicity (mouse, rat, dog)
Lowest relevant oral NOAEL	5 mg/kg bw per day (dog)
Long-term studies of toxicity and carcinogenicity	
Target/critical effect	Mice: mortality, body weight gain, bronchioalveolar carcinoma (females), hepatocellular adenoma (females) Rat: clinical signs of neurotoxicity
Lowest relevant NOAEL	5 mg/kg bw per day (rat)
Carcinogenicity	Possibly carcinogenic in female mice[a] Mode of action for the tumours observed in female mice are not considered relevant for humans
Genotoxicity	Unlikely to be genotoxic[a]
Reproductive toxicity	
Target/critical effect	No reproductive effects. Tremors (parental, offspring)
Lowest relevant parental NOAEL	<33 mg/kg bw per day, lowest dose tested (rat)
Lowest relevant offspring NOAEL	66 mg/kg bw per day (rat)
Lowest relevant reproductive NOAEL	165 mg/kg bw per day, highest dose tested (rat)
Developmental toxicity	
Target/critical effect	Maternal mortality, increased resorptions and post-implantation loss secondary to the severe maternal toxicity (rabbit); no adverse effects observed in rats
Lowest relevant maternal NOAEL	<600 mg/kg bw per day, lowest dose tested (rabbit)
Lowest relevant embryo/fetal NOAEL	600 mg/kg bw per day (rabbit)
Neurotoxicity	
Acute neurotoxicity NOAEL	150 mg/kg bw (rat)
Subchronic neurotoxicity NOAEL	12.6 mg/kg bw per day (rat)
Developmental neurotoxicity NOAEL	No data
Other toxicological studies	
Immunotoxicity	No evidence from routine studies
Studies on toxicologically relevant metabolites	

No data	
Microbiological data	Insufficient information to address potential impact of permethrin residues on human intestinal microbiome
Human data	Data available on poisoning indicating effects on dermal, neurological and respiratory systems Epidemiological data insufficient to suggest a clear associative or causal relationship between permethrin exposure and adverse health outcomes, including the neurodevelopmental effects

Note:

[a] Unlikely to pose a carcinogenic risk to humans via exposure from the diet.

Table 5.29.3 Summary

	Value	Study	Safety factor
ADI	0–0.05 mg/kg bw	Two-year study of toxicity and carcinogenicity (rat) and 90-day and 1-year studies of toxicity (dog)	100
ARfD	0.05 mg/kg bw	90-day study of toxicity (dog)	100

5.30 Proquinazid (347) (T, R)*

Toxicology

Proquinazid is the common name approved by the International Organization for Standardization (ISO) for 6-iodo-2-propoxy-3-propylquinazolin-4(3*H*)-one (International Union of Pure and Applied Chemistry [IUPAC]), for which the Chemical Abstracts Service (CAS) number is 189278-12-4.

Proquinazid is a quinazolinone fungicide used to control powdery mildew in cereals, grapes, apples and pears and some fruiting vegetables. It acts by preventing secondary appressorial formation, which is essential for successful infection by powdery mildew fungi.

Proquinazid has not previously been evaluated by the Joint FAO/WHO Meeting on Pesticide Residues (JMPR) and was reviewed by the present meeting at the request of the Codex Committee on Pesticide Residues (CCPR). All critical studies contained statements of compliance with good laboratory practice (GLP) and were conducted in accordance with current test guidelines, unless otherwise specified. No additional information from a literature search was identified that complemented the toxicological information submitted for the current assessment.

Biochemical aspects

Proquinazid was rapidly and extensively absorbed in rats (86–89 percent within 48 hours based on concentrations in bile, urine and carcass) and was extensively metabolized. The rate of absorption into plasma following a single oral dose of 1 or 20 mg/kg bw had a T_{max} of 4–6 hours in males and 8–10 hours in females. Measurements of radiolabel at T_{max} at both dose levels found the highest concentrations in the gastrointestinal (GI) tract (excluding contents), followed by the adrenal gland, liver, kidney, fat and pituitary and thyroid glands. The tissue distribution showed a similar pattern, with both the high and low dose. The kinetics of proquinazid were generally similar in males and females.

The major metabolic reactions were predominantly associated with oxidation or modification of the side chains; phenyl ring hydroxylation, hydroxylation and hydrolysis at the propyl and propoxy side chains. The percentage area under the concentration–time curve (AUC) rank order of the four most prominent metabolites in plasma and blood was X12649845 (IN-MU210) > X12649801 (IN-MM986) > X12688723 (IN-MW398) > X12649859 (IN-MY340). Major metabolites in urine and faeces were IN-MU715 and IN-NB673. Other metabolites identified included IN-MW977 (major and minor isomers), IN-MY340, IN-MY341 and IN-MU210. Glucuronide and sulfate conjugation of metabolites was observed in both bile and urine. No substantial differences in metabolic profile were observed after single or repeated dosing.

In single dose studies elimination was rapid and extensive at 1 and 20 mg/kg bw; 85–88 percent of dose within 48 hours; 43–56 percent of dose in urine and 31–43 percent dose in faeces within 48 hours. Biliary excretion was extensive, indicating entero-hepatic circulation. The elimination half-life was 8–12 hours.

Following seven consecutive doses of 1 mg/kg bw per day, terminal elimination half-lives were 37–49 hours in plasma, 46–52 hours in liver, 50–89 hours in kidney, and 36–40 hours in fat. There was essentially no elimination in expired air.

There was no indication of accumulation. Less than 1 percent of the dose remained in tissues seven days after a single dose in the case of both males and females. Total tissue concentrations after seven consecutive doses were similar to those generated following a single dose.

In a comparative *in vitro* metabolism study, biotransformation of proquinazid by human, rat, mouse, dog and rabbit hepatocytes was evaluated. No species-specific (including human) or disproportionate metabolites were observed.

Toxicological data

Most of the toxicity studies were conducted with proquinazid manufactured by an old production process. A 90-day dietary toxicity study in rats was performed with proquinazid manufactured by the current process to compare the toxicity of the two batches. Similar effects were observed with both batches, and proquinazid produced by the old process appeared to be more potent than proquinazid produced by the current process. Additional studies performed on proquinazid manufactured by the current production process include genotoxicity assays, a two-generation reproductive toxicity study and an immunotoxicity study.

The acute oral median lethal dose (LD_{50}) of proquinazid was 4846 mg/kg bw in rats. The dermal LD_{50} was greater than 5000 mg/kg bw in rats. The inhalation median lethal concentration (LC_{50}) in rats was greater than 5.2 mg/L. Proquinazid was not irritating to skin or eye in rabbits. Proquinazid was not skin sensitizing in the guinea pig Magnusson & Kligman maximization test and it did not produce phototoxicity *in vitro*.

In repeated dose toxicity studies in mice and rats, the main target organs were the liver and thyroid. These effects were not observed in dogs. In dogs, the critical effects were reduced body weight and food consumption.

In a combined 90-day oral toxicity and subchronic neurotoxicity study in rats, proquinazid was administered at dietary concentrations of 0, 30, 100, 300 or 2000 ppm (equal to 0, 1.89, 6.22, 18.9 and 135 mg/kg bw per day) for males, and 0, 30, 100, 300 or 600 ppm (equal to 0, 2.29, 7.75, 23.2 and 49.7 mg/kg bw per day) for females. The no-observed-adverse-effect level (NOAEL) was 30 ppm (equal to 1.89 mg/kg bw per day) based on thyroid follicular cell hypertrophy and changes in thyroid hormone homeostasis in males at 100 ppm (equal to 6.22 mg/kg bw per day).

In a second 90-day oral toxicity study in rats, proquinazid produced by the new manufacturing process was administered in the diet at concentrations of 0, 30, 100, 300 or 2000 ppm (equal to 0, 1.95, 6.33, 19.45 and 127 mg/kg bw per day) for males, and 0, 30, 100, 300 or 600 ppm (equal to 0, 2.41, 8.01, 24.15 and 49.51 mg/kg bw per day) for females. The NOAEL was 100 ppm (equal to 6.33 mg/kg bw per day), based on thyroid follicular cell hypertrophy and changes in thyroid hormone homeostasis in males, and decreases in white blood cell counts in females at 300 ppm (equal to 19.45 mg/kg bw per day).

The meeting concluded that proquinazid produced by the new manufacturing process appears to be less toxic than proquinazid produced by the old process.

In a 90-day dietary toxicity study in dogs, proquinazid was administered at concentrations of 0, 500, 2000 or 4000 ppm (equal to 0, 17, 62 and 87 mg/kg bw per day for males, and 0, 18, 56 and 95 mg/kg bw per day for females). The NOAEL in this study was 500 ppm (equal to 17 mg/kg bw per day), based on reduced body weight gain, decreased food consumption and food efficiency at 2000 ppm (equal to 56 mg/kg bw per day).

In a one-year oral toxicity study in dogs, proquinazid was administered via capsules at doses of 0, 15, 60 or 180 mg/kg bw per day for 54 weeks. The dose administered to the high-dose group was 60 mg/kg bw per day for study week 0, 120 mg/kg bw per day for study week 1, and 180 mg/kg bw per day from study week 2 until the end of the study. The NOAEL was 15 mg/kg bw per day, based on reduced body weight and body weight gains in males at 60 mg/kg bw per day.

The overall NOAEL for the 13-week and one-year dog studies was 15 mg/kg bw per day, with an overall lowest-observed-adverse-effect level (LOAEL) of 56 mg/kg bw per day.

In an 18-month carcinogenicity study in mice, proquinazid was administered in the diet at concentrations of 0, 5, 30, 200 or 2000 ppm (equal to 0, 0.7, 3.9, 26.8 and 282 mg/kg bw per day for males, and 0, 1.0, 5.6, 38.2 and 415 mg/kg bw per day for females). The NOAEL for toxicity was 30 ppm (equal to 3.9 mg/kg bw per day) based on hepatotoxicity at 200 ppm (equal to 26.8 mg/kg bw per day). The NOAEL for carcinogenicity was 200 ppm (equal to 38.2 mg/kg bw per day), based on increased incidences in hepatocellular adenomas and thyroid follicular cell adenomas in females at the highest dose of 2000 ppm (equal to 415 mg/kg bw per day).

In a two-year combined chronic toxicity/carcinogenicity study in rats, proquinazid was administered in the diet to males at concentrations of 0, 10, 30, 300, 1000 or 2000 ppm (equal to 0, 0.42, 1.16, 12.1, 43.2 and 91.6 mg/kg bw per day) and to females at 0, 10, 30, 300, 600 or 1200 ppm (equal to 0, 0.49, 1.39, 15.7, 34.7 and 76.0 mg/kg bw per day). The NOAEL for toxicity was 30 ppm (equal to 1.16 mg/kg bw per day) based on hepatobiliary toxicity, thyroid follicular cell hypertrophy and hyperplasia and changes in thyroid hormone homeostasis at 300 ppm (equal to 12.1 mg/kg bw per day). The NOAEL for carcinogenicity was 30 ppm (equal to 1.16 mg/kg bw per day), based on an equivocally increased incidence of thyroid follicular cell adenoma in males at 300 ppm (equal to 12.1 mg/kg bw per day). At higher doses, increased incidences of hepatocellular adenoma and cholangiocarcinoma (intestinal type) were observed in females.

The meeting concluded that proquinazid is carcinogenic in female mice and male and female rats, but not in male mice.

Proquinazid was tested for genotoxicity in an adequate range of *in vitro* and *in vivo* assays. No evidence of genotoxicity was found.

The meeting concluded that proquinazid is unlikely to be genotoxic.

Additional mechanistic studies investigating the effects on the thyroid in rats were provided.

In a mechanistic study of thyroid effects in male rats, proquinazid was administered in the diet at concentrations of 0, 10, 30, 300 or 3000 ppm (equal to 0, 0.619, 1.89 and 18.8 mg/kg bw per day for animals given 0, 10, 30 or 300 ppm; animals given 3000 ppm were euthanized early due to excessive body weight depression and data were not reported) for up to 28 days. The NOAEL was 30 ppm (equal to 1.89 mg/kg bw per day), based on thyroid hormone alterations, comprising increased thyroid stimulating hormone (TSH) and reverse triiodothyronine (rT3), plus decreased T3 and thyroxine (T4). Also based on increased hepatic uridine diphosphate glucuronosyltransferase (UDP-GT) activity, decreased 5´-deiodinase activity and thyroid follicular cell hypertrophy at 300 ppm (equal to 18.8 mg/kg bw per day).

In a series of *in vitro* studies, proquinazid was negative for thyroid receptor agonist activity, thyroid peroxidase inhibition, sodium iodide symporter inhibition and deiodinase I inhibition. Proquinazid exhibited *Cyp1a2/CYP1A2*, *Cyp2b1/CYP2B6* and *Cyp3a1/CYP3A4* mRNA gene expression induction in rat and human hepatocytes; however corresponding enzyme activity was only observed in rat hepatocytes. Induction of thyroxine glucuronosyltransferase (T4-UGT) activity was observed in rat and human hepatocytes; however the basal and induced levels of T4-UGT activity in human hepatocytes were much lower than those observed in rat hepatocytes.

Based on the weight of evidence it was considered the thyroid effects are likely to be secondary to metabolic enzyme (UDP-GT) induction in the liver, resulting in a secondary decrease in circulating concentrations of thyroid hormones and a compensatory increase in TSH which, if persistent, may lead to thyroid follicular cell hypertrophy and proliferative lesions, especially in the rat.

In view of the lack of genotoxicity and the fact that there is a clear threshold for the liver tumours in female mice and rats and the thyroid tumours in male rats and female mice, the meeting concluded that proquinazid is unlikely to pose a carcinogenic risk to humans from the diet.

In a two-generation reproductive toxicity study in rats, proquinazid was administered in the diet at concentrations of 0, 150, 300 or 600 ppm (equal to 0, 8.84, 17.4 and 35.1 mg/kg bw per day in males, and 0, 9.79, 19.2 and 39.4 mg/kg bw per day in females). A NOAEL for parental toxicity could not be identified, based on the observation of thyroid follicular cell hypertrophy at 150 ppm (equal to 8.84 mg/kg bw per day). The reproductive NOAEL was 300 ppm (equal to 17.4 mg/kg bw per day), based on decreased numbers of implantation sites and implantation efficiency, and decreased numbers of pups born and pups born alive at 600 ppm (equal to 35.1 mg/kg bw per day). The offspring NOAEL was 150 ppm (equal to 8.84 mg/kg bw per day), based on reductions in pup weights at 300 ppm (equal to 17.4 mg/kg bw per day).

In a second two-generation reproductive toxicity study in rats, proquinazid, produced by the new manufacturing process, was administered in the diet at concentrations of 0, 10, 30, 150 or 600 ppm (equal to 0, 0.599, 1.8, 9.08 and 35.1 mg/kg bw per day in males, and 0, 0.674, 2.06, 9.80 and 39.6 mg/kg bw per day in females). The NOAEL for parental toxicity was 30 ppm (equal to 1.8 mg/kg bw per day) based on hypertrophy of the thyroid epithelium at 150 ppm (equal to 9.08 mg/kg bw per day). The reproductive NOAEL was 600 ppm (equal to 35.1 mg/kg bw per day), the highest dose tested. The offspring NOAEL was 150 ppm (equal to 9.08 mg/kg bw per day) based on decreased pup weights at 600 ppm (equal to 35.1 mg/kg bw per day).

The meeting concluded that proquinazid produced by the new manufacturing process is possibly less toxic to reproduction than proquinazid produced by the old process.

In a developmental toxicity study in rats, proquinazid was administered by gavage at doses of 0, 5, 10, 30 or 60 mg/kg bw per day. During the first two days of dosing body weight loss (4.7 g) was observed at 60 mg/kg bw per day. The NOAEL for maternal toxicity was 30 mg/kg bw per day, based on decreased body weight, reduced body weight gains and food consumption, and an increased incidence of clinical signs of toxicity including salivation, stained fur on the chin and piloerection, all at 60 mg/kg bw per day. The NOAEL for embryo/fetal toxicity was 30 mg/kg bw per day, based on decreased fetal body weight and an increased incidence in fetal variations at 60 mg/kg bw per day.

In a developmental toxicity study in rabbits, proquinazid was administered by gavage at doses of 0, 1, 2.5, 5 or 10 mg/kg bw per day. The NOAEL for maternal toxicity was 2.5 mg/kg bw per day based on decreased maternal weight gain and food consumption at 5 mg/kg bw per day. The NOAEL for embryo/fetal toxicity was 2.5 mg/kg bw per day based on decreased fetal weight at 5 mg/kg bw per day.

The meeting concluded that proquinazid did not cause congenital malformations.

In an acute neurotoxicity study in rats, proquinazid was administered as a single dose of 0, 15, 30, 50, 100, 500 or 2000 mg/kg bw (15, 30 and 50 mg/kg bw were administered to females only). The NOAEL for acute neurotoxicity was 2000 mg/kg bw per day, the highest dose tested. The NOAEL for general toxicity was 50 mg/kg bw per day, based on decreased motor activity in females at 100 mg/kg bw.

Subchronic neurotoxicity was evaluated in the combined 90-day oral and subchronic neurotoxicity study in rats. The NOAEL for neurotoxicity was 2000 ppm (equal to 135 mg/kg bw per day) in males, and 600 ppm (equal to 49.7 mg/kg bw per day) in females, the highest concentrations tested.

The meeting concluded that proquinazid is not neurotoxic.

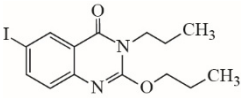
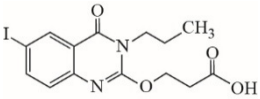
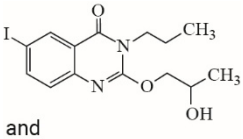
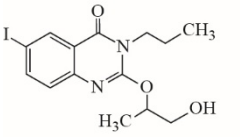
In a 28-day immunotoxicity study in female rats, proquinazid was administered in the diet at concentrations of 0, 50, 200, 600 or 1200 ppm (equal to 0, 4, 14, 42 and 82 mg/kg bw per day). The NOAEL for systemic toxicity was 600 ppm (equal to 42 mg/kg bw per day) based on decreased body weight, body weight gain, food consumption and food efficiency at 1200 ppm (equal to 82 mg/kg bw per day). The NOAEL for immunotoxicity was 1200 ppm (equal to 82 mg/kg bw per day), the highest dose tested.

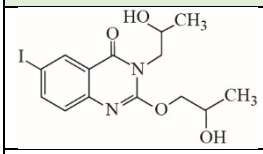
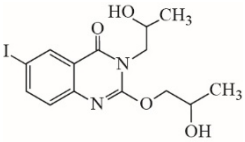
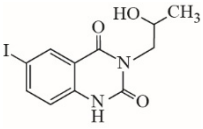
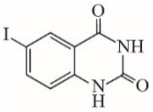
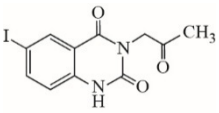
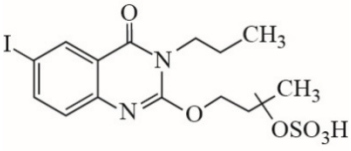
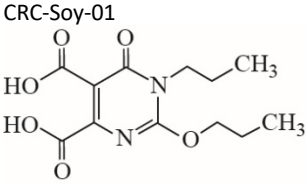
The meeting concluded that proquinazid is not immunotoxic.

Toxicological data on metabolites and/or degradates

A toxicological evaluation of plant/livestock metabolites was performed. The following table shows an overall summary of the toxicological characterization of the plant/livestock metabolites requested for inclusion in the residue definition.

Table 5.30.1 Summary overview of toxicological characterization of plant/livestock metabolites of proquinazid

Compound, code and structure	Major rat metabolite (>10% AD)	Genotoxicity assessment (data, QSAR, read-across)	General toxicity	Reference value for dietary risk assessment
Proquinazid 	N/A	Not genotoxic (data)	Full dataset	ADI: 0–0.01 mg/kg bw ARfD: 0.3 mg/kg bw
IN-MU210 (X12649845) 	Yes	Not genotoxic (data)	Covered by parent	Parent's HBGVs
IN-MW977 (Isomers IN-MW977a [major] & IN-MW977b [minor])  and 	Yes	Not genotoxic (data)	Covered by parent	Parent's HBGVs
IN-MY341	No	Not genotoxic (QSAR and read-across)	Covered by parent (structural	Parent's HBGVs

Compound, code and structure	Major rat metabolite (>10% AD)	Genotoxicity assessment (data, QSAR, read-across)	General toxicity	Reference value for dietary risk assessment
			similarity with proquinazid)	
IN-MY788 	No	Not genotoxic (QSAR and read-across)	Covered by parent (structural similarity with proquinazid)	Parent's HBGVs
IN-MW397 	No	Not genotoxic (QSAR and read-across)	Covered by parent (structural similarity with proquinazid/IN-MW398)	Parent's HBGVs
IN-MW398 	Yes	Not genotoxic (covered by parent)	Covered by parent	Parent's HBGVs
IN-NA250 	No	Not genotoxic (QSAR and read-across)	Covered by parent (structural similarity with proquinazid)	Parent's HBGVs
IN-MW977a sulfate 	No	Not genotoxic (conjugate of IN-MW977a)	Covered by parent (conjugate of metabolite covered by parent [IN-MW977])	Parent's HBGVs
CRC-Soy-01 	No	Not genotoxic (QSAR and read-across)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)

Notes: AD: Administered dose; TTC: threshold of toxicological concern; HBGVs: health-based guidance values.

Microbiological aspects

There was no information available in the public domain and no experimental data were submitted that addressed the possible impacts of proquinazid residues on the human intestinal microbiome.

Human data

In reports on manufacturing plant and field personnel, no adverse health effects were noted. There have been no reported accidental poisonings with proquinazid, and a search of the open literature found no reports of adverse health effects.

The meeting concluded that the existing database on proquinazid was adequate to characterize the potential hazards to the general population, including fetuses, infants and children.

Toxicological evaluation

The meeting established an acceptable daily intake (ADI) for proquinazid of 0–0.01 mg/kg bw, based on the NOAEL of 1.16 mg/kg bw per day in the two-year chronic toxicity and carcinogenicity study in rats and supported by the reproductive toxicity study in rats, and using a safety factor of 100. The upper bound of the ADI gives a margin of more than 1200 to the lowest dose causing tumours. This ADI applies also to IN-MU210, IN-MW977, IN-MY341, IN-MY788, IN-MW397, IN-MW398, IN-NA250 and IN-MW977a sulfate.

The meeting established an acute reference dose (ARfD) of 0.3 mg/kg bw, based on the NOAEL of 30 mg/kg bw per day for body weight loss in the first two days of a developmental toxicity study in rats, and using a safety factor of 100.

This ARfD applies also to IN-MU210, IN-MW977, IN-MY341, IN-MY788, IN-MW397, IN-MW398, IN-NA250 and IN-MW977a sulfate.

The meeting concluded that the threshold of toxicological concern (TTC) Cramer class III approach for chronic exposure (1.5 µg/kg bw per day) and for acute exposure (5 µg/kg bw) should be considered in the dietary risk assessment of metabolite CRC-Soy-01, if necessary.

A toxicological monograph was prepared.

Table 5.30.2 Levels relevant to risk assessment of proquinazid

Species	Study	Effect	NOAEL	LOAEL
Mouse	78-week study of toxicity and carcinogenicity[a]	Toxicity	30 ppm, equal to 3.9 mg/kg bw per day	200 ppm, equal to 26.8 mg/kg bw per day
		Carcinogenicity	200 ppm, equal to 38.2 mg/kg bw per day	2000 ppm, equal to 415 mg/kg bw per day
Rat	Acute neurotoxicity study[b]	Neurotoxicity	2000 mg/kg bw[c]	–
	Two-year studies of toxicity and carcinogenicity[a]	Toxicity	30 ppm, equal to 1.16 mg/kg bw per day	300 ppm, equal to 12.1 mg/kg bw per day
		Carcinogenicity	30 ppm, equal to 1.16 mg/kg bw per day	300 ppm, equal to 12.1 mg/kg bw per day
	Two-generation study of reproductive toxicity[a]	Reproductive toxicity	300 ppm, equal to 17.4 mg/kg bw per day	600 ppm, equal to 35.1 mg/kg bw per day
		Parental toxicity	–	150 ppm, equal to 8.84 mg/kg bw per day[f]
		Offspring toxicity	150 ppm, equal to	300 ppm, equal to

Species	Study	Effect	NOAEL	LOAEL
			8.84 mg/kg bw per day	17.4 mg/kg bw per day
	Two-generation study of reproductive toxicity[a, g]	Reproductive toxicity	600 ppm, equal to 35.1 mg/kg bw per day[c]	–
		Parental toxicity	30 ppm, equal to 1.8 mg/kg bw per day	150 ppm, equal to 9.08 mg/kg bw per day
		Offspring toxicity	150 ppm, equal to 9.08 mg/kg bw per day	600 ppm, equal to 35.1 mg/kg bw per day
	Developmental toxicity study[b]	Maternal toxicity	30 mg/kg bw per day	60 mg/kg bw per day
		Embryo/fetal toxicity	30 mg/kg bw per day	60 mg/kg bw per day
Rabbit	Developmental toxicity study[b]	Maternal toxicity	2.5 mg/kg bw per day	5 mg/kg bw per day
		Embryo/fetal toxicity	2.5 mg/kg bw per day	5 mg/kg bw per day
Dog	13-week[a] and one-year[e] studies of toxicity[d]	Toxicity	15 mg/kg bw per day	56 mg/kg bw per day

Notes:
[a] Dietary administration.
[b] Gavage administration.
[c] Highest dose tested.
[d] Two or more studies combined.
[e] Capsule administration.
[f] Lowest dose tested.
[g] Different batch used.

Acceptable daily intake (ADI) for proquinazid:*

0–0.01 mg/kg bw

Acute reference dose (ARfD) for proquinazid:*

0.3 mg/kg bw

* Applies to proquinazid, IN-MU210, IN-MW977, IN-MY341, IN-MY788, IN-MW397, IN-MW398, IN-NA250 and IN-MW977a sulfate, expressed as proquinazid.

Information that would be useful for the continued evaluation of the compound

Results from epidemiological, occupational health and other such observational studies of human exposure.

Table 5.30.3 Critical end-points for setting guidance values for exposure to proquinazid

Absorption, distribution, excretion and metabolism in mammals	
Rate and extent of oral absorption	Rapid and extensive; total absorption by 48 hours after single dose (1 mg/kg bw) administration was 86–89%
Distribution	Wide; highest concentrations in gastrointestinal tract (excluding contents) followed by adrenal gland, liver, kidney, fat and pituitary and thyroid glands
Potential for accumulation	No evidence of accumulation
Rate and extent of excretion	Rapid; 85–88% of dose within 48 hours; 43–56% in urine; 31–43% in faeces
Metabolism in animals	Extensively metabolized (>98%). The major metabolic reactions were predominantly associated with oxidation or modification of the side chains; phenyl ring hydroxylation, hydroxylation and hydrolysis at the propyl and propoxy side chains. Similar kinetics and metabolism observed in male and female rats
Toxicologically significant compounds in animals and plants	Proquinazid, IN-MU210, IN-MW977, IN-MY341, IN-MY788, IN-MW397, IN-MW398, IN-NA250, and IN-MW977a sulfate
Acute toxicity	
Rat, LD_{50}, oral	4846 mg/kg bw
Rat, LD_{50}, dermal	>5000 mg/kg bw
Rat, LC_{50}, inhalation	>5.2 mg/L
Rabbit, dermal irritation	Not irritating
Rabbit, ocular irritation	Not irritating
Guinea pig, dermal sensitization	Not sensitizing (Magnusson & Kligman)
Short-term studies of toxicity	
Target/critical effect	Thyroid follicular cell hypertrophy and changes in thyroid hormone homeostasis
Lowest relevant oral NOAEL	1.89 mg/kg bw per day (rat)
Long-term studies of toxicity and carcinogenicity	
Target/critical effect	Hepatobiliary toxicity, thyroid follicular cell hypertrophy and hyperplasia and changes in thyroid hormone homeostasis
Lowest relevant NOAEL	1.16 mg/kg bw per day (rat)

Carcinogenicity	Carcinogenic in mice and rats[a] Rat: thyroid follicular cell adenoma (males), hepatocellular adenoma and intestinal type cholangiocarcinoma (females). Mouse: Hepatocellular adenoma and thyroid follicular cell adenoma (females)
Genotoxicity	Unlikely to be genotoxic[a]
Reproductive toxicity	
Target/critical effect	Parental toxicity: thyroid follicular cell hypertrophy Offspring toxicity: decreased pup weights Reproductive toxicity: decreased implantation sites and implantation efficiency, decreased number of pups born and pups born alive
Lowest relevant parental NOAEL	1.8 mg/kg bw per day (rat)
Lowest relevant offspring NOAEL	8.84 mg/kg bw per day (rat)
Lowest relevant reproductive NOAEL	17.4 mg/kg bw per day (rat)
Developmental toxicity	
Target/critical effect	Decreased maternal body weight gain, decreased fetal weight
Lowest relevant maternal NOAEL	2.5 mg/kg bw per day (rabbit)
Lowest relevant embryo/fetal NOAEL	2.5 mg/kg bw per day (rabbit)
Neurotoxicity	
Acute neurotoxicity NOAEL	2000 mg/kg bw, highest dose tested (rat)
Subchronic neurotoxicity NOAEL	49.7 mg/kg bw per day, highest dose tested (rat)
Developmental neurotoxicity NOAEL	No data
Other toxicological studies	
Immunotoxicity	82 mg/kg bw per day, highest dose tested (rat)
Studies on toxicologically relevant metabolites	
IN-MU210	Not genotoxic (Ames, micronucleus *in vitro*)

IN-MW977	Not genotoxic (Ames, micronucleus *in vitro*)
Microbiological data	No data
Human data	No clinical cases or poisoning incidents have been recorded

Note:

[a] Unlikely to pose a carcinogenic risk to humans via exposure from the diet.

Table 5.30.4 Summary

	Value	Study	Safety factor
ADI	0–0.01 mg/kg bw[a]	Two-year study of toxicity and carcinogenicity (rat)	100
ARfD	0.3 mg/kg bw[a]	Developmental toxicity study (rat)	100

Note:

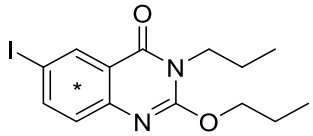
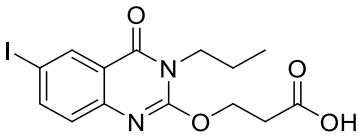
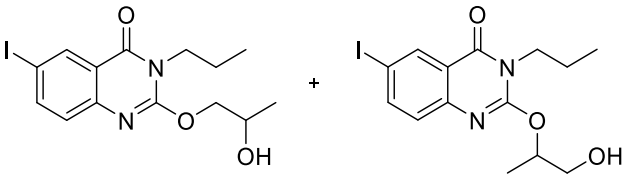
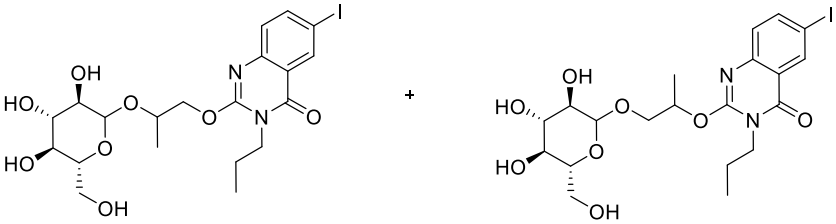
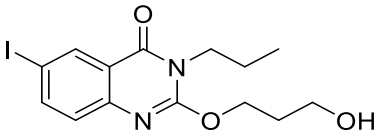
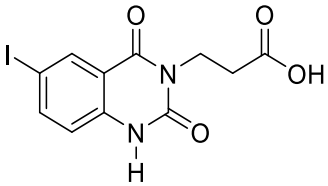
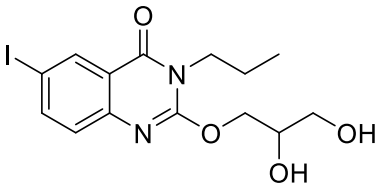
[a] Applies to proquinazid, IN-MU210, IN-MW977, IN-MY341, IN-MY788, IN-MW397, IN-MW398, IN-NA250 and IN-MW977a sulfate, expressed as proquinazid.

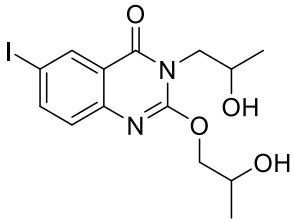
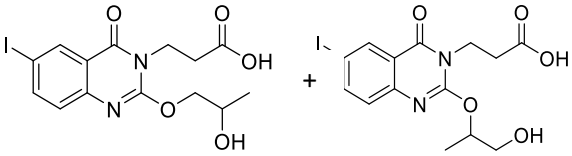
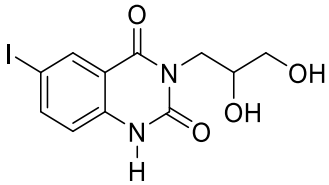
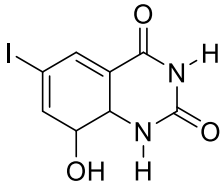
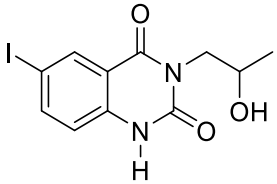
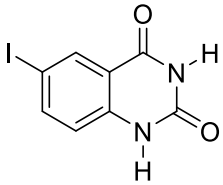
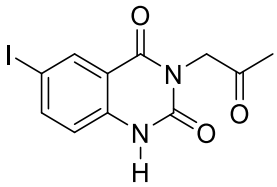
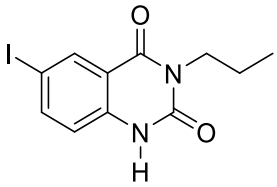
Residue and analytical aspects

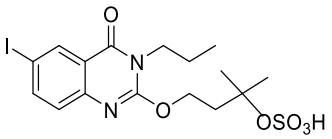
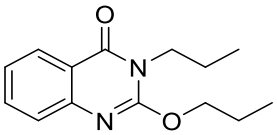
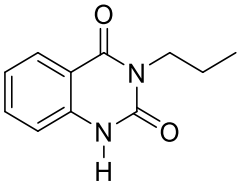
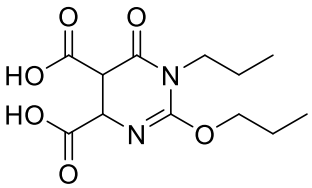
Proquinazid (IUPAC: 6-iodo-2-propoxy-3-propylquinazolin-4(H)-one) is a quinoline fungicide used for the control of powdery mildew. The mode of action is the inhibition of spore germination and appressorium formation. The 55th Session of the CCPR scheduled proquinazid for the evaluation as a new compound by the 2025 JMPR.

The meeting received information on chemical identity, physical and chemical properties, metabolism in plants (apple, grape, wheat) and animals (lactating goats, hens), environmental fate (hydrolysis), methods of residue analysis, freezer storage stability, use pattern, supervised residue trials (apple, pear, strawberry, grapes, cucumber, melon, tomato, pepper, wheat, rye, barley), processing studies, and an animal feeding study (lactating cow). The structure of proquinazid and its metabolites are shown in Table 5.30.5.

Table 5.30.5 Abbreviations used for relevant compounds referred to in the appraisal

Compound code	Structure
Proquinazid (DPX-KQ926)	[phenyl-^{14}C(U)]proquinazid  (*): Position of ^{14}C-radiolabel
IN-MU210	
IN-MW977 (isomers) In toxicological section, IN-MW977a (major) and IN-MW977b (minor)	 Major isomer Minor isomer
IN-MW977 glucosides	
IN-MU207	
IN-MU715	
IN-MY340	

Compound code	Structure
IN-MY341	
IN-MY788	 Major isomer + Minor isomer
IN-NA251	
IN-NB673	
IN-MW397	
IN-MW398	
IN-NA250	
IN-MM986	

Compound code	Structure
Sulphate conjugate of hydroxylated proquinazid In toxicological section, IN-MW977a sulphate	
IN-MM671	
IN-MM991	
CRC-Soy-01	

Based on the information on physical and chemical properties, proquinazid is not volatile and suggests fat solubility with a log Kow of 5.5. It is hydrolytically stable at pH 4 and 9 and at environmental conditions of pH 7 and further in processing hydrolytic conditions.

Metabolism and environmental fate

The metabolism of proquinazid in plants and animals and its fate in environment were investigated using ^{14}C labelled test material, [phenyl-^{14}C(U)]proquinazid.

Plant metabolism

The metabolism of proquinazid was investigated in a range of representative fruit crops (apple, grape) and cereal/grass crops (wheat). Crops were grown outdoors and treated with foliar application.

Apple

^{14}C-Proquinazid was foliar-applied to apple trees grown outdoors at a rate of 2 × 225 g ai/ha with 40 days interval. Mature apple fruits were harvested at 0, 15, and 28 days after the last application (DALA). Apple leaves were collected at 0 days after each application and 40 days after the first application. were collected before second application (40 days after the first application). Peel and pulp samples were obtained from 15 and 28 DALA apples.

Total radioactive residues (TRR) in apple fruit were 0.18 mg eq/kg, 0.15 mg eq/kg, and 0.13 mg eq/kg at 0, 15, and 28 DALA, respectively, demonstrating that residues remained relatively constant. About 90 percent TRR in whole apples (15 and 28 DALA) was associated with the peel, indicating very little translocation of residues into the apple pulp. TRR in apple leaves were 15.4 mg eq/kg at 0 days after the first application (declined to 9.1 mg eq/kg over 40 days) and 30.4 mg eq/kg at 0 days after the second application.

Solvent extractability of radioactive residues in whole apple was 47–77 percent TRR (39–74 percent TRR from ethyl acetate extraction and 2.9–8.2 percent TRR from subsequent extraction with methanol/0.1 percent formic acid), leaving 24–53 percent TRR unextracted. Most (17–36 percent TRR) of the unextracted residue was released with 1 mol/L NaOH and consisted of multiple peaks characteristic of incorporation into the plant lignin.

For apple leaves, solvent extractability was 71–95 percent TRR (55–89 percent TRR from the ethyl acetate extract and 5.7–17 percent TRR from the subsequent extraction with methanol:0.1 percent phosphoric acid), leaving 5.1–29 percent TRR in unextracted residues.

In whole apple (0, 15 and 28 DALA), parent compound was the major component, accounting for 22–61 percent TRR (0.028–0.11 mg/kg), decreasing over time after application. IN-MM671, IN-MM986 and IN-MM991 were found at low levels (≤4.8 percent TRR, ≤0.007 mg eq/kg). Unknown fractions consisted of multiple components, each ≤ 8.0 percent TRR (≤ 0.012 mg eq/kg).

In apple leaves, parent compound was the major component, accounting for 77–84 percent TRR (or 13–23 mg/kg) at 0 days after the first and second application and 24 percent TRR (2.2 mg/kg) at 40 days after the first application. IN-MM671 was found in all leaves at 4.0–5.4 percent TRR (or 0.42–1.2 mg eq/kg). In leaves from 40 days after the first application, three unknown components were present at levels of 19 percent TRR (1.7 mg eq/kg), 6.8 percent TRR (0.62 mg eq/kg), and 3.9 percent TRR (0.35 mg eq/kg).

Grape

^{14}C-Proquinazid was foliar-applied to grape grown outdoors at a rate of 3 × 200 g ai/ha with 39-day and 24-day retreatment intervals. Mature grape berries were harvested at 0, 14 and 29 DALA. Grape leaves were collected before the second and third applications, after each application, and at 14 and 29 DALA.

TRR in grape berries were 0.25 mg eq/kg, 0.24 mg eq/kg, and 0.23 mg eq/kg at 0, 14, and 29 DALA, respectively. TRR in grape leaves 0 days after the first and second application were 19.6 and 20.3 mg eq/kg, respectively and declined to 1.23 mg eq/kg over 39 days and 1.97 mg eq/kg over 24 days, respectively. TRR in grape leaves at 0, 14, and 29 DALA were 10.0 mg eq/kg, 11.1 mg eq/kg, and 4.72 mg eq/kg, respectively.

Extractability of the radioactivity in grape berries (0, 14, and 29 DALA) was 52–55 percent TRR with ethyl acetate (aqueous extract, 4.4–5.7 percent TRR; total 58–60 percent TRR), leaving 40–42 percent TRR unextracted. Further extractions of the unextracted residues (using aqueous acetonitrile, dichloromethane, and then methanol:0.1 percent phosphoric acid) and subsequent treatments (enzyme, weak base, and then weak acid) released 6.8–8.5 percent TRR and 4.0 percent TRR, respectively. From the 28 percent TRR left, most (23 percent TRR) was released with 1 mol/L NaOH and consisted of multiple peaks characteristics of incorporation into the plant lignin.

In grape berries, parent proquinazid was the major component, accounting for 35–39 percent TRR (0.081–0.093 mg/kg). IN-MM671 and IN-MM991 were found at levels of 3.3–8.2 percent TRR (0.008–0.019 mg eq/kg) and 2.3–3.2 percent TRR (0.005–0.008 mg eq/kg), respectively. Three unknown, polar components were detected, each at 3.0–6.4 percent TRR (0.007–0.016 mg eq/kg).

In grape leaves, parent proquinazid was a major component, accounting for 22–92 percent TRR (0.27–18 mg/kg). No further investigations on other components were performed.

Wheat

^{14}C-Proquinazid was foliar-applied to wheat grown in field at a rate of 3 × 100 g ai/ha with 13- and 16-day retreatment intervals. The first application was made at the first/second nod formation growth stage. Forage and hay were collected before the second and third application, respectively. Straw and grain were collected at maturity.

TRR in wheat were 0.76 mg eq/kg in forage, 1.56 mg eq/kg in hay, 4.78 mg eq/kg in straw, and 0.35 mg eq/kg in grain. Extractability of the radioactivity in wheat matrices (forage, hay, straw and grain) was 62–83 percent TRR (grain, 75 percent TRR) with aqueous acetonitrile and 3.0–13 percent TRR (grain, 13 percent TRR) from the subsequent extraction with methanol:0.1 percent phosphoric acid (total, 66–87 percent TRR), leaving 11–34 percent TRR unextracted. The radioactivity in the aqueous acetonitrile extract (forage, hay, straw, grain) was partitioned into an ethyl acetate layer and aqueous layer at 59–77 percent TRR (grain, 72 percent TRR) and 0.8–8.0 percent TRR, respectively.

For the unextracted residue, subsequent treatments with enzyme, mild base, mild acid, and strong base released a total of 12–29 percent TRR, leaving a maximum of 4.5 percent TRR in unextracted residues. Majority (7–14 percent TRR) of the radioactivity in strong base soluble fraction (9.5–18 percent TRR) from hay and straw was precipitated on acidification, indicating association with the lignin fraction of the plant.

In wheat forage, parent proquinazid was present at 9.5 percent TRR (0.07 mg/kg). IN-MW977 (isomers) was found as a major component, accounting for 45 percent TRR (0.35 mg eq/kg), with the free form accounting for 35 percent TRR (0.27 mg eq/kg) and the glucose conjugate for 10 percent TRR (0.08 mg eq/kg). Minor components, IN-MU210, IN-NB673 conjugate and IN-MY341 were present each at 4.2–5.5 percent TRR (0.03–0.04 mg eq/kg). One polar unknown (two or more components) was detected at 8.9 percent TRR (0.07 mg eq/kg), and other more polar components at 9.9 percent TRR (0.07 mg eq/kg).

In wheat hay, parent proquinazid was present at 5.4 percent TRR (0.08 mg/kg). IN-MW977 (isomers) was found as a major component, accounting for 33 percent TRR (0.50 mg eq/kg), with the free form accounting for 26 percent TRR (0.40 mg eq/kg) and the glucose conjugate for 6.7 percent TRR (0.10 mg eq/kg). Minor components, IN-MU210, IN-NB673 conjugate, and IN-MY341 were found each at 4.4–5.9 percent TRR (0.07–0.09 mg eq/kg). One polar unknown (two or more components) was detected at 7.8 percent TRR (0.12 mg eq/kg). Other more polar components (18 percent TRR, 0.27 mg eq/kg) were considered as mostly conjugated compounds of non-sugar form and the propoxy side chain modified.

In wheat straw, parent proquinazid was present at 11 percent TRR (0.53 mg/kg). IN-MW977 (isomers) was found as a major component, accounting for 34 percent TRR (1.6 mg eq/kg) with the free form accounting for 32 percent TRR (1.5 mg eq/kg) and the glucose conjugate for 2.0 percent TRR (0.10 mg eq/kg). Minor components, IN-MU210, IN-NB673 conjugate, IN-MM986, and IN-MY341 were found at each 1.5–5.2 percent TRR (0.07–0.25 mg eq/kg). One polar unknown (two or more components) was detected at 3.9 percent TRR (0.19 mg eq/kg). Other more polar components were present at 4.8 percent TRR (0.23 mg eq/kg).

In wheat grain, parent proquinazid was a major component, accounting for 35 percent TRR (0.12 mg/kg). IN-MW977 (isomers) were found at 18 percent TRR (0.06 mg eq/kg), with the free form accounting for 15 percent TRR (0.05 mg eq/kg) and the glucose conjugate for 2.8 percent TRR (0.01 mg eq/kg). Minor component, IN-MM986 was found at 4.7 percent TRR (0.02 mg eq/kg). One polar unknown (two or more components) was detected at 3.1 percent TRR (0.01 mg eq/kg) and other more polar components at 13 percent TRR (0.05 mg eq/kg).

Summary of plant metabolism

Parent proquinazid was a major component in apple fruit (22–61 percent TRR), apple leaves (77–84 percent TRR), grape berries (35–39 percent TRR), grape leaves (22–92 percent TRR), wheat grain (35 percent TRR), and wheat forage, straw and hay (5.4–11 percent TRR). IN-MW977 (isomers, free and conjugated) was found as a major component in wheat grain (18 percent TRR) and wheat forage, straw, and hay (33–45 percent TRR).

The metabolic pathway of proquinazid in apple and grape is similar. In apple, it was metabolized by dehalogenation to form IN-MM671 followed by O-dealkylation of the propoxy side chain to form IN-MM991. In addition, proquinazid was metabolized by direct O-dealkylation to form IN-MM986. IN-MM991 may also be formed via the dehalogenation of IN-MM986. In grape, proquinazid was metabolized to IN-MM671 and IN-MM991, but IN-MM986 was not observed.

In wheat, proquinazid was metabolized primarily by oxidation of the propoxy side chain to IN-MW977 isomers.

Environmental fate

Hydrolysis

^{14}C-Proquinazid was hydrolytically stable in sterile buffer solutions at pH 4, 7, and 9 and under dark environment of 20 °C. At the end of study (30 days), 97 percent, 90 percent and 89 percent of the applied radioactivity at pH 4, 7, and 9, respectively, remained as proquinazid. The DT_{50} of proquinazid could not be calculated due to the low degradation.

It is considered that hydrolysis is not a route of degradation of proquinazid in the environment.

Residues in succeeding or rotational crop

The meeting received two confined rotational crop studies. ^{14}C-Proquinazid was applied to sandy loam soil at a rate of 2 × 150 g ai/ha with 30 days interval. Sugar beet, oil-seed rape, soya bean and wheat were planted as rotational crops with 45-day and 210-day plant back intervals (PBI). The rotational crops were grown under greenhouse conditions and harvested at immature state (forage for all crops) and mature state (sugar beet root and foliage, oil-seed rape seed and straw, soya bean seed and straw, wheat grain and straw).

In food commodities, TRR levels were 0.009 mg eq/kg in soya bean seeds, but remained <0.002–<0.008 mg eq/kg in all other matrices. In feed commodities, TRRs were 0.019–0.056 mg eq/kg and 0.006–0.024 mg eq/kg in forage and <0.003–0.19 mg eq/kg and <0.002–0.21 mg eq/kg in straw and foliage, at 45-day and 210-day PBIs, respectively.

In forage samples (45-day sugar beet and oil-seed rape forage, 45- and 210-day PBI soya bean and wheat forage), most (83–108 percent TRR) of the radioactivity was extracted with aqueous acetonitrile, except for 45-day PBI sugar beet forage (47 percent TRR).

For straw samples (45- and 210-day PBI soya bean and wheat straw), extractability of the radioactivity using aqueous acetonitrile was 81–82 percent in soya bean straw and 44–56 percent TRR in wheat straw, leaving 15–28 percent TRR and 36–39 percent TRR unextracted, respectively. Acid hydrolysis (1 mol/L HCl) of the straw unextracted residues (28–39 percent TRR in 210-day PBI soya bean straw and 45- and 210-day PBI wheat straw) and subsequent extraction with aqueous acetonitrile released 9.2–23 percent TRR and 7.8–21 percent TRR, respectively, leaving 14 percent TRR in terminal residues.

In the rotational crop forage and straw, parent proquinazid was not detected (<0.005 mg/kg). Multiple components (unidentified) were present at low levels, each at <10 percent TRR (≤0.01 mg eq/kg).

In another confined rotational crop study, a single application of ^{14}C-proquinazid was made at a rate of 150 g ai/ha to sandy loam soil. Soils were aged outsides for 29 days after application, prior to moving into a glasshouse. Seeds of radish, spinach, soya bean and spring wheat were sown at 30-, 120- and 300-day PBI. Radish tops (immature, mature) and roots (mature), spinach (immature, mature), soya bean samples (forage, hay, straw, seed), and wheat samples (forage, hay, straw, grain) were collected at each PBI.

In food commodities, TRRs (all PBIs) were 0.003–0.007 mg eq/kg in radish mature roots, 0.003–0.013 mg eq/kg in mature spinach, 0.013–0.042 mg eq/kg in soya bean seed, and 0.002–0.020 mg eq/kg in wheat grain. In radish immature and mature tops, TRRs (all PBIs) were 0.004–0.010 mg eq/kg and 0.005–0.017 mg eq/kg, respectively. TRRs in immature spinach were 0.003–0.009 mg eq/kg.

In feed commodities, TRRs (all PBIs) were 0.007–0.021 mg eq/kg in soya bean forage, 0.008–0.028 mg eq/kg in soya bean hay, 0.009–0.021 mg eq/kg in wheat forage, 0.010–0.031 mg eq/kg in wheat hay, and 0.072–0.091 mg eq/kg in wheat straw.

Extractability of the radioactivity using aqueous acetonitrile was 74–81 percent TRR in radish tops and spinach, 47–78 percent TRR in soya bean forage, hay and straw, 20–54 percent TRR in soya bean seed, 57–85 percent TRR in wheat forage, hay and straw and 19–26 percent TRR in wheat grain.

In wheat straw, mild acid and subsequent enzyme (Driselase) hydrolyses released a total of 6.1–13 percent TRR, leaving 21–28 percent TRR (0.012–0.025 mg eq/kg) in terminal residues. Unextracted residues of wheat grain (74–82 percent TRR) were associated with starch fractions (27–50 percent TRR), releasing radiolabelled glucose (45 percent TRR) with amyloglucosidase treatment. Unextracted residues of soya bean seed (56–80 percent TRR) were associated with protein fractions (17–19 percent TRR).

Parent proquinazid was not detected in any rotational food and feed commodities.

In food commodities (30-day PBI mature spinach, soya bean seed, wheat grain), IN-NB673, IN-MM991, and IN-MU715 were detected only in mature spinach at 8.5 percent TRR (0.001 mg eq/kg), 2.9 percent TRR (<0.001 mg eq/kg) and 1.6 percent TRR (<0.001 mg eq/kg), respectively. In soya bean seed, CRC-Soy-01 (tentatively identified, only found in soya bean crops) was a major component, found at 27 percent TRR (0.011 mg eq/kg).

IN-NB673 was a major component in feed commodities (30-day PBI) of immature radish tops, mature radish tops, and wheat hay, found at 11–22 percent TRR (0.002–0.003 mg eq/kg).

IN-MM991 was as a major component in feed commodities (30-day PBI) of immature radish tops, soya bean forage, soya bean hay, wheat forge, and wheat straw, found at 3.5–11 percent TRR (0.001–0.004 mg eq/kg).

CRC-Soy-01 (tentatively identified) was a major component in soya bean hay and straw (30- and 120-day PBI), found at 11–18 percent TRR (0.002–0.005 mg eq/kg) in hay and 21–34 percent TRR (0.004–0.030 mg eq/kg) in straw.

IN-MU715 was detected at minor levels, up to 5.1 percent TRR (≤0.005 mg eq/kg) in immature radish tops, soya bean forage, hay, and straw, and wheat hay commodities. IN-MY341 was detected only in wheat forage and hay at up to 6.1 percent TRR (0.001 mg eq/kg).

Summary of rotational crop studies

The metabolic pattern in rotational crops is similar to the primary crop, including the loss of iodine to form IN-MM671. It involved oxidation reactions including N- and/or *O*-dealkylation to form IN-MU715, IN-MM991 and IN-NB763, hydroxylation to form IN-MY341 and IN-NB763 and further oxidation to the carboxylic acid to form IN-MU715. The soya bean metabolite, CRC-Soy-01, resulted from extensive metabolism of the phenyl ring through a series of steps, including de-iodination, hydroxylation and oxidative ring opening. Proquinazid was ultimately metabolized to multiple polar components and incorporated into natural plant products such as starch and protein.

Parent was not detected and its metabolites were present at low levels (≤0.01 mg eq/kg), following application of proquinazid to sandy loam soil at a rate compared to a seasonal rate (300 g ai/ha). Metabolites IN-NB673, IN-MM991, IN-MU715 were found at low levels (<0.01 mg eq/kg), except for metabolite CRC-Soy-01 in soya bean seed (27 percent TRR, 0.011 mg eq/kg). Based on the results, no quantitatively relevant residues are expected in rotational crops following application of proquinazid according to the presented use labels.

Animal metabolism

Rats

The metabolism of proquinazid in rats was reviewed in the framework of the toxicological evaluation by the WHO Core Assessment Group of the 2025 JMPR.

Lactating goat

^{14}C-Proquinazid was administered in a single lactating goat at 91.5 ppm in feed for three consecutive days. The goat was sacrificed approximately 22 hours after the last dose and tissues (muscle, fat, liver, kidney) were collected. Milk was collected twice daily.

TRR in milk reached a maximum of 0.46 mg eq/kg at day 2. TRR in tissues were 0.04 mg eq/kg in muscle, 0.07 mg eq/kg in fat, 1.07 mg eq/kg in liver, and 1.06 mg eq/kg in kidney.

Most (90–99 percent TRR) of the radioactivity in goat milk and tissues was extracted with aqueous acetonitrile, leaving 0.37–13 percent TRR in unextracted residues. Protease and acid hydrolyses of liver post extraction solids (PES, 13 percent TRR) released most of the radioactivity.

In milk, parent proquinazid was present at 3.6 percent TRR (0.02 mg/kg). IN-MU210 was a major component, accounting for 41 percent TRR (0.17 mg eq/kg). Unresolved components IN-MY788/IN-MY341 were found at 19 percent TRR (0.077 mg eq/kg). Other multi-components at each less than 11 percent TRR (0.05 mg eq/kg) were detected.

In muscle, parent proquinazid was present at 2.7 percent TRR (0.001 mg/kg). IN-MU210 was a major component, accounting for 57 percent TRR (0.02 mg eq/kg). IN-MY788/IN- MY341 were found at 8.9 percent TRR (0.003 mg eq/kg). Other fractions amounted up to 19 percent TRR (0.007 mg eq/kg), consisting of at least two individual components.

In fat, parent proquinazid was present at 22 percent TRR (0.02 mg/kg). Other major components IN-MU210 and IN-MW977 (isomers) were found at 36 percent TRR (0.03 mg eq/kg) and 24 percent TRR (0.02 mg eq/kg), respectively. IN-MY788 or IN-MY341 was present at 10 percent TRR (0.01 mg eq/kg).

In liver, parent proquinazid was present at 0.6 percent TRR (0.006 mg/kg). Major components IN-MU210 and IN-MY788/IN-MY341 were found at 28 percent TRR (0.30 mg eq/kg) and 17 percent TRR (0.18 mg eq/kg), respectively. IN-MW977 (isomers) and IN-MU207 were found at 3.7 percent TRR (0.04 mg eq/kg) and 1.1 percent TRR (0.01 mg eq/kg), respectively. Other multi-components were detected each at less than 7.9 percent TRR (0.085 mg eq/kg).

In kidney, parent proquinazid was not detected. IN-MU210 was predominant, accounting for 79 percent TRR (0.84 mg eq/kg). IN-MW977 (isomers) was detected at 0.8 percent TRR (0.01 mg eq/kg). Other components were detected each at less than 1.2 percent TRR (0.013 mg eq/kg).

Laying hens

^{14}C-Proquinazid was administered in laying hens at 15.6 ppm in feed once daily for five consecutive days. The hens were sacrificed approximately 22 hours after the last dose and tissues (liver, breast and thigh muscle, fat, skin with adhering fat, gizzard) were collected. Eggs were collected twice daily.

TRR were 0.035 mg eq/kg in thigh muscle, 0.018 mg eq/kg in breast muscle, 0.329 mg eq/kg in fat, 0.121 mg eq/kg in skin, 0.228 mg eq/kg in liver, and 0.066 mg eq/kg in gizzard. TRR in eggs increased daily, representing 0.12 mg eq/kg at study day 5.

Most (89–108 percent TRR) of the radioactivity in hen tissues and eggs was extracted with aqueous acetonitrile and acetonitrile, leaving 2.5–23 percent TRR unextracted. Acid hydrolysis of liver unextracted residues (23 percent TRR) released 8.7 percent TRR.

In liver, parent proquinazid was not detected. Major components IN-MW398, IN-MW397, sulfate conjugate of hydroxylated proquinazid, and IN-MY788 were found at 17 percent TRR (0.039 mg eq/kg), 14 percent TRR (0.032 mg eq/kg), 11 percent TRR (0.025 mg eq/kg), and 11 percent TRR (0.024 mg eq/kg), respectively. IN-NA250, IN-MY340, and IN-NA251 were found at each less than 10 percent TRR (2.6–6.9 percent TRR, 0.0059–0.016 mg eq/kg). Four unidentified components were present each at ≤5.3 percent TRR (≤0.012 mg eq/kg).

In eggs, parent proquinazid accounted for 19 percent TRR (0.022 mg/kg). Major metabolites IN-NA250, IN-MW397, and IN-MW398 were found at 32 percent TRR (0.037 mg eq/kg), 13 percent TRR (0.015 mg eq/kg) and 10 percent TRR (0.012 mg eq/kg), respectively. IN-MY340, IN-NA251, and IN-MW986 were found each at <3 percent TRR (2.2–2.3 percent TRR, 0.0026–0.0027 mg eq/kg). Four unidentified components were present each at ≤5.7 percent TRR (≤0.0066 mg eq/kg).

In muscle (thigh and breast), parent proquinazid was one of major components, accounting for 20–44 percent TRR (0.0037–0.015 mg/kg). IN-MW398 and IN-NA250 were found at 23–32 percent TRR (0.0058–0.0081 mg eq/kg) and 14–22 percent TRR (0.0040–0.0050 mg eq/kg), respectively. IN-MW397 was found at 6.7–13 percent TRR (0.0023–0.0024 mg eq/kg). IN-MY340 and three unidentified components were detected at less than 10 percent TRR (each ≤3.9 percent TRR (≤0.0014 mg eq/kg).

In fat, parent proquinazid was a predominant component, accounting for 61 percent TRR (0.20 mg/kg). IN-NA250 and three unidentified components were detected each at less than 10 percent TRR (1.6–9.2 percent TRR, 0.005–0.030 mg eq/kg).

In skin (with adhering fat), parent proquinazid was a predominant component, accounting for 59 percent TRR (0.072 mg/kg). IN-MW398, IN-NA250, and IN-MW397 and three unidentified components were found each at ≤5.6 percent TRR (0.0069 mg eq/kg).

In gizzard (edible offal), parent proquinazid was one of major components, accounting for 14 percent TRR (0.0096 mg/kg). IN-MW398 and sulfate conjugate of hydroxylated proquinazid were found at each 15 percent TRR (sulfate conjugate, 0.0098 mg eq/kg; IN-MW398, 0.0099 mg eq/kg). IN-NA250 was found at 13 percent TRR (0.0087 mg eq/kg). IN-MW397 and IN-MY788 and four unidentified components were found each at <6.8 percent TRR (0.0045 mg eq/kg).

Summary of animal metabolism

In goats and hens, the initial metabolic pathway of proquinazid (hydroxylation and oxidation of the side chains) is similar, however, the resulting metabolites were different.

The major metabolic reaction of proquinazid in goats involved hydroxylation and oxidation of the propoxy side chain to carboxylic acid to form IN-MU210. In addition, proquinazid was metabolized by hydroxylation of the propoxy side chain to form IN-MW977 (isomers) followed by hydroxylation and oxidation of the propyl side chain to carboxylic acid to form IN-MW788. Furthermore, IN-MW977 (isomers) was metabolized by hydroxylation of the propyl side chain to form IN-MY341.

In laying hens, the major metabolic pathway of proquinazid was the hydroxylation of the propyl and propoxy side chains. Sulphate conjugation to the hydroxylated side chain and further oxidation to ketone to form IN-NA250, IN-MW397 and IN-MW398 were followed.

Major components in lactating goat were parent proquinazid found in fat (22 percent TRR), IN-MU210 in milk, muscle, fat, liver, and kidney (28–79 percent TRR), IN-MY788/IN-MY341 in milk, muscle, fat, and liver (8.9–19 percent TRR), and IN-MW977 in fat (24 percent TRR).

Major components in laying hens were parent proquinazid found in eggs, muscle, fat, skin, and gizzard (14–61 percent TRR), IN-MW397 in eggs, muscle, and liver (13–14 percent TRR), IN-MW398 in eggs, liver, muscle, and gizzard (10–32 percent TRR), IN-NA250 in eggs, muscle, and gizzard (13–32 percent TRR), sulfate conjugate of hydroxylated proquinazid in liver and gizzard (11–15 percent TRR), and IN-MY788 in liver (11 percent TRR).

Methods of residue analysis

Proquinazid, IN-MM671, and IN-MW977 (isomers) in plant commodities were analysed using accelerated solvent extraction with ethyl acetate or methanol:ethyl acetate and GC-MS. The methods were validated for proquinazid with LOQs of 0.02–0.1 mg/kg in high water content commodities (cucumber, zucchini, melon, barley immature plant, wheat forage), 0.01–0.02 mg/kg in high starch (wheat grain, barley grain, rye grain) and high acid (grape), and 0.1 mg/kg in cereal straw (wheat, barley). For IN-MM671, LOQ was 0.02 mg/kg in high water content commodities (cucumber, zucchini, melon) and high acid content commodities (grape). For IN-MW977 (isomers), LOQ was 0.1 mg/kg in high water (barley immature plant, wheat forage) and cereal straw (barley, rye, wheat), and 0.01–0.02 mg/kg in high starch (barley grain, rye grain, wheat grain).

Analysis of proquinazid using modified Method DFG S19 with GC-ECD, GC-MS, GC-MS/MS, or LC-MS/MS were submitted. The methods were validated with LOQs of 0.005–0.1 mg/kg in high water (apple, cucumber, tomato, barley whole plant, wheat immature plant), 0.01 mg/kg in high starch (barley grain, wheat grain) and high acid (grape, strawberry), 0.02 mg/kg in high oil (grape seed), and 0.1 mg/kg in cereal straw (wheat, barley).

The Method DFG S19 involving aqueous acetone solvent extraction and LC-MS/MS was suitable for analysis of proquinazid and IN-MW977 (isomers) with LOQs of 0.01 mg/kg each in high water (apple, potato, sugar beet leaves), high starch (wheat grain), high acid (grape), high oil (soya bean seed) and high protein content commodity (dried bean) and in wheat straw.

For animal commodities, a method involving aqueous acetonitrile solvent extraction and LC-MS/MS was suitable for analysis of proquinazid, IN-MU210, and IN-MW977 (isomers) with LOQs of 0.01 mg/kg each.

Stability of pesticide residues in stored analytical samples

Storage stability studies were performed with proquinazid and its metabolites in various plant matrices, stored frozen at −18 °C to −22 °C. The meeting considered proquinazid and IN-MW977 (isomers) stable for at least, 24 months in high water (apple, potato, wheat forage), 19 months in high acid (grape), 24 months in high oil (soya bean seed), and 24 months in dry commodity (dried bean, wheat grain and straw). Further, the meeting considered that IN-MM671 is stable for at least 19 months in high acid content commodities (grape) at frozen condition.

For animal commodities, storage stability study was performed within a lactating cow feeding study. The meeting considered that when stored frozen at −20 ± 10 °C, proquinazid, IN-MU210, and IN-MW977 (isomers) are stable for at least 89 days in whole milk, 51 days in cream, 67 days in liver and kidney, 73 days in muscle, and 72 days in fat.

These demonstrated storage stability intervals covered the storage durations of the crop field trials, animal feeding studies, processing studies, and field rotational crop studies.

Definition of the residues

Plant commodities

Proquinazid was a major component in the studied crops, which was found at up to 61 percent TRR in apple fruit, 84 percent TRR in apple leaves, 39 percent TRR in grape berries, 92 percent TRR in grape leaves and 35 percent TRR in wheat grain. Other major component IN-MW977 (isomers) was also found at 18 percent TRR in wheat grain. In wheat feed commodities, proquinazid and IN-MW977 (isomers) were found at 9.5 percent TRR and 45 percent TRR in forage, 5.4 percent TRR and 33 percent TRR in hay, and 11 percent TRR and 34 percent TRR in straw, respectively.

In rotational food and feed commodities, proquinazid and its metabolites were not found at a greater level than 0.01 mg eq/kg, except CRC-Soy-01 found in soya bean seed (0.011 mg eq/kg). Therefore, the meeting concluded that proquinazid and its metabolites are not present in rotational crops at a significant level.

Proquinazid was hydrolytically stable under environmental and processing conditions.

A LC-MS/MS multiresidue method is available and suitable for analysis of parent proquinazid in plant commodities. Therefore, the meeting decided the residue definition for compliance for plant commodities is proquinazid.

In deciding which compounds should be included in the residue definition for dietary intake, the meeting considered the likely occurrence and toxicological properties of the main metabolites found in the crops.

IN-MW977 (isomers) was the only major metabolite in plants and was exclusively found in directly treated wheat matrices. The compound is covered by the health-based guidance value (HBGV) of the parent proquinazid. The meeting decided that the residue definition for dietary intake is the sum of proquinazid and IN-MW977 (isomers), expressed as proquinazid.

For metabolite CRC-Soy-01, the meeting concluded that the threshold of toxicological concern (TTC) Cramer class III approach for chronic exposure (1.5 µg/kg bw per day) and for acute exposure (5 µg/kg bw) should be considered. Since this metabolite was only found in rotational crops and the overall uptake of residues from soil was considered as insignificant in relation to the submitted use patterns, the meeting decided that a dietary intake estimation is unnecessary. In case future uses may increase the maximum seasonal rate per hectare, this decision will be revisited.

Animal commodities

In lactating goats, proquinazid was found at 22 percent TRR in fat but at minor proportions in other matrices (3.6 percent TRR in milk, 2.7 percent TRR in muscle, 0.6 percent TRR in liver, not detected in kidney). Major metabolites IN-MU210 (milk, muscle, fat, liver, kidney), IN-MW977 (isomers, fat), unresolved IN-MY788/IN-MY341 (milk, muscle, fat, liver) were found at 28–79 percent TRR, 24 percent TRR, and 8.9–19 percent TRR, respectively.

In laying hens, proquinazid was found at 19 percent TRR in eggs, 20–44 percent TRR in muscle, 59–61 percent TRR in fat and skin, and 14 percent TRR in gizzard (edible offal). Major metabolites IN-MW397 (eggs, muscle, liver), IN-MW398 (eggs, muscle, liver, gizzard), IN-NA250 (eggs, muscle, gizzard), sulfate conjugate of hydroxylated proquinazid (liver, gizzard), IN-MY788 (liver) were found at 6.7–14 percent TRR, 10–32 percent TRR, 13–32 percent TRR, 11–15 percent TRR, 11 percent TRR, respectively.

In a cattle feeding study with parent, IN-MU210 was the only compound detected. Based on a goat metabolism study, IN-MU210 is derived from parent proquinazid but cannot be derived from IN-MW977 (isomers), which is main part of feed residues in wheat hay or straw. However, the meeting noted that the residue in 0-days forage and grain is mostly parent proquinazid and its contribution to dietary burden is significantly higher than IN-MW977 (isomer) residues from hay or straw. Furthermore, the meeting noted that a LC-MS/MS multiresidue method is available for analysis of proquinazid and IN-MU210 in animal commodities. Therefore, the meeting decided that the residue definition for compliance for animal commodities is the sum of proquinazid and IN-MU210, expressed as proquinazid.

In deciding which compounds should be included in the residue definition for dietary intake, the meeting considered the likely occurrence and toxicological properties of the metabolites present in animal commodities.

IN-MU210 was found in high proportions in milk and ruminant tissues and is covered by the HBGV for proquinazid. The meeting decided to include the compound into the residue definition.

IN-MW977 (isomers) and unresolved IN-MY788/IN-MY341 are also covered by the HBGV for proquinazid, however, compared to the sum of proquinazid and IN-MU210, the metabolites are expected to have an insignificant impact on the dietary intake. Since IN-MW977 (isomers) is found only in goat fat and proportions of IN-MY788/IN-MY341 are minor compared to the sum of parent plus IN-MU210, the meeting decided not to include these compounds into the residue definition.

For hens, IN-MW397, IN-MW398, IN-NA250, sulfate conjugate of hydroxylated proquinazid, and IN-MY788 are covered by the HBGV for proquinazid. The meeting noted that the metabolism study for laying hens slaughter was at 22 hours which was longer than commercial practices (6–8 hours), which underestimates the proportion of parent. In addition, the estimated livestock dietary burden was low compared to the administered dose (30 times less). The meeting concluded that the residues of these metabolites would not have a significant impact on the dietary risk compared proquinazid and decided not to include the metabolites in residue definition.

Therefore, the meeting decided that the residue definition for dietary risk assessment for animal commodities is the sum of proquinazid and IN-MU210, expressed as proquinazid.

Parent proquinazid has potential for fat solubility with log Kow 5.5. Residue concentrations (parent plus IN-MU210) in fat tissues were greater than in muscle tissues (by 2.4 fold in goats and 13–54 fold in hens). In a cattle feeding study, residues in fat tissue were 3.3fold greater than in muscle tissue. There was no significant difference in distribution of the residue into cow cream and milk. The meeting decided that the residue in animal commodities is fat soluble.

The meeting recommended the following residue definition for proquinazid.

Definition of the residue for compliance with the MRL for plant commodities: proquinazid.

Definition of the residue for estimation of dietary intake for plant commodities: sum of proquinazid and 2-(2-hydroxypropoxy)-6-iodo-3-propyl-quinazolin-4-one and 2-(2-hydroxy-1-methyl-ethoxy)-6-iodo-3-propyl- quinazolin-4-one (IN-MW977 (isomers)), expressed as proquinazid.

Definition of the residue for compliance with the MRL and for estimation of dietary intake for animal commodities: sum of proquinazid and 3-(6-iodo-4-oxo-3-propyl-quinazolin-2-yl)oxypropanoic acid (IN-MU210), expressed as proquinazid.

The residue is fat soluble.

Results of supervised residue trials on crops

All residue trials were performed with foliar application. The sum of residues of proquinazid and IN-MW977 (isomers) was expressed as a total residue equivalent to parent. IN-MW977 was not analysed in fruit trials, but since the compound was not found in fruit metabolism studies, residues were not expected to be present and concentration are considered as zero. For the other crops, the total residues for estimation of SMTR/median and HR/highest residue are shown in Table 5.30.6.

Table 5.30.6 Calculation of total proquinazid residues in supervised field trials

Proquinazid (mg/kg)	IN-MW977 (mg/kg)	Total (mg/kg)
<0.01	<0.01	<0.02
0.01	<0.01	0.02
0.01	0.01	0.02

Apple, pear

The critical GAP for pome fruit (apples, nashi pears, pears) is from Australia and allows three applications at a rate of 125 g ai/ha with a 14-day interval and a PHI of 28 days. Eight trials were performed at 3 × 40–75 g ai/ha with 9–11 days interval and 28 days PHI and scaling factors of 1.7 to 3.1 were applied to be approximated the GAP. The meeting concluded that minor deviations in application interval does not affect significantly on residues in samples.

Unscaled residues of proquinazid in apple were (n = 8): 0.019 (sf 2.1), 0.023 (2.0), 0.026 (2.1), 0.026 (3.1), 0.038 (2.3), 0.046 (1.7), 0.062 (2.1) and 0.077 (2.2) mg/kg. The scaled values in ranked order were 0.040, 0.046, 0.055, 0.078, 0.081, 0.087, 0.13, and 0.17 mg/kg.

The meeting estimated a maximum residue level of 0.3 mg/kg, a STMR of 0.0795 mg/kg and a HR of 0.17 mg/kg for proquinazid in Apple (FP 0226) and decided to extrapolate the estimation to Pear (FP 0230).

Grapes

The critical GAP for grapes is from Malta and allows three applications at a rate of 75 g ai/ha with a 10-day interval and a PHI of 28 days (to growth stage of brightening in colour). Fifteen trials were conducted at 3 × 71–81 g ai/ha with 8–11 days interval and 28 days PHI, approximating the GAP.

Residues of proquinazid in grapes were (n = 15): <0.01, 0.023, 0.040, 0.044, 0.048, 0.049, 0.055 (2), 0.071, 0.080, 0.085, 0.087, 0.093, 0.16, and 0.34 mg/kg.

The meeting estimated a maximum residue level of 0.4 mg/kg, a STMR of 0.055 mg/kg and a HR of 0.34 mg/kg for proquinazid in Grapes (FB 0269).

Strawberry

The critical GAP for strawberry (outdoor) is from Germany and allows two applications at a rate of 75 g ai/ha with a 7-day interval and a PHI of 3 days. Four trials (outdoor) were performed with foliar applications at 2 × 75 g ai/ha with 6–8 days interval and 3 days PHI. Residue of proquinazid in strawberry were (n = 4): 0.05, 0.06, 0.11, and 1.2 mg/kg.

As insufficient trials according to GAP were available, the meeting did not estimate a maximum residue level for proquinazid in strawberry.

Fruiting vegetables, Cucurbits

The critical GAP for Cucurbits (outdoor) is from Australia and allows three applications at a rate of 50 g ai/ha with a 10–day interval and a PHI of 1 days. No trials approximating the GAP were available.

The next critical GAP for Cucurbits with edible peel (outdoor) is from Germany and allows three applications at a rate of 50 g ai/ha with a 7–day interval and a PHI of 3 days. Germany GAP for Cucurbits with edible peel (indoor) allows two applications at a rate of 75 g ai/ha with a 7-day interval and a PHI of 3 days.

Cucumber

Three trials (outdoor) were performed with cucumbers at 3 × 50 g ai/ha with 6–10 days interval and 3 days PHI, approximating the Germany GAP (outdoor). Residues of proquinazid were (n = 3): <0.005 and 0.008 (2) mg/kg.

Three trials (indoor) were performed at 2 × 75 g ai/ha with 7–10 days interval and 3 days PHI, approximating the Germany GAP (indoor). Residues of proquinazid were (n = 3): 0.02 (3) mg/kg.

As insufficient trials according to GAP were available, the meeting did not estimate a maximum residue level for proquinazid in cucumber.

Summer squash

Two trials (outdoor) were performed at 4 × 49–51 g ai/ha with 6–7 days interval and 3 days PHI. No trials matched the GAP.

The meeting did not estimate a maximum residue level for proquinazid in summer squash.

Melons

Four trials (outdoor) were performed at 4 × 47–74 g ai/ha with 6–11 days interval and 3 days PHI. No trials matched the critical Australia GAP.

The meeting did not estimate a maximum residue level for proquinazid in melons.

Fruiting vegetables, other than Cucurbits

The GAP for fruiting vegetables (outdoor) is from Australia and allows three applications at a rate of 100 g ai/ha with a 7–day interval and a PHI of 0 days. The critical GAP for tomato (indoor) is from Germany and allows two applications at a rate of 75 g ai/ha with a 10–day interval and a PHI of 3 days.

Tomato

In three trials (outdoor) performed according to Australia GAP (outdoor), residues of proquinazid were (n = 3): 0.046, 0.058, and 0.083 mg/kg.

In two trials (indoor) performed according to Germany GAP, residues of proquinazid were (n = 2): 0.014 and 0.023 mg/kg.

As insufficient trials according to GAP were available, the meeting did not estimate a maximum residue level for proquinazid in tomato.

Sweet pepper

In four trials (outdoor) performed according to Australia GAP, residues of proquinazid were (n = 4): 0.026, 0.043, 0.058, and 0.10 mg/kg.

As insufficient trials according to GAP were available, the meeting did not estimate a maximum residue level for proquinazid in sweet pepper.

Wheat

The critical GAP for wheat and triticale is from the United Kingdom and allows two applications at a growth stage of before BBCH 65 at a rate of 50 g ai/ha with a 28-day interval.

Twenty-five trials for wheat grain were performed at 2 × 47–57 g ai/ha at growth stages of BBCH 39 and 65 with 19–32 days interval, BBCH 30–32 and 61–65 with 24–59 days interval or BBCH 35–55 and 65–69 with 14–20 days interval. Twenty-two trials approximated the GAP, of which 17 analysed IN-MW977.

The residues of proquinazid in wheat grain were (n = 22): <0.01 (22) mg/kg.

The total residues in wheat grain were (n = 17): <0.02 (17) mg/kg.

The meeting estimated a maximum residue level of 0.01* mg/kg and a STMR of 0.02 mg/kg for proquinazid in Wheat (GC 0654) and decided to extrapolate the estimation to triticale (GC 0653).

Rye

The critical GAP for rye is from the Germany (two applications at a growth stage of before BBCH 61 at a rate of 50 g ai/ha). No trials approximating the GAP were available. The next critical GAP for rye is from the United Kingdom, allowing two applications at a growth stage of before BBCH 49 at a rate of 50 g ai/ha with 28-day interval.

Three trials for rye grain were performed at 2 × 50 g ai/ha at growth stages of BBCH 32 and 49 with 9–21 days interval, approximating the United Kingdom GAP.

Residues of proquinazid in rye grain were (n = 3): <0.02 (3) mg/kg.

Total residues in rye grain were (n = 3): <0.04 (3) mg/kg.

The number of trials was not sufficient, however, residues in wheat and rye are typically comparable. Since residues in wheat treated according to a more critical use pattern (up to BBCH 65) were below LOQ, the meeting decided to extrapolate the estimation for wheat to rye.

The meeting estimated a maximum residue level of 0.01* mg/kg and a STMR of 0.02 mg/kg for proquinazid in Rye (GC 0650).

Barley and oat

The critical GAP for barley and oat is from Germany, allowing two applications at a growth stage of before BBCH 61 at a rate of 50 g ai/ha. No trials approximating the GAP were available.

The next critical GAP for barley and oat is from the United Kingdom, allowing two applications before BBCH 49 at a rate of 50 g ai/ha with a 28-day interval. Fifteen trials for barley grain were performed at 2 × 48–53 g ai/ha with 7–28 days intervals at growth stages of BBCH 30–33 and 49–51.

Although some trials were treated with shorter intervals than GAP, residues were generally unquantified except for two trials with the residues near LOQ. The meeting decided that the retreatment interval is not a critical parameter in selection of field trials.

The residues of proquinazid in barley grain were (n = 15): <0.01 (1), <0.02 (13), and 0.020 mg/kg.

The total residues in barley grain were (n = 14): <0.04 (12), 0.040 and 0.043 mg/kg.

The meeting estimated a maximum residue level of 0.03 mg/kg and a STMR of 0.04 mg/kg for proquinazid in Barley (GC 0640) and extrapolated the estimation to Oats (GC 0647).

Feed commodities

Wheat forage, hay and straw

Trials for wheat were performed approximating the United Kingdom GAP (two applications before BBCH 65 at a rate of 50 g ai/ha with a 28-day interval).

Total residues in wheat forage were (n = 10): 0.64, 0.66, 0.76, 0.77, 0.95, 1.0 (2), and 1.1 (3) mg/kg.

The meeting estimated a median residue of 0.975 mg/kg and a highest residue of 1.1 mg/kg for wheat forage, as received (ar). The meeting extrapolated the estimation to triticale forage.

Residues of proquinazid in wheat hay or straw, whichever was higher, were (n = 14): 0.081, <0.1 (2), 0.11 (hay), 0.14, 015 (hay), 0.16 (hay), 0.16, 0.17 (hay), 0.23 (hay), 0.30, 0.36, 0.39, and 0.62 (hay) mg/kg.

Total residues in wheat hay or straw, whichever was higher, were (n = 25): <0.1 (8), 0.26 (hay), 0.28, 0.35, 0.41 (2), 0.45, 0.47, 0.52, 0.53 (hay), 0.55, 0.56 (hay), 0.57 (2), 0.69, 0.72 (hay), 0.72, and 0.94 mg/kg.

The meeting estimated a maximum residue level of 0.9 mg/kg (dry weight, 88 percent DM content), a median residue of 0.41 mg/kg (as received) and a highest residue of 0.94 mg/kg (as received) for proquinazid in Wheat, hay and/or straw (AS 0654). The meeting extrapolated the estimation to triticale, hay and/or straw (AS 0653).

Rye straw

Three trials for rye straw were performed, approximating the United Kingdom GAP (two applications before BBCH 49 at a rate of 50 g ai/ha with a 28-day interval).

The residues of proquinazid in rye straw were (n = 3): <0.1 (3) mg/kg.

The total residues in rye straw (n = 3): <0.2, 0.21, and 0.27mg/kg.

The meeting estimated a maximum residue level of 0.1 mg/kg (dry weight, 88 percent DM content), a median residue of 0.21 mg/kg (as received) and a highest residue of 0.27 mg/kg (as received) for proquinazid in Rye, hay and/or straw (AS 3560).

Barley forge and straw

Trials for barley were performed, approximating the United Kingdom GAP (two applications before BBCH 49 at a rate of 50 g ai/ha with a 28-day interval).

Total residues in barley forage were (n = 8): 0.81, 0.86, 0.91, 1.1, 1.2, 1.3, 1.8, and 2.0 mg.kg.

The meeting estimated a median residue of 1.15 mg/kg (as received) and a highest residue of 2.0 mg/kg (ar) for barley forage and extrapolated its recommendations to oat forage.

Residues of proquinazid in barley straw were (n = 15): 0.045, <0.1 (9), 0.10, 0.11, 0.12, and 0.15 (2) mg/kg.

Total residues in barley straw were (n = 14): <0.2, 0.21, 0.22, 0.25 (2), 0.28, 0.32, 0.33, 0.34, 0.42, 0.49, 0.52, 0.76, and 0.81 mg/kg.

The meeting estimated a maximum residue level of 0.3 mg/kg (dry weight, based on 89 percent DM content), a median residue of 0.325 mg/kg (as received) and a highest residue of 0.81 mg/kg (as received) for proquinazid in Barley, hay and/or straw (AS 0640) and extrapolated the estimation to Oat, hay and/or straw (AS 3559).

Fate of residues during processing

Proquinazid is hydrolytically stable under processing conditions simulating pasteurization (pH 4, 90 °C, 20 min), baking/brewing/boiling (pH 5, 100 °C, 60 min) and sterilization (pH 6, 120 °C, 20 min).

The meeting received information on the magnitude of proquinazid residues in processed commodities of apple, grape, wheat, and barley. The meeting estimated processing factors only for apple and grape commodities as proquinazid residues in the raw agricultural commodity of wheat and barley were below LOQ. STMR-P and HR-P in the fruit processed commodities were only based on parent as IN-MW977 was not analysed but considered to be zero in the raw agricultural commodities, considering that IN-MW977 was not found in metabolism studies. The results are shown in Table 5.30.7.

Table 5.30.7 Estimation of processing factor (PF) of parent proquinazid for apple and grape

Raw agricultural commodity	Processed commodity	Individual PF	Mean or best estimate PF	STMR-P or median residue (mg/kg)	HR-P or highest residue (mg/kg)
Apple (STRM, 0.0795 mg/kg; HR, 0.17 mg/kg)	Apple puree, pasteurized	<0.18, <0.33	<0.18	0.014	–
	Canned apple, pasteurized	0.67, 0.68	0.68	0.054	–
	Apple sauce, sterilized	<0.18, <0.33	<0.18	0.014	–
	Apple jam, sterilized	<0.18, <0.33	<0.18	0.014	–
	Apple juice, clarified, pasteurized	<0.18, <0.33	<0.18	0.014	–
	Wet pomace (juice by-product)	3.3, 3.7	3.5	0.28 (median)	–
	Dry pomace (juice by-product)	10, 13	12	0.96 (median)	–
Grape (STMR, 0.055 mg/kg; HR, 0.34 mg/kg)	Wine	0.063 (r), <0.11 (r), 0.11 (w), <0.17 (w), 0.17 (r), <0.25 (r), <u>0.33</u> (r), <0.33 (s), <0.33 (w), 0.33 (w), <0.71 (w), <1.0 (r), <1.0 (s)	0.33	– 0.018	–
	Must (wine by-product)	<0.17 (w), <0.25 (r), <0.71 (w)	<0.25	0.014	–
	Juice	0.11, <0.17 (sterilization), 0.22, <0.25, (sterilization), 0.33, 0.33, <u>0.33</u>, 0.33, 0.42, 0.44, <0.71 (sterilization), <1.0, 1.0	0.33	0.018	–
	Raisin	2.3, <u>2.8</u>, 3.9	2.8	0.15	0.95
	Wet pomace	2.0, 2.7, 2.8, 3.0, 3.6, 3.7, <u>3.9</u>, 4.0, 4.0, 4.1, 5.0, 5.0, 7.1	3.9	0.21 (median)	–
	Dry pomace	6.5, 10, 11, 11, 12, 15, <u>17</u>, 18, 18, 19, 19, 24, 31	17	0.94 (median	–

Notes: (r) – red wine; (w) – white wine; (s) – sparkling white wine.

Based a maximum residue level of 0.3 mg/kg for apples and a processing factor of 12 for dried apple pomace, the meeting estimated a maximum residue level of 5.0 mg/kg (91 percent DM) for proquinazid in apple pomace, dried (AB 0226).

Based on a maximum residue level of 0.4 mg/kg for grape and a processing factor of 2.8 for raisin and of 17 for dried grape pomace, the meeting estimated a maximum residue level of 1.5 mg/kg for proquinazid in Grape, dried (DF 0269) and of 8.0 mg /kg (91 percent DM) in grape pomace, dried (AB 0269).

Residues in animal commodities

Farm animal feeding studies

The meeting received a feeding study conducted in cattle but no hen feeding study was available.

Dairy cows were orally administered with proquinazid at dosing levels of 1, 3, and 10 ppm feed for 28 consecutive days. Animals were sacrificed within 23 hours of the last dosing. Residues of proquinazid, IN-MU210, and IN-MW977 (isomers) were analysed.

Residues of both proquinazid and IN-MW977 (isomers) were detected at below 0.01 mg/kg in milk and tissues, except for on liver sample at 10 ppm dose level, which contained proquinazid at 0.010 mg/kg.

Mean residues of IN-MU210 from doses of 1, 3, and 10 ppm feed were <0.01, 0.011, and 0.025 mg/kg in milk, <0.01, <0.01, and 0.012 mg/kg in muscle, <0.01, 0.010, and 0.039 mg/kg in fat, 0.015, 0.029, and 0.11 mg/kg in liver, and 0.025, 0.045, and 0.33 mg/kg in kidney, respectively.

Highest residues of IN-MU210 from doses of 1, 3, and 10 ppm feed were <0.01, <0.01, and 0.016 mg/kg in muscle, <0.01, 0.011, and 0.095 mg/kg in fat, 0.020, 0.043, and 0.14 mg/kg in liver, and 0.029, 0.052, and 0.53 mg/kg in kidney, respectively.

In milk, plateau of residue levels was shown by the 4th or 5th days of dosing. There was no significant difference in partitioning of residues of IN-MU210 into cream and skim milk.

Farm animal dietary burden

Dietary burdens were calculated for beef cattle, dairy cattle, broilers and laying poultry based on feed items evaluated by the meeting. The dietary burdens estimated using the OECD livestock dietary burden calculator are presented in Annex 5 and summarized in Table 5.30.8.

Table 5.30.8 Estimated maximum and mean dietary burdens of farm animals, sum of proquinazid and IN-MW977 (ppm of dry matter)

Commodity	United States/Canada		European Union		Australia		Japan	
	Max	Mean	Max	Mean	Max	Mean	Max	Mean
Beef cattle	0.194	0.103	2.163	1.327	6.667	3.900[b]	0.039	0.039
Dairy cattle	2.097	1.243	2.098	1.262	6.667[a]	3.807	0.362	0.212
Broilers	0.040	0.040	0.039	0.039	0.026	0.026	0.006	0.006
Layers	0.040	0.040	0.481[c]	0.431[d]	0.026	0.026	0.007	0.007

Notes:

[a] Highest maximum beef or dairy cattle dietary burden suitable for HR estimates for mammalian tissues and milk.

[b] Highest mean beef or dairy cattle dietary burden suitable for STMR estimates for mammalian tissues and milk.

[c] Highest maximum poultry dietary burden suitable for HR estimates for poultry tissues and eggs.

[d] Highest mean poultry dietary burden suitable for STMR estimates for poultry tissues and eggs.

Animal commodity residue levels

Cattle

Based on the estimated dietary burden (mean 3.900 ppm and highest 6.667 ppm) and the cattle feeding study (IN-MU210 only detected), the meeting estimated the following residue values (Table 5.30.9).

Table 5.30.9 Estimation of maximum residue levels, STMR and HR of proquinazid residues (proquinazid+IN-MU210) in mammalian commodities

	Feed level (ppm) for milk	Residues (mg/kg) in milk	Feed level (ppm) for tissues	Residues (mg eq/kg) in[a]			
				Muscle	Liver	Kidney	Fat
Maximum residue level and highest residue (beef or dairy cattle)							
Feeding study	3	0.021	3	<0.02	0.053	0.062	0.021
	10	0.035	10	0.026	0.15	0.54	0.105
Dietary burden and highest residue	6.667	0.028	6.667	0.023	0.104	0.312	0.065
Median residue (beef or dairy cattle)							
Feeding study	3	0.021	3	<0.02	0.039	0.055	0.020
	10	0.035	10	0.022	0.12	0.34	0.049
Dietary burden and median residue	3.900	0.023	3.900	0.020	0.049	0.092	0.024

Note:

[a] LOQ of proquinazid and IN-MU210, each 0.01 mg/kg.

The meeting estimated a maximum residue level of 0.03 mg/kg and a STMR of 0.023 mg/kg for Group of milks. The meeting decided that a maximum residue level for Group of milk fats is unnecessary since the only expected residue of IN-MU210 is not partitioned into fat.

The meeting estimated a maximum residue level of 0.03 mg/kg, a STMR of 0.02 mg/kg, and a HR of 0.023 mg/kg for the Group of muscle (from mammals other than marine mammals).

The meeting estimated a maximum residue level of 0.07 mg/kg, a STMR of 0.024 mg/kg, and a HR of 0.065 mg/kg for the Group of Mammalian fats (except milk fats).

The meeting estimated a maximum residue level of 0.4 mg/kg for Group of Edible offal (mammalian) based on kidney, and a STMR of 0.049 mg/kg for liver and 0.092 mg/kg for kidney and HR values of 0.104 mg/kg for liver and 0.312 mg/kg for kidney.

Poultry

The meeting did not receive feeding studies on poultry. In the metabolism studies, parent residues were potentially underestimated due to a longer slaughter time than commercial practice after the last dose. The meeting decided that the metabolism study on laying hens cannot be used for estimation of a maximum residue level for poultry commodities.

Recommendations

On the basis of the data obtained from supervised trials, the meeting concluded that the residue levels listed in Table 5.30.10 and Annex 1 are suitable for establishing maximum residue limits and for estimation of dietary intake. Table 5.30.11 shows the residues included in the dietary burden calculation.

Definition of the residue for compliance with the MRL for plant commodities: proquinazid.

Definition of the residue for dietary risk assessment for plant commodities: sum of proquinazid and 2-(2-hydroxypropoxy)-6-iodo-3-propyl-quinazolin-4-one and 2-(2-hydroxy-1-methyl-ethoxy)-6-iodo-3-propyl- quinazolin-4-one (IN-MW977 (isomers)), expressed as proquinazid.

Definition of the residue for compliance with the MRL and for dietary risk assessment for animal commodities: sum of proquinazid and 3-(6-iodo-4-oxo-3-propyl-quinazolin-2-yl)oxypropanoic acid (IN-MU210), expressed as proquinazid.

The residue is fat soluble.

Table 5.30.10 Residue levels suitable for establishing maximum residue limits and for estimation of dietary intake[a]

Commodity		MRL, mg/kg		STMR or STMR-P, mg/kg	HR or HR-P, mg/kg
CCN	Name	New	Previous		
FP 0226	Apple	0.3	–	0.795	0.17
–	Apple juice	–	–	0.014	–
AB 0226	Apple pomace, dried	5.0	–	–	–
GC 0640	Barley	0.03	–	0.04	–
AS 0640	Barley, hay and/or straw	0.3 (DM)	–	–	–
–	Grape juice		–	0.018	–
AB 0269	Grape pomace, dried	8.0	–	–	–
DF 0269	Grape, dried	1.5	–	0.15	0.95
FB 0269	Grapes	0.4	–	0.055	0.34
MO 0105	Group of Edible offal (mammalian)	0.4	–	Liver: 0.049 Kidney: 0.092	Liver: 0.104 Kidney: 0.312
MF 0100	Group of Mammalian fats (except milk fats)	0.07	–	0.024	0.065
ML 0106	Group of milks	0.03	–	0.023	–
MM 0095	Group of Muscle (from mammals other than marine mammals)	0.03	–	0.020	0.023
–	Must (wine by-product)	–	–	0.014	–
AS 3559	Oat, hay and/or straw	0.3 (DM)	–	–	–
GC 0647	Oats	0.03	–	0.04	–
FP 0230	Pear	0.3	–	0.795	0.17
GC 0650	Rye	0.01*	–	0.02	–
AS 3560	Rye, hay and/or straw	0.15 (DM)	–	–	–
GC 0653	Triticale	0.01*	–	0.02	–
AS 0653	Triticale, hay and/or straw	0.9 (DM)	–	–	–
GC 0654	Wheat	0.01*	–	0.02	–
AS 0654	Wheat, hay and/or straw	0.9 (DM)	–	–	–
–	Wine	–	–	0.018	–

Note:

[a] A maximum residue level recomendation for Group of milk fats is unnecessary since the only expected residue of IN-MU210 is not partioned into fat.

Table 5.30.11 Residue levels suitable for estimating the livestock animals dietary burden

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed
AB	Apple, pomace, wet	0.28	–	40
AF/AS	Barley, forage	1.15	2	30
GC	Barley, grain	0.04	–	88
AF/AS	Barley, hay	0.325	0.81	88
AF/AS	Barley, silage	0.325	0.81	40
AF/AS	Barley, straw	0.325	0.81	89
AB	Grape, pomace, wet	0.21	–	15

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed
AF/AS	Oat, forage	1.1	2	30
GC	Oat, grain	0.04	–	89
AF/AS	Oat, hay	0.325	0.81	90
AF/AS	Oat, silage	0.325	0.81	35
AF/AS	Oat, straw	0.325	0.81	90
GC	Rye, grain	0.02	–	88
AF/AS	Rye, silage	0.21	0.27	28
AF/AS	Rye, straw	0.21	0.27	88
AF/AS	Triticale, forage	0.975	1.1	30
GC	Triticale, grain	0.02	–	89
AF/AS	Triticale, hay	0.41	0.94	88
AF/AS	Triticale, silage	0.41	0.94	35
AF/AS	Triticale, straw	0.41	0.94	90
CM/CF	Wheat gluten, meal	0.02	–	40
CM/CF	Wheat, asp gr fn	0.02	–	85
AF/AS	Wheat, forage	0.975	1.1	25
GC	Wheat, grain	0.02	–	89
AF/AS	Wheat, hay	0.41	0.94	88
CM/CF	Wheat, milled bypdts	0.02	–	88
AF/AS	Wheat, silage	0.41	0.94	30
AF/AS	Wheat, straw	0.41	0.94	88

Dietary risk assessment

Long-term dietary exposure

The ADI for proquinazid is 0–0.01 mg/kg bw. The International Estimated Daily Intakes (IEDIs) for proquinazid were estimated for the 17 GEMS/Food Consumption Cluster Diets using the STMR or STMR-P values estimated by the JMPR. The results are shown in Annex 3.

The IEDIs ranged from 1 to 5 percent of the maximum ADI. The meeting concluded that long-term dietary exposure to residues of proquinazid from uses considered by the present meeting is unlikely to present a public health concern.

Acute dietary exposure

The ARfD for proquinazid is 0.3 mg/kg bw. The International Estimate of Short-term Intakes (IESTIs) for proquinazid were calculated for the food commodities and their processed commodities for which HRs/HR-Ps or STMRs/STMR-Ps were estimated by the present meeting and for which consumption data were available. The results are shown in Annex 4.

The IESTIs were below 8 percent of the ARfD for children and 4 percent of the ARfD for the general population. The meeting concluded that acute dietary exposure to residues of proquinazid from uses considered by the present meeting is unlikely to present a public health concern.

5.31 Pyraclostrobin (210) (R)

Residue and analytical aspects

Pyraclostrobin is a member of the strobilurin group of fungicides. These fungicides act through inhibition of mitochondrial respiration by blocking electron transfer within the respiratory chain, which in turn causes important cellular biochemical processes to be severely disrupted, and results in cessation of fungal growth.

Pyraclostrobin was first evaluated for toxicology by the 2003 JMPR when an ADI and ARfD were established. In 2018, the ADI of 0–0.03 mg/kg bw was confirmed and the ARfD was established at 0.7 mg/kg bw and the previous value was withdrawn. The compound was evaluated for residues by the JMPR in 2004, 2006, 2011 and 2014, and 2018.

The definition of the residue for compliance with MRL and for estimation of dietary intake for plant and animal commodities is parent pyraclostrobin. The residue is fat soluble.

Pyraclostrobin was scheduled for evaluation of new uses based on extrapolation, the meeting received a request to extrapolate recommendations made by the 2006 meeting for eggplants to the subgroup of eggplant. The meeting did not receive any additional data regarding eggplants. In addition, the 55th Session of the CCPR scheduled the evaluation of monitoring data in support of maximum residue levels in spices by the 2025 JMPR.

Results of supervised residue trials on crops

The meeting did not receive any additional residue trial data; reference was made to existing trials data, previously evaluated by the JMPR. The current meeting was requested to consider extrapolating recommendations made by the 2006 JMPR for eggplant (maximum residue level of 0.3 mg/kg) to the Subgroup of Eggplants. This extrapolation was presented to the 2024 JMPR as part of an analysis across multiple compounds where such extrapolation might be supported (see 2024 JMPR General Considerations Item 2.3).

Subgroup of eggplant (subgroup)

Pyraclostrobin is registered for foliar use on eggplant (subgroup) in the United States. The critical GAP consists of six applications at 224 g ai/ha with a spray interval of 7 days and a PHI of 0 days.

The 2004 JMPR evaluated trials data on tomatoes based on the same GAP, 21 trials (greenhouse, and outdoor) conducted in the United States and three conducted in Brazil. The results of the greenhouse and outdoor trials did not vary significantly and were combined, in rank order, as 0.02, 0.03, 0.06, 0.07 (2), 0.08, 0.10, 0.11 (4), 0.12 (4), 0.13 (2), 0.15, 0.16, 0.17 (3), 0.19 and 0.21 mg/kg (n = 24).

The 2004 JMPR estimated a maximum residue level of 0.3 mg/kg, an STMR of 0.12 mg/kg and an HR of 0.21 mg/kg for tomato. The 2006 JMPR agreed to extend the above MRL for tomatoes to eggplant, on the basis of an equivalent GAP.

The 2006 JMPR evaluated trials data for peppers based on eggplant GAP. Three residue trials were conducted in the United States according to this GAP gave residues of 0.14, 0.22, 0.82 mg/kg (n = 3).

As three trials were not sufficient to recommend an maximum residue level, the 2006 JMPR recommended an maximum residue level for peppers (bell and chilli) based on an alternative European GAP.

The trials on peppers are not sufficient to support a use on eggplant. The trials on tomato and pepper are significantly different according to the Mann-Whitney U-test and cannot be combined.

The meeting estimated a maximum residue level of 0.3 mg/kg for the Subgroup of eggplants based on data for tomatoes and withdraw its previous recommendation of 0.3 mg/kg for eggplants

Spices

The 36th Session of the CCPR decided to schedule the JMPR to review the monitoring data available for the elaboration of MRLs on spices for pesticides already in the Codex system. The Committee also recommended that governments and the spice trade industry continue to collect monitoring data for pesticides on spices on a regular basis, following agreed criteria and other JMPR guidelines on the conduct of selective surveys, in order to keep the database updated for future review.

General principles for the evaluation of monitoring data for recommending maximum residue levels, medium and high residues for spices were developed by the JMPR in 2004.

Principles of evaluation of residues derived from monitoring programmes

- It is assumed that the laboratories reported only valid results. Therefore, all residue data are taken into account without excluding any values as outliers.
- When residues were reported as <LOQ it does not necessarily mean that the sampled commodity was not treated with or exposed to the pesticide. While it is unlikely that all the samples will have been treated with the pesticides looked for within the monitoring data, it cannot be assumed that a residue reported as <LOQ is a “nil” residue situation.
- Distribution free statistics were used to estimate the maximum residue level, covering the 95th percentile of the residue population at the 95th confidence level. Thus, the estimated maximum residue level encompasses at least 95 percent of the residues with 95 percent probability (in 95 percent of cases). To satisfy this requirement, a minimum of 58–59 samples are required. In such cases the uncertainty derived from the limited number of data points are taken into account in recommending the maximum residue level.
- When there are >120 samples containing detected residues, the sample size is sufficiently large to calculate the upper 95 percent one tailed confidence limit of the 95th percentile of the population of residues, which can therefore be used to estimate the maximum residue level after rounding up to the next value of the scale of expressing residues according to the OECD MRL calculator.
- Monitoring results are not used for estimating maximum residue levels that reflect post-harvest uses.

Agricultural practices

Cumin seeds are grown throughout India and are susceptible to a number of pests and diseases. No information was provided on registered uses of pyraclostrobin on cumin seed.

Sampling and residue analysis

The residues determined in cumin seed comply with the residue definitions outlined previously for pyraclostrobin.

India submitted monitoring data for pyraclostrobin residues in cumin seed. Samples were collected from market and retail outlets.

The residues were extracted from the cumin seeds using acetonitrile and water; the phases were partitioned with salts and the organic phase was collected. The extracts were purified with final identification and quantification by GC-MS/MS or LC-MS/MS. The recovery data were acceptable and the supported LOQ was 0.1 mg/kg.

A total of 1319 cumin samples were analysed for residues of pyraclostrobin. Of the 1319 samples analysed 68 were found to contain residues of pyraclostrobin above 0.1 mg/kg. In rank order, the residues were: 0.11 (10), 0.12 (3), 0.13 (3), 0.14 (4), 0.15 (4), 0.16 (5), 0.17 (4), 0.18 (4), 0.19 (2), 0.20 (3), 0.21 (2), 0.22, 0.23, 0.23, 0.25, 0.27 (2), 0.29 (2), 0.31, 0.34, 0.36, 0.37, 0.48, 0.48, 0.50, 0.60, 0.61, 0.63 (2), 0.65, 0.73, 0.92, 1.13, 1.29 mg/kg.

Less than 120 samples contained detectable residues; as such, the upper 95 percent one tailed confidence limit of the 95th percentile cannot be estimated. The data is sufficient to estimate the 95th percentile at the 95th confidence interval; the 95th percentile at the 95th confidence interval is 0.702 mg/kg.

The meeting estimated a maximum residue level of 0.8 mg/kg, a STMR of 0.18 mg/kg, and an HR of 0.7 mg/kg.

Any of the commodities included in the Subgroup spices, seeds, can be regarded as a representative commodity. The meeting therefore agreed that the maximum residue level and median residue could be extrapolated to the Subgroup of spices, seeds.

Residues in animal commodities

In the previous livestock dietary burden derived by the JMPR 2018, the maximum dietary burden for cattle maximum residue level and STMR estimates were 29.41 ppm (DM) and 10.18 ppm (DM), respectively. For poultry, they were 9.996 ppm (DM) and 3.179 ppm (DM), respectively.

Although no commodities evaluated by the current JMPR are utilized as animal feed, livestock dietary burden calculations were updated to reflect the latest version of the OECD feed tables (2018, rev 5.1), listed in Appendix IX of the 2016 edition of the FAO manual (OECD 2018 feed calculator, version October 2019). Bean/pea fodder was not included in the calculation of the dietary burden for Australia, the previous JMPR (2018) received an official communication from the government of Australia confirming fodder is not imported. The results are shown in Table 5.31.1.

Table 5.31.1 Estimated maximum and mean dietary burdens of farm animals

	Animal dietary burden: sum of pyraclostrobin, ppm of dry matter diet							
	United States/Canada		European Union		Australia		Japan	
	Max.	Mean	Max.	Mean	Max.	Mean	Max.	Mean
Beef cattle	7.44	2.19	23.70	10.34	26.10[a]	9.70	4.01	1.50
Dairy cattle	13.49	5.24	23.93	10.71[c, d]	26.10[b]	8.53	8.24	2.66
Poultry – broiler	0.32	0.32	0.597	0.417	0.18	0.18	0.070	0.070
Poultry – layer	0.32	0.32	6.67[e, g]	2.94[h]	0.18	0.18	0.053	0.053

Notes:

[a] Highest maximum beef or dairy cattle dietary burden suitable for maximum residue level estimates for mammalian tissues.

[b] Highest maximum dairy cattle dietary burden suitable for maximum residue level estimate for mammalian milk.

[c] Highest mean beef or dairy cattle dietary burden suitable for STMR estimates for mammalian tissues.

[d] Highest mean dairy cattle dietary burden suitable for STMR estimates for milk.

[e] Highest maximum poultry dietary burden suitable for maximum residue level estimates for poultry tissues.

[f] Highest mean poultry dietary burden suitable for STMR estimates for poultry tissues.

[g] Highest maximum poultry dietary burden suitable for maximum residue level estimate for poultry eggs.

[h] Highest mean poultry dietary burden suitable for STMR estimates for poultry eggs.

The maximum dietary burden for cattle and poultry did not change significantly compared to the previous calculation (0.89x and 0.65x lower, respectively).

The meeting confirmed its previous recommendations for ruminant tissue and milk; however, the maximum residue level for muscle was recalculated as this was previously set based on the recommendation for fat.

The mean dietary burden for cattle tissue and milk is equivalent to the previous dietary burden (1.05x), therefore the meeting confirms the previous STMR values for cattle tissue and milk.

Following the update of the Codex Classification and based on the calculated dietary burden, the meeting recommended a maximum residue level of 0.03 mg/kg and a STMR of 0.0095 mg/kg for Group of milks and withdrew its previous recommendation of 0.03 mg/kg for milk. The meeting also estimated a maximum residue level and STMR of 0.8 mg/kg and 0.24 mg/kg for the group of milk fats based on milks containing 4 percent fat.

The meeting estimated a maximum residue level of 0.06 mg/kg, an STMR of 0.0181 mg/kg and an HR of 0.052 mg/kg for the Group of muscle (from mammals other than marine mammals) and withdrew its previous recommendation of 0.5 (fat) mg/kg for meat (from mammals other than marine mammals).

The meeting estimated a maximum residue level of 0.5 mg/kg an STMR of 0.166 mg/kg and an HR of 0.48 mg/kg for Group of Mammalian fats (except milk fats) and withdrew its previous recommendation of 0.5 mg/kg for fat from mammals (other than marine mammals).

The meeting estimated a maximum residue level of 0.05 mg/kg for Group of Edible offal (mammalian) based on kidney and estimated an STMR value of 0.015 mg/kg for liver and kidney and an HR value of 0.044 mg/kg for liver and kidney and withdrew its previous recommendation of 0.05 mg/kg for edible offal (mammalian).

The meeting notes that the maximum residue levels for poultry were previously recommended at the LOQ (0.05* mg/kg) on the basis of the metabolism study.

Based on the calculated dietary burden and the poultry metabolism study, the meeting recommended a maximum residue level of 0.05* mg/kg in Group of eggs, Group of avian, edible offal of, Group of avian fats and Group of avian muscle with an STMR and HR of 0 mg/kg for these commodities. The meeting withdrew its previous recommendation of 0.05* mg/kg for eggs, poultry meat, and poultry edible offal of.

Recommendations

On the basis of the data obtained from supervised trials, the meeting concluded that the residue levels listed in Table 5.31.2 and in Annex 1 are suitable for establishing maximum residue limits and for estimation of dietary intake. Table 5.31.3 shows the residues used for dietary burden calculation.

The definition of the residue for compliance with MRL and for estimation of dietary intake for plant and animal commodities is parent pyraclostrobin. The residue is fat soluble.

Table 5.31.2 Residue levels suitable for establishing maximum residue limits and for estimation of dietary intake

CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
		New	Previous		
PE 0112	Eggs	W	0.05*	–	–
VO 0440	Eggplant	W	0.3	–	–
MO 0105	Edible offal (Mammalian)	W	0.05	–	–
PF 0111	Group of avian fats	0.05*	–	0	0
PM 0110	Group of avian muscle	0.05*	–	0	0
PO 0111	Group of avian, Edible offal	0.05*	–	0	0
MO 0105	Group of Edible offal (mammalian)	0.05	–	0.015	0.044
PE 0112	Group of eggs	0.05*	–	0	0
MF 0100	Group of Mammalian fats (except milk fats)	0.5	–	0.166	0.48
ML 0106	Group of milks	0.03	–	0.0095	–
FM 0106	Group of milk fats[a]	0.8	–	0.24	–
MM 0095	Group of Muscle (from mammals other than marine mammals)	0.06	–	0.0181	0.052
MF 0100	Mammalian fats (except milk fats)	W	0.5	–	–
MM 0095	Meat (from mammals other than marine mammals)	W	0.5 (f)	–	–
ML 0106	Milks	W	0.03	–	–
PF 0111	Poultry fats	W	0.05*	–	–
PM 0110	Poultry meat	W	0.05*	–	–
PO 0111	Poultry, edible offal of	W	0.05*	–	–
VO 2046	Subgroup of eggplants	0.3	–	0.12	0.21

CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
		New	Previous		
HS 0190	Subgroup of spices, seeds	0.8	–	0.18	0.7

Notes:

[a] For monitoring and regulatory purposes, whole milk is to be analysed, and the result compared to the MRL for whole milk.

Table 5.31.3 Residue levels for calculation of dietary burden

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	DM (%)	Source
AL	Alfalfa, forage	1.775	6.61	35	JMPR 2011
AL	Alfalfa, hay	7.455	19.83	89	JMPR 2011
AL	Alfalfa, silage	1.775	6.61	40	JMPR 2011 (from forage)
AM/AV	Almond, hulls	1.55	–	90	JMPR 2011
AB	Apple, pomace, wet	1.41	–	40	JMPR 2018
GC	Barley, grain	0.345	–	88	JMPR 2011
AF/AS	Barley, hay	1.5	19	88	JMPR 2004
AF/AS	Barley, straw	1.5	19	89	JMPR 2004
AL	Bean, vines[a]	2.065	8.45	35	JMPR 2018
AB	Beet, sugar, dried pulp	0.02	–	88	JMPR 2018
AM/AV	Beet, sugar, tops	1.64	5.3	23	JMPR 2004
AM/AV	Cabbage, heads, leaves	0.02	0.09	15	JMPR 2006
SM	Canola, meal	0.055	–	88	JMPR 2011
VR	Carrot, culls	0.12	0.3	12	JMPR 2018
VR	Cassava/tapioca, roots	0	0	37	JMPR 2018
AB	Citrus, dried pulp	3.37	–	91	JMPR 2011
GC	Corn, field, grain	0.02	–	88	JMPR 2004
AF/AS	Corn, field, stover	1.5	19	83	JMPR 2004
GC	Corn, pop, grain	0.02		88	JMPR 2004
AM/AV	Cotton, gin by-products	1.575	16.73	90	JMPR 2011
SM	Cotton, hulls	0.0045	–	90	JMPR 2011
SM	Cotton, meal	0.0045	–	89	JMPR 2011
AL	Cowpea, forage	5.1	7	30	JMPR 2004
VD	Cowpea, seed	0.059	–	88	JMPR 2018
AB	Grape, pomace, wet	1.08	–	15	JMPR 2004
AM/AV	Kale, leaves	0.175	0.61	15	JMPR 2006
GC	Oat, grain	0.345		89	JMPR 2011
AF/AS	Oat, hay	1.5	19	90	JMPR 2004
AF/AS	Oat, straw	1.5	19	90	JMPR 2004
AL	Pea, hay	6.8	18	88	JMPR 2004
VD	Pea, seed	0.059		90	JMPR 2018
AL	Pea, vines[a]	5.1	7	25	JMPR 2004
AL	Peanut, hay	9	24	85	JMPR 2004
SM	Peanut, meal	0.02	–	85	JMPR 2004
AB	Pineapple, process waste	0.002	–	25	JMPR 2018
VR	Potato, culls	0	0	20	JMPR 2018
CM/CF	Rice, bran/pollard	0.14	–	90	JMPR 2018
GC	Rice, grain	0.195	–	88	JMPR 2018
CM/CF	Rice, hulls	0.636	–	90	JMPR 2018
AF/AS	Rice, straw	0.856	2.69	90	JMPR 2018
GC	Rye, grain	0.02		88	JMPR 2011

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	DM (%)	Source
AF/AS	Rye, straw	1.5	19	88	JMPR 2004
AF/AS	Sorghum, grain, forage	0.305	1.33	35	JMPR 2011
GC	Sorghum, grain, grain	0.025		86	JMPR 2011
AF/AS	Sorghum, grain, silage	0.305	1.33	21	JMPR 2011
AL	Soybean, forage	1.66	3.22	56	JMPR 2006
SM	Soybean, hulls	0.03	–	90	PF (JMPR 2011) x STMR (JMPR 2006)
SM	Soybean, meal	0.01	–	92	PF (JMPR 2011) x STMR (JMPR 2006)
VD	Soybean, seed	0.02	–	89	JMPR 2006
DM	Sugarcane, molasses	0.005	–	75	JMPR 2018
SM	Sunflower, meal	0.055	–	92	JMPR 2006 (RAC)
VR	Swede, roots	0.12	0.3	10	JMPR 2018
AB	Tomato, pomace wet	0.12	–	20	JMPR 2004 (RAC)
GC	Triticale, grain	0.02	–	89	JMPR 2011
AF/AS	Triticale, hay	1.5	19	88	JMPR 2004
AF/AS	Triticale, straw	1.5	19	90	JMPR 2004
VR	Turnip, roots	0.12	0.3	15	JMPR 2018
GC	Wheat, grain	0.02	–	89	JMPR 2004
AF/AS	Wheat, hay	1.5	19	88	JMPR 2004
AF/AS	Wheat, straw	1.5	19	88	JMPR 2004

Note:

[a] Bean vines was not included in the calculation of the dietary burden for Australia, the previous JMPR (2018) received an official communication from the government of Australia confirming bean fodder is not imported; this applies also to pea vines.

Dietary risk assessment

Long-term dietary exposure

The ADI for pyraclostrobin is 0–0.03 mg/kg bw. The International Estimated Daily Intakes (IEDIs) for pyraclostrobin were estimated for the 17 GEMS/Food Consumption Cluster Diets using the STMR or STMR-P values estimated by the JMPR. The results are shown in Annex 3.

The IEDIs ranged from 1 to 7 percent of the maximum ADI. The meeting concluded that long-term dietary exposure to residues of pyraclostrobin from uses considered by the JMPR is unlikely to present a public health concern.

Acute dietary exposure

The ARfD for pyraclostrobin is 0.7 mg/kg bw. The International Estimate of Short-term Intakes (IESTI) for pyraclostrobin was calculated for the food commodities for which a HR was estimated by the present meeting (subgroup of eggplants, subgroup of seed spices) and for which consumption data were available. The result is shown in Annex 4.

The IESTI accounted for 1 percent of the ARfD for children and the general population. The meeting concluded that acute dietary exposure to residues of pyraclostrobin from uses considered by the present meeting is unlikely to present a public health concern.

5.32 Pyriofenone (310) (R)

Residue and analytical aspects

Pyriofenone is a member of arylphenyl ketone fungicides and was first evaluated by the JMPR in 2018 for residues and toxicology as a new active substance. An ADI of 0–0.09 mg/kg bw was established and an ARfD was considered unnecessary. The compound was evaluated by the 2019 JMPR for residues only.

Definition of the residue for compliance with the MRL and for estimation of dietary intake for plant and animal commodities is pyriofenone. Fat solubility was not determined due to insufficient information.

Pyriofenone was scheduled at the 55th Session of the CCPR for evaluation of additional uses by the 2025 JMPR. The meeting received additional information on analytical methods on plant matrices, storage stability studies, use pattern, supervised residue trials on strawberry, tomatoes and peppers and processing data for tomatoes.

Methods of residue analysis

The meeting received additional recovery data for methods (ISK 0341 and modifications) using LC-MS/MS previously evaluated by the 2018 and 2019 JMPR for the determination of pyriofenone in strawberry, peppers and tomatoes. The meeting concluded that the methods were adequately validated with an LOQ of 0.01 mg/kg.

Stability of pesticide residues in stored analytical samples

The 2018 and 2019 meetings concluded that pyriofenone was stable in frozen storage in high water matrices for at least 18 months (lettuce, tomatoes and tomato processed commodities, –10 °C) and for at least 9 months (summer squash, –15 °C); in high acid matrices for at least 18 months (grapes, –20 °C); in high starch matrices for at least 18 months (wheat grain, –20 °C).

The meeting received additional information on storage stability of pyriofenone in peppers and tomatoes. Residues of pyriofenone were stable for at least 156 days and 218 days in pepper fruits and tomato fruits at –18 °C, respectively.

The meeting concluded that the demonstrated storage stability in high water matrices covers the sample storage intervals in the residue studies.

Results of supervised trials on crops

Strawberry

The 2018 JMPR recommended a maximum residue level of 0.5 mg/kg for low growing berries (subgroup), based on a GAP in the United States at a maximum rate of 0.11 kg ai/ha with a re-treatment interval (RTI) of 7-day, and a PHI of 0 days.

The critical GAP for pyriofenone in Japan for strawberry allows three foliar applications at 0.0089 kg ai/hL (3000-fold dilution) with a PHI of 1 day, RTI not specified.

In eight independent trials on greenhouse-grown strawberries from Japan matching the critical GAP, residues of pyriofenone were (n = 8): 0.34, 0.49, 0.51, 0.56, 0.66 (3), and 0.96 mg/kg.

The meeting estimated a maximum residue level of 2 mg/kg, an STMR of 0.61 mg/kg for strawberry (FB 0275).

The meeting withdrew its previous recommendation of a maximum residue level of 0.5 mg/kg and an STMR of 0.17 mg/kg for low growing berries (subgroup) and recommended a new maximum residue level of 0.5 mg/kg, an STMR of 0.17 mg/kg for low growing berries (subgroup), except strawberry (FB 2009).

Subgroup of tomatoes

The meeting received a new critical GAP from the United States for subgroup of tomatoes (outdoor-grown and greenhouse-grown [G]), with four foliar applications at a rate of 0.088 kg ai/ha with a RTI of 7-day and a PHI of 0 days.

Twenty-three independent trials were conducted in the United States and Canada approximating the critical GAP on outdoor-grown tomato and cherry tomato (CT). Residues of pyriofenone were (n = 23): <0.01, 0.021, 0.028, 0.038 [CT], 0.040, 0.044 (2), 0.049, 0.051, 0.056 (2), 0.059, 0.064, 0.064 [CT], 0.068, 0.071, 0.076, 0.080, 0.086, 0.10, 0.11(2) and 0.12 mg/kg.

Five independent trials were conducted on greenhouse-grown tomatoes in Canada approximating the critical GAP. Residues of pyriofenone were (n = 5): 0.040, 0.043, 0.047[CT], 0.050 and 0.079[CT] mg/kg.

The Kruskal-Wallis H-test showed that the residue populations from outdoor-grown and greenhouse-grown tomatoes were not significantly different and the meeting decided to combine these datasets.

The combined pyriofenone residues in outdoor-grown and greenhouse-grown tomatoes were in rank order (n = 28): <0.01, 0.021, 0.028, 0.038[CT], 0.040, 0.040[G], 0.043[G], 0.044 (2), 0.047[G, CT]0.049, 0.050[G], 0.051, 0.056 (2), 0.059, 0.064, 0.064[CT], 0.068, 0.071, 0.076, 0.079[G, CT], 0.080, 0.086, 0.10, 0.11(2) and 0.12 mg/kg.

The meeting estimated a maximum residue level of 0.2 mg/kg, an STMR of 0.056 mg/kg for subgroup of tomatoes (VO 2045).

Subgroup of peppers and subgroup of eggplants

The GAPs from the United States for subgroup of pepper/eggplant (including outdoor-grown and greenhouse-grown) allows three foliar applications at 0.11 kg ai/ha, with a RTI of 7-day and a PHI of 0 days or four applications at 0.089 kg ai/ha, with a RTI of 7 days, and a PHI of 0 days. The meeting received side-by-side trials for both use patterns and concluded that the individual treatment rates from both patterns approximate the critical GAP.

Twelve independent trials in the United States on outdoor-grown bell pepper and non-bell pepper [NB] conducted at 4x 0.088–0.094 kg ai/ha, with a RTI of 6–8 days and a PHI of 0 days, residues of pyriofenone in fruits were (n = 12): 0.017, 0.019, 0.023, 0.026, 0.041 [NB], 0.052, 0.053, 0.053 [NB], 0.064, 0.064 [NB], 0.096 [NB] and 0.12 mg/kg.

Residue trials in Mexico on greenhouse-grown peppers were conducted with at 3x 0.11–0.12 kg ai/ha or 4x 0.089–0.093 kg ai/ha, with a RTI of 7–8-day and a PHI of 0 days.

Residues of pyriofenone in fruits in the three applications were (n = 4): 0.25, 0.38[NB], 0.40 and 0.52[NB] mg/kg.

Residues of pyriofenone in fruits in the four applications were (n = 4): 0.26, 0.32 [NB], 0.35 and 0.35 [NB] mg/kg.

The meeting decided to use the higher residues values from the side-by-side trials for estimating maximum residue levels.

Four independent trials in Canada on greenhouse-grown peppers conducted at 4x 0.089–0.14 kg ai/ha, with a RTI of 6–8-day and a PHI of 0 days, residues of pyriofenone in fruits were (n = 4): 0.058, 0.16, 0.34 and 0.88 [NB] mg/kg.

Kruskal-Wallis H-test indicates that the residue populations from outdoor-grown and greenhouse-grown peppers are significantly different. The meeting decided to use the greenhouse-grown trials to estimate maximum residue level.

The combined pyriofenone residues in greenhouse-grown peppers were in rank order (n = 8): 0.058, 0.16, 0.26, 0.34, 0.38 [NB], 0.40, 0.52 [NB] and 0.88 [NB] mg/kg.

The meeting estimated a maximum residue level of 1.5 mg/kg and an STMR of 0.36 mg/kg for subgroup of peppers (VO 0051). The meeting agreed to extrapolate those estimates to the subgroup of eggplants (VO 2046).

Peppers, chili, dried

On the basis of the maximum residue level and the STMR for the subgroup of peppers and default dehydration factor of 10, the meeting estimated a maximum residue level of 15 mg/kg and an STMR value of 3.6 mg/kg for peppers, chilli, dried (HS 0444).

Residues in processed commodities

The 2019 JMPR previously evaluated the fate of pyriofenone residues following the processing of tomato. Estimated processing factors and the STMR-P for the commodities considered at the meeting are summarized in Table 5.32.1.

Table 5.32.1 Processing factors and estimated residues for pyriofenone

Raw commodity (maximum residue level/STMR)	Processed commodity	Processing factor	STMR-P, median residue (mg/kg)	Estimated maximum residue level (mg/kg)
Tomato (0.2/0.056 mg/kg)	juice	0.10	0.0056	–
	puree	0.33	0.018	–
	paste	0.58	0.032	–
	pomace, wet	2.3	0.13 (median)	–
	pomace, dried	33	1.8	6.6 (unrounded)

The meeting estimated a maximum residue level of 7 mg/kg for pyriofenone in tomato pomace, dried.

Residues in animal commodities

The 2018 JMPR estimated livestock dietary burdens arising from residue in grape pomace. The new median residue for tomato pomace (Annex 5) does not change the dietary burden and the meeting confirmed the 2019 JMPR recommendations for animal commodities.

Following the update of animal commodities Codex classifications, the meeting recommended the maximum residue levels of 0.01* mg/kg for group of muscle (from mammalians other than marine mammals), group of mammalian fats (except milk fats), group of edible offal, mammalian, group of milks, group of milk fats, group of avian muscle, group of avian fats, group of avian, edible offal of and group of eggs. The meeting also estimated a STMR of 0 mg/kg for all groups.

The meeting withdrew the previous recommendation of a maximum residue levels of 0.01* mg/kg for meat (from mammalians other than marine mammals), mammalian fats (except milk fats), edible offal (mammalian), poultry meat, poultry fats, poultry, edible offal of, eggs, and milks.

Recommendations

On the basis of the data from supervised trials and processing study, the meeting concluded that the residue levels listed in Table 5.32.2 and Annex 1 are suitable for establishing maximum residue limits and for estimation of dietary intake. Table 5.32.3 shown the residues included in the dietary burden calculation.

Definition of the residue for compliance with the MRL and estimation of dietary intake for plant and animal commodities: pyriofenone.

Table 5.32.2 Residue levels suitable for establishing maximum residue limits and estimation of dietary intake

CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P (mg/kg)
		New	Previous	
MO 0105	Edible offal (mammalian)	W	0.01*	–
PE 0112	Eggs	W	0.01*	–
PF 0111	Group of avian fats	0.01*	–	0
PM 0110	Group of avian muscle	0.01*	–	0
PO 0111	Group of avian, edible offal of	0.01*	–	0
MO 0105	Group of edible offal (mammalian)	0.01*	–	0
PE 0112	Group of eggs	0.01*	–	0
MF 0100	Group of mammalian fats (except milk fats)	0.01*	–	0
ML 0106	Group of milks	0.01*	–	0
FM 0106	Group of milk fats [a]	0.01*	–	0
MM 0095	Group of muscle (from mammalians other than marine mammals)	0.01*	–	0
MR 0100	Mammalian fats (except milk fats)	W	0.01*	–
MM 0095	Meat (from mammalians other than marine mammals)	W	0.01*	–
ML 0106	Milks	W	0.01*	–
HS 0444	Peppers, chili, dried	15	–	3.6
PF 0111	Poultry fats	W	0.01*	–
PM 0110	Poultry meat	W	0.01*	–
PO 0111	Poultry, edible offal of	W	0.01*	–
VO 2046	Subgroup of Eggplants	1.5	–	0.36
FB 2009	Subgroup of low growing berries	W	0.5	–
FB 2009	Subgroup of low growing berries, except strawberry	0.5	–	0.17
VO 0051	Subgroup of Peppers	1.5	–	0.36
VO 2045	Subgroup of Tomatoes	0.2	–	0.056
FB 0275	Strawberry	2	–	0.61
JF 0448	Tomato, juice	–	–	0.0056
–	Tomato, paste	–	–	0.032
–	Tomato pomace, dried	7	–	–
DM 0448	Tomato, puree	–	–	0.018

Note:

[a] For monitoring and regulatory purposes, whole milk is to be analysed, and the result compared to the MRL for whole milk.

Table 5.32.3 Residue levels suitable for estimation of animal dietary burdens

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed
AB	Grape pomace, wet	0.46[a]	–	15
AB	Tomato pomace, wet	0.13	–	20

Note:

[a] From the 2018 JMPR.

Dietary risk assessment

Long-term dietary exposure

The ADI for pyriofenone is 0–0.09 mg/kg bw. The IEDIs for pyriofenone were estimated for the 17 GEMS/Food Consumption Cluster Diets using the STMR or STMR-P values estimated by the JMPR. The results are shown in Annex 3.

The IEDIs ranged from 0 to 1 percent of the maximum ADI. The meeting concluded that long-term dietary exposure to residues of pyriofenone from uses considered by the JMPR is unlikely to present a public health concern.

Acute dietary exposure

An ARfD for pyriofenone is unnecessary. The meeting therefore concluded that the acute dietary exposure to residues of pyriofenone from the uses considered is unlikely to present a public health concern.

5.33 Pyriproxyfen (200) (R)

Residue and analytical aspects

Pyriproxyfen is an insecticide and classified as a juvenile hormone mimic that interferes with normal insect development and reproduction. Metamorphosis of immature life stages is affected but adults are not directly controlled, although production of viable eggs is affected by transovarial activity. Pyriproxyfen is absorbed through the insect cuticle but may also act by ingestion.

Pyriproxyfen was first evaluated by the JMPR in 1999 and then in 2000 (R), 2001 (T), 2018 (R) and 2019 (R) The 1999 JMPR established an ADI of 0–0.1 mg/kg bw and concluded that an ARfD was considered unnecessary.

The definition of the residue for both MRL compliance and for estimation of dietary intake both plant and animal commodities is *pyriproxyfen*. The residue is fat soluble.

Pyriproxyfen was scheduled at the 55th Session of the CCPR for evaluation of additional uses by the 2025 JMPR. The current meeting received new information on registered uses on stone fruits, strawberry, bushberries, grapes, kiwifruit, bulb onions, cabbage, cauliflower, mustard green, and beans and peas with pods, along with supporting data from analytical method, storage stability, residue trial, and processing studies. In addition, the meeting received a request to extrapolate recommendations made by the 2018 meeting for eggplant to the Subgoup of Eggplants.

Methods of residue analysis

The current meeting received new validation data for the QuEChERS multiresidue method as well as concurrent recovery data for single-analyte methods (RM-33P-1-3a and 9.66 V 1) for the analysis of pyriproxyfen. All these methods were first evaluated by previous meetings. The QuEChERS method was validated at 0.01 mg/kg for GC-MS/MS and 0.02 mg/kg for LC-MS/MS.

The new data demonstrate a validated LOQ of 0.01 mg/kg for the LC-MS/MS analysis for all representative plant commodity groups. Concurrent recovery data submitted to the current meeting for methods RM-33P-1-3a and 9.66 V 1 confirm the LOQ of 0.02 mg/kg in plant commodities.

Stability of residues in stored analytical samples

The data submitted to the meeting demonstrates that pyriproxyfen is stable under frozen conditions for at least one year in orange fruit, apple fruit, common bean, soya bean seed, and wheat grain. Previous meetings had concluded that residues of pyriproxyfen was stable for at least three months for peppers, 19 months for papayas, six months for mangos, 16 months for pineapples, 12 months for tomato, 12 months for cotton seed, and 8 months for cotton gin trash.

Samples from supervised residue trials and processing studies evaluated by the meeting were stored frozen for less than 5 months between sample collection and analysis; therefore, residues are considered stable during storage for those samples.

Results of supervised residue trials on crops

Stone fruit

The critical GAP for stone fruit is from the United States and consists of three foliar spray applications on a 14-day interval, each at 120 g ai/ha, and a PHI of 14 days. Residue independent trials were conducted in the United States according to the GAP.

In seven trials on cherries, residues of pyriproxyfen were (n = 7): 0.16, 0.17, 0.24, 0.26, 0.35, 0.59, and 0.62 mg/kg.

In seven trials on plums, residues of pyriproxyfen were (n = 7): 0.02, 0.025, 0.03, and 0.045 (4) mg/kg.

In nine trials on peaches, residues of pyriproxyfen were (n = 9): 0.035, 0.12 (2), 0.14, 0.16, 0.17, 0.19 (2), and 0.20 mg/kg.

The meeting recognized that the registration is for the entire group of stone fruits and that the trials were conducted in suitable representative commodities for the group; however, the median residues vary by more than five-fold. Therefore, the meeting agreed to make recommendations for the subgroups as follows:

- The meeting estimated a maximum residue level of 1.5 mg/kg and an STMR of 0.26 for residues of pyriproxyfen in the Subgroup of cherries.
- A maximum residue level of 0.5 mg/kg and an STMR of 0.16 mg/kg for residues of pyriproxyfen in the Subgroup of peaches.
- A maximum residue level of 0.15 mg/kg and an STMR of 0.045 mg/kg for residues of pyriproxyfen in the Subgroup of plums.

Bush berries

The critical GAP for bush berries is from the United States and consists of two foliar spray applications on a 14-day interval, each at 120 g ai/ha, and a PHI of 7 days. In trials on blueberries approximating the GAP, residues of pyriproxyfen were (n = 8): 0.16, 0.19, 0.26, 0.32, 0.41, 0.44, 0.56, and 0.62 mg/kg.

Noting that the registration covers the bush berries subgroup, and that blueberry is a suitable representative crop, the meeting estimated a maximum residue level of 1.5 mg/kg and an STMR of 0.365 mg/kg for residues of pyriproxyfen in the Subgroup of bush berries.

Grapes

The critical GAP for grape is from the United States and consists of three foliar spray applications on a 14-day interval, each at 120 g ai/ha, and a PHI of 21 days. In trials approximating the GAP, residues of pyriproxyfen were (n = 10): 0.045, 0.09, 0.11, 0.12, 0.13, 0.16, 0.23, 0.24, 0.26, 1.9.

The meeting estimated a maximum residue level of 3 mg/kg and an STMR of 0.145 mg/kg for residues of pyriproxyfen in grapes.

Strawberry

The critical GAP for strawberry is from the United States and consists of two foliar spray applications on a 30-day interval, each at 150 g ai/ha, and a PHI of 2 days. In independent trials conducted at approximately one half of the critical GAP application rate, residues of pyriproxyfen were (n = 4): 0.055, 0.07 (2), and 0.12 mg/kg.

The meeting agreed that four trials are not sufficient to make estimations for strawberries. The meeting noted that four additional trials were available wherein berries were harvested three days after the last application (DALA), also at approximately one half of the critical GAP application rate. Residues in those trials were (n = 4): 0.03, 0.045, 0.11, and 0.20 mg/kg.

A Mann-Whitney U-test indicated that there was no significant difference in residues for berries harvested 2 or 3 DALA, and the meeting agreed to combine residues from both sets as (n = 8): 0.03, 0.045, 0.055, 0.07 (2), 0.11, 0.12, and 0.20 mg/kg. Residues after scaling were (n = 8): 0.019, 0.06, 0.12, 0.14, 0.14, 0.22, 0.24, and 0.41 mg/kg.

The meeting estimated a maximum residue level of 0.7 mg/kg and an STMR of 0.14 mg/kg for residues of pyriproxyfen in strawberry.

Kiwifruit

The critical GAP for kiwifruit is from the United States, via the registration on United States Crop Subgroup 13-07E (small fruit vine climbing crops, except grape). It consists of two foliar spray applications on a 14-day interval, each at 120 g ai/ha, and a PHI of 30 days. In trials approximating the critical GAP, residues in kiwifruit were (n = 3): 0.09, 0.11, and 0.20 mg/kg.

The meeting agreed that three trials were not sufficient to make a recommendation for kiwifruit.

Subgroup of eggplants

The meeting was requested from the sponsor to consider extrapolating recommendations made by the 2018 for eggplant, based on residues on peppers according to Italian GAP (maximum residue level of 0.6 mg/kg, STMR of 0.17 mg/kg) to the Subgroup of Eggplants. This extrapolation approach was presented to the 2024 JMPR as part of an analysis across multiple compounds where such extrapolation might be supported (see 2024 JMPR General Consideration Item 3). The 2024 meeting noted that "The cited label from France specifically states use on tomatoes and aubergines. No description of crop groups or definition of further members of the Codex subgroup eggplants was made. According to current JMPR practice, registered labels for all members of a group or subgroup are required for a respective recommendation. Therefore, the 2018 JMPR decided to limit the extrapolation to eggplants specifically."

The request to the meeting noted that "The single entry of Eggplant (VO 0440) *Solanum melongena* captures many different cultivars of varying shapes, sizes and colours many of which closely resemble the other members of the subgroup Eggplants (VO 2046)." The request further noted that "…label use patterns that state 'eggplant' would more than likely be interpreted by growers to apply to any eggplant like commodity."

The meeting considered the rationale provided by the sponsor and concluded that such extrapolation could be supported given the limited commodities in the Subgroup of Eggplants and the scope covered by the French label.

In making that recommendation, the meeting noted that registrations in the United States include use on the Codex group fruiting vegetables, other than cucurbits, which includes the subgroup of eggplants. The GAP in the United States (2 applications at 751 g ai/ha on a 14-day interval; 1day PHI) is more critical than that specified on the labels from Italy (2 applications at 112.5 g ai/ha on a 14-day interval; 3 Days PHI). The meeting further noted, however, that the scaling factor (6.8) needed to make a recommendation according to the United States GAP exceeds the maximum allowed factor for scaling (4) and agreed that a recommendation could not be made based on the available data and the United States label.

The meeting agreed to extrapolate the data from peppers to the Subgroup of Eggplants. The meeting withdrew its recommendation for eggplant and estimated a maximum residue level of 0.6 mg/kg and an STMR of 0.17 mg/kg for residues of pyriproxyfen in the Subgroup of Eggplants.

Onion, bulb

The critical GAP for bulb vegetables is from the United States and consists of two foliar spray applications on a 14-day interval, each at 60 g ai/ha, and a PHI of 3 days. In trials matching the GAP, residues of pyriproxyfen were (n = 4): <0.02 (3), and 0.02 mg/kg.

The meeting agreed that four trials were not sufficient to make a recommendation for bulb onion.

Cabbage, head

The critical GAP for cabbage, head is from the United States and consists of two foliar spray applications on a 14-day interval, each at 75 g ai/ha, and a PHI of 7 days. In trials matching the GAP, residues of pyriproxyfen were (n = 6): 0.045, 0.085, 0.10, 0.11, 0.22, and 0.33 mg/kg.

In those same trials, residues of pyriproxyfen in cabbage heads without wrapper leaves were (n = 6): <0.02 (5) and 0.02 mg/kg.

The meeting estimated a maximum residue level of 0.6 mg/kg, an STMR of 0.02 mg/kg for residues of pyriproxyfen in cabbage, head and a median and highest residue for dietary burden calculation of 0.105 and 0.33 mg/kg respectively.

Cauliflower

The critical GAP for cauliflower is from the United States and consists of two foliar spray applications on a 14-day interval, each at 75 g ai/ha, and a PHI of 7 days. The meeting noted that residue decline data from other *Brassica* crops show that residues at 6 and at 7 DALA are expected to be similar, and agreed to consider samples harvested at those sampling times. In trials approximating the GAP, residues of pyriproxyfen were (n = 7): <0.02 (4), 0.02, 0.045, and 0.14 mg/kg.

The meeting estimated a maximum residue level of 0.3 mg/kg and an STMR of 0.02 mg/kg for residues of pyriproxyfen in cauliflower.

Mustard greens

The critical GAP for mustard greens is from the United States and consists of two foliar spray applications on a 14-day interval, each at 75 g ai/ha, and a PHI of 7 days. In trials approximating the GAP, residues of pyriproxyfen were (n = 4): 0.29, 0.34, 0.35, and 1.6 mg/kg.

The meeting estimated a maximum residue level of 4 mg/kg and an STMR of 0.345 mg/kg for residues of pyriproxyfen in mustard greens and a highest residue of 1.6 mg/kg for dietary burden calculations.

Noting that the registered use covers the Codex Subgroup of Leaves of Brassicaceae and that mustard greens are a suitable representative commodity, the meeting agreed to consider extrapolating the residue estimates to the Subgroup of Leaves of Brassicaceae. In making that consideration, the meeting noted that other crops in the Subgroup of Leaves of Brassicaceae require more than four trials to support a recommendation. Therefore, the meeting agreed not to extrapolate the estimation for mustard greens to the subgroup.

Legume vegetables

The critical GAP for legume vegetables is from the United States and consists of 2 applications on a 14-day interval, each at 75 g ai/ha, and a PHI of 7 days.

Subgroup of beans with pods

In trials matching the GAP, residues of pyriproxyfen in common bean varieties were (n = 6): <0.02 (4), 0.020, and 0.065 mg/kg.

The meeting estimated a maximum residue level of 0.1 mg/kg and an STMR of 0.02 mg/kg for residues of pyriproxyfen in the Subgroup of beans with pods.

Edible-podded peas

In trials matching the GAP, residues of pyriproxyfen in edible-podded pea varieties were (n = 3): 0.025, 0.1, and 0.13 mg/kg.

Three trials are not sufficient to make a recommendation for edible-podded pea.

Fate of residues during processing

A single processing study was submitted for each of plum and grape. The resulting processing factorsand residue estimations are summarized in Table 5.33.1.

Table 5.33.1 Summary of processing factors for pyriproxyfen evaluated by the current meeting

Crop	Processed commodity	Processing factor	Maximum residue, mg/kg	STMR-P, mg/kg
Plum (maximum residue level = 0.15 mg/kg; STMR = 0.045 mg/kg)	Prune (dried plum)	2.9	0.435	0.13
Grape (maximum residue level = 3 mg/kg; STMR = 0.145 mg/kg)	Juice	<0.04	<0.12	<0.0058
	Dried (Sultanas)	1.3	3.9	0.188

The meeting estimated a maximum residue level of 0.5 mg/kg and an STMR-P of 0.13 mg/kg for residues of pyriproxyfen in prune, dried.

The meeting also estimated a maximum residue level of 4 mg/kg and an STMR-P of 0.188 mg/kg for residues of pyriproxyfen in grape, dried and an STMR-P of 0.0058 mg/kg for grape juice.

Residues in animal commodities

Livestock dietary burden

Of the uses considered by the meeting, the only feed item is kale (as a member of the Subgroup of *Brassica* leafy vegetables). A label restriction prevents the feeding of bean forage to farm animals. New dietary burden calculations were performed using the OECD diets listed in Appendix IX of the 2016 edition of the FAO manual, including the input values from the previous evaluations. The results are shown in Annex 5 are summarized in Table 5.33.2.

Table 5.33.2 Estimated maximum and mean dietary burdens of pyriproxyfen to farm animals

Animal	Dietary burden: pyriproxyfen, ppm of dry matter diet							
	United States/Canada		European Union		Australia		Japan	
	Max.	Mean	Max.	Mean	Max.	Mean	Max.	Mean
Beef cattle	0.135	0.135	2.18	0.502	0.293	0.293	–	–
Dairy cattle	0.085	0.085	2.30	0.628	4.55[a, b]	1.20[c, d]	–	–
Poultry – broiler	2.2×10^{-4}	2.2×10^{-4}	6×10^{-5}	6×10^{-5}	1.0×10^{-4}	1.0×10^{-4}	–	–
Poultry – layer	2.2×10^{-4}	2.2×10^{-4}	0.11[e,f]	0.035[g,h]	1.0×10^{-4}	1.0×10^{-4}	–	–

Notes:

[a] Highest maximum beef or dairy cattle dietary burden suitable for MRL estimates for mammalian tissues.

[b] Highest maximum dairy cattle dietary burden suitable for MRL estimates for mammalian milk.

[c] Highest mean beef or dairy cattle dietary burden suitable for STMR estimates for mammalian tissues.

[d] Highest mean dairy cattle dietary burden suitable for STMR estimates for milk.

[e] Highest maximum poultry dietary burden suitable for MRL estimates for poultry tissues.

[f] Highest maximum poultry dietary burden suitable for MRL estimates for poultry eggs.

[g] Highest mean poultry dietary burden suitable for STMR estimates for poultry tissues.

[h] Highest mean poultry dietary burden suitable for STMR estimates for poultry eggs.

Estimation of residues in animal commodities

Mammalian commodities

Using the data from the feeding study in with lactating cows evaluated by the 1999 JMPR new estimations were performed. The results are summarized in Table 5.33.3.

Table 5.33.3 Animal commodity maximum residue levels for pyriproxyfen in mammalian commodities

Pyriproxifen feeding study	Feed level (ppm) for milk residues	Residues (mg/kg) in milk	Feed level (ppm) for tissue residues	Residues (mg/kg)			
				Muscle	Liver	Kidney	Fat
Maximum residue level, beef or dairy cattle							
Feeding study	3	<0.01	3	<0.01	<0.01	<0.01	<0.01
	9	<0.01	9	<0.01	<0.01	<0.01	0.025
Dietary burden and high residue	4.55	<0.01	4.55	<0.01	<0.01	<0.01	0.014
STMR beef or dairy cattle							
Feeding study	3	<0.01	3	<0.01	<0.01	<0.01	<0.01
	9	<0.01	9	<0.01	<0.01	<0.01	0.018
Dietary burden and residue estimate	1.20	0.004	1.20	<0.01	<0.01	<0.01	0.0076

Since no residues were observed in muscle, liver, kidney and milk at any of the dose levels up to 6 times higher than the dietary burden, a zero residue situation for tissues is assumed. The meeting estimated maximum residue levels/STMRs of 0.01* mg/kg/0 mg/kg for the Group of muscle (from mammals other than marine mammals) and for the Group of edible offal (mammalian), withdrawing its previous recommendations of 0.01* mg/kg for Cattle meat (fat), Cattle, edible offal of, Goat, edible offal of, and Goat, meat.

Residues were observed in fat and the meeting estimated a maximum residue level of 0.015 mg/kg and an STMR of 0.0076 for the Group of mammalian fats (except milk fats).

The JMPR 1999 did not make a recommendation for residues of pyriproxyfen in milk due to insufficient information regarding the stability of residues in stored milk samples. Since no new data were submitted, the meeting did not make any estimations for milk.

Avian commodities

As no feeding study in laying was available, the meeting considered the metabolism study in laying hens that was evaluated at the 1999 meeting. In this study, hens were dosed with [^{14}C]- labelled pyriproxyfen for 8 consecutive days at the equivalent of 10 ppm in the feed, which was 90 times higher than the dietary burden. In the metabolism study levels of pyriproxyfen were highest in abdominal fat (0.92 mg eq/kg), followed by egg yolk (0.17 mg eq/kg), skin with fat (0.13 mg eq/kg), muscle (0.047 and 0.013 mg eq/kg in thigh and breast muscle, respectively), kidneys and liver (0.041 and 0.011 mg eq/kg, respectively). Levels of pyriproxyfen in egg white reached up to 0.020 mg/kg.

Using a factor of 90, the meeting estimated a maximum residue level of 0.15 mg/kg and an STMR of 0.01 mg/kg for the Group of avian fats, a maximum residue level and STMR of 0.01(*) and 0.00052 mg/kg, respectively for the Group of avian muscle, and a maximum residue level and STMR of 0.01(*) and 0.00046 (kidney) and 0.00012 mg/kg (liver), respectively for the Group of avian edible offal. Due to insufficient storage stability data on eggs, the meeting did not make any estimation for eggs.

Recommendations

On the basis of the data obtained from supervised trials, the meeting concluded that the residue levels listed in Table 5.33.4 and Annex 1 are suitable for establishing maximum residue limits and for estimation of dietary intake. Table 5.33.5 shows the residues included in the dietary burden calculation.

Definition of the residue for compliance with the MRL and for estimation of dietary intake for plant and animal commodities: *pyriproxyfen*.

The residue is fat soluble.

Table 5.33.4 Residue levels suitable for establishing maximum residue limits and for estimation of dietary intake

CCN	Commodity	Recommended maximum residue level, mg/kg		STMR / STMR-P, mg/kg
		New	Previous	
VB 0041	Cabbage, head	0.6	–	0.02
MO 0812	Cattle, edible offal of	W	0.01*	0
MM 0812	Cattle meat	W	0.01* (fat)	0
VB 0404	Cauliflower	0.3	–	0.02
VO 0440	Eggplant	W	0.6	0.17
MO 0814	Goat, edible offal of	W	0.01*	0
MM 0814	Goat meat	W	0.01* (fat)	0
FB 0269	Grapes	3	–	0.145
DF 0269	Grape, dried	4	–	0.188
JF 0269	Grapes, juice	–	–	0.0058
PO 0111	Group of avian, Edible offal of	0.01*	–	0.00046 (kidney) 0.00012 (liver)
PF 0111	Group of avian fats	0.15	–	0.01
PM 0110	Group of avian muscle	0.01*	–	0.00052
MO 0105	Group of Edible offal (Mammalian)	0.01*	–	0
MF 0100	Group of mammalian fats (except milk fats)	0.015	–	0.0076
MM 0095	Group of muscle (from mammals other than marine mammals)	0.01*	–	0
VL 0485	Mustard greens	4	–	0.345
DF 0014	Prune, dried	0.5	–	0.13
FB 0275	Strawberry	0.7	–	0.14
VP 2060	Sub group of beans with pods	0.1	–	0.02
FB 2006	Subgroup of bush berries	1.5	–	0.365
FS 0013	Subgroup of cherries	1.5	–	0.26

CCN	Commodity	Recommended maximum residue level, mg/kg		STMR / STMR-P, mg/kg
		New	Previous	
VO 2046	Subgroup of Eggplants	0.6	–	0.17
FS 2001	Subgroup of peaches	0.5	–	0.16
FS 0014	Subgroup of plums	0.15	–	0.045

Table 5.33.5 Residues of pyriproxyfen for estimation of animal dietary burden

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed
AM/AV	Cabbage, heads, leaves	0.105	0.33	15
AB	Citrus, dried pulp	0.76	–	91
SM	Cotton, hulls	0.01[a]	–	90
AM/AV	Cotton, gin by-products	0.91	2.7	90
SM	Cotton, meal	0.001	–	89
SO	Cotton, undelinted seed	0.01	–	88
AB	Grape, pomace, wet[a]	0.145		15
AM/AV	Kale, leaves	0.345[b]	1.6	15
AB	Pineapple, process waste	0.01[a]	–	25
AB	Tomato, pomace, wet	0.1[a]	–	20

Notes:

[a] In absence of data on specific data of the processed commodity the residue in RAC was used.

[b] Input based on STMR and HR in mustard greens.

Dietary risk assessment

Long-term dietary exposure

The ADI for pyriproxyfen is 0–0.1 mg/kg bw. The International Estimated Daily Intakes (IEDIs) for pyriproxifen were estimated for the 17 GEMS/Food Consumption Cluster Diets using the STMR or STMRP values estimated by the JMPR. The results are shown in Annex 3.

The IEDIs ranged from 0 to 1 percent of the maximum ADI. The meeting concluded that long-term dietary exposure to residues of pyriproxyfen from uses considered by the JMPR is unlikely to present a public health concern.

Acute dietary exposure

An ARfD for pyriproxyfen is unnecessary. The meeting therefore concluded that the acute dietary exposure to residues of pyriproxyfen from the uses considered is unlikely to present a public health concern.

5.34 Spidoxamat (T, R)*

Toxicology

Spidoxamat is the common name approved by the International Organization for Standardization (ISO) for 2-(4-chloro-2,6-dimethylphenyl)-1-hydroxy-9,12-dioxa-4-azadispiro[4.2.4^{8}.2^{5}]tetradec-1-en-3-one (International Union of Pure and Applied Chemistry [IUPAC]), with the Chemical Abstracts Service (CAS) number 907187-07-9.

It is a tetronic/tetramic acid derivative acetyl-CoA carboxylase inhibitor, narrow spectrum insecticide. Spidoxamat has not been previously evaluated by the Joint FAO/WHO Meeting on Pesticide Residues and was reviewed by the present meeting at the request of the Codex Committee on Pesticide Residues (CCPR). Except where indicated, all critical studies contained statements of compliance with good laboratory practice (GLP), and internationally recognized standards unless otherwise specified. A United States National Library of Medicine search was conducted using the search term "spidoxamat". No peer-reviewed published literature that was relevant to this evaluation was identified.

Biochemical aspects

As spidoxamat contains several ring systems, two different radiolabels ([phenyl-UL-^{14}C] and [tetradecene-8-^{14}C]) were used in the studies.

In rats, oral absorption was rapid (T_{max} 0.5 to 1 hour) and relatively complete (around 80 percent of the administered radioactivity at 1 mg/kg bw per day but likely decreasing at higher doses). Based on dose normalized C_{max} and $AUC_{0\text{-last-dose}}$ systemic exposure is sub-dose proportional (by a factor of about 4- to 9-fold) over the 1 to 200 mg/kg bw dose range. Spidoxamat was widely distributed.

Based on *in vitro* comparative metabolism studies using hepatocytes, low to moderate metabolism of ^{14}C-spidoxamat occurred in rodent, rabbit, and human hepatocytes. ^{14}C-spidoxamat was stable in the presence of canine hepatocytes. Three *in vitro* metabolites (BCS-AH92431 (BCS-AA10147-cyclohexylketone) [P3], BCS-AA10147-cyclohydroxy [P2] and BCS-AA10147-hydroxy-cyclohexylketone [P1]) were detected (except in canine systems). No specific human metabolites were formed.

The amount of parent compound present in urine, bile and faeces increased over the 1 to 200 mg/kg bw dose range. At 1 mg/kg bw metabolic transformation was higher in male rats than in female rats. BCS-AH92431 (BCS-AA10147-cyclohexylketone) amounted to more than 10 percent administered dose in urine rat samples after single and repeated low dosage in males (49–58 percent administered dose) and females (12–13 percent administered dose) and thus is considered as a major rat metabolite. All other metabolites were found at less than 10 percent administered dose in urine and/or bile samples.

The main metabolic reaction of ^{14}C-spidoxamat was the cleavage of the dioxolane ring, leading to the formation of cyclohexanone in the metabolite BCS-AH92431 (BCS-AA10147-cyclohexylketone). In a successive step, the ketone moiety is reduced to an alcohol resulting in the metabolite BCS-CN66620, which is subsequently conjugated to glucuronic acid at the pyrrolidine ring.

Over the 1 to 200 mg/kg bw dose range excretion was rapid and almost complete by 48 hours following oral dosing. At 1 mg/kg bw per day excretion is predominantly via the renal pathway (about 72 to 75 percent of the administered radioactivity). At 200 mg/kg bw excretion is predominantly in the faeces (about 70 to 82 percent of the administered radioactivity). This correlates with lower relative systemic exposure at this dose rate and the presence of sub-dose proportional plasma radioactivity kinetics. Elimination was not influenced by repeated oral dosing of unlabeled spidoxamat prior to the administration of ^{14}C-spidoxamat. Spidoxamat is unlikely to be persistent in mammals.

Toxicological data

The acute oral median lethal dose (LD_{50}) of spidoxamat was greater than 2000 mg/kg bw and the dermal LD_{50} was also greater than 2000 mg/kg bw. The 4-hour nose-only inhalation median lethal concentration (LC_{50}) of spidoxamat was greater than 2.15 mg/L, the maximum achievable concentration. Spidoxamat was not corrosive *in vitro* to reconstructed human epidermis and was not irritant to the skin of rabbits *in vivo*. Likewise, spidoxamat was neither irritant nor corrosive *in vitro* to the chicken eye and was not an ocular irritant in rabbits *in vivo*. Based on the local lymph node assay spidoxamat was not sensitizing in mice.

The major toxicological target following repeated oral exposure of spidoxamat was the urinary tract. Urinary tract toxicity was associated with precipitation of spidoxamat (and to a lesser extent BCS-AH92431), which produced urothelial irritation, hyperplasia and retrograde nephropathy.

In a 90-day dietary study, mice were fed spidoxamat at dietary concentrations of 0, 800, 2400 and 6000 ppm, equal to 0, 121, 377 and 894 mg/kg bw per day in males, and 0, 135, 391 and 995 mg/kg bw per day in females. The NOAEL was 2400 ppm (equal to 377 mg/kg bw per day) due to the presence of urinary tract toxicity at the next highest dietary concentration of 6000 ppm (equal to 894 mg/kg bw per day).

In a 90-day study rats were fed spidoxamat at dietary concentrations of 0, 600, 3000 and 12000 ppm, equal to 0, 35.9, 179 and 717 mg/kg bw per day in males, and 0, 47.8, 235 and 938 mg/kg bw per day in females. The NOAEL was 3000 ppm (equal to 235 mg/kg bw per day) due to the presence of urinary tract toxicity at the next highest dietary concentration of 12 000 ppm (equal to 938 mg/kg bw per day).

In a 13-week dietary study dogs were fed spidoxamat at dietary concentrations of 0, 300, 900 or 2700 ppm equal to 0, 9.1, 26.5 and 78.8 mg/kg bw per day in males, and 0, 9.5, 29.1 and 77.1 mg/kg bw per day in females, respectively. The NOAEL was 300 ppm (equal to 9.1 mg/kg bw per day) due to the presence of urinary tract toxicity at the next highest dietary concentration of 900 ppm (equal to 26.5 mg/kg bw per day).

In a carcinogenicity study, mice were fed spidoxamat at dietary concentrations of 0, 800, 2400 and 6000 ppm for up to 78 weeks equal to 0, 94.6, 282 and 718 mg/kg per day in males and 0, 101, 299 and 763 mg/kg per day in females. Bladder urothelial carcinomas occurred in females at 6000 ppm in conjunction with urinary calculi, marked cystitis and urothelial hyperplasia. The NOAEL for systemic toxicity was 800 ppm (equal to 94.6 mg/kg bw per day) due to the presence of urinary tract toxicity at 2400 ppm (equal to 282 mg/kg bw per day). The NOAEL for carcinogenesis was 2400 ppm (equal to 282 mg/kg bw per day) due to the presence of bladder urothelial neoplasia at 6000 ppm (equal to 763 mg/kg bw per day). Based on an International Program on Chemical Safety human relevance mode of action (MOA) evaluation, the bladder urothelial carcinomas had a non-mutagenic MOA and are not human relevant at the expected levels of human dietary exposure.

In a 2-year combined chronic toxicity and carcinogenicity study, groups of rats were fed spidoxamat at dietary concentrations that were adjusted over the study course to be equal to 0, 30, 150 and 750 mg/kg bw per day in males and 0, 30, 150 and 600/450/300 mg/kg bw per day in females. The NOAEL for systemic toxicity was 30 mg/kg bw per day due to the presence of urinary tract toxicity at 150 mg/kg bw per day. The NOAEL for carcinogenicity was 300 mg/kg bw per day, the highest dose tested.

The meeting concluded that spidoxamat is carcinogenic in mice but not in rats.

Based on an adequate range of *in vitro* and *in vivo* assays spidoxamat was not genotoxic. The meeting concluded that spidoxamat is unlikely to be genotoxic. In view of the lack of genotoxicity and the absence of human-relevant carcinogenicity in mice and rats, the meeting concluded that spidoxamat is unlikely to pose a carcinogenic risk to humans at expected levels of human dietary exposure.

In a two-generation reproductive toxicity study, rats were fed spidoxamat at concentrations of 0, 500, 2000 or 8000 ppm (equal to 0, 40.7, 147 or 663 mg/kg bw per day in males and 0, 46.9, 160 or 738 mg/kg bw per day for females). The NOAEL for parental toxicity was 500 ppm (equal to 40.7 mg/kg bw per day) based on urinary tract toxicity at 2000 ppm (equal to 147 mg/kg bw per day). The NOAEL for reproductive and offspring toxicity was 8000 ppm (equal to 738 mg/kg bw per day, the highest dose tested).

In a prenatal developmental toxicity study pregnant rats were gavaged with spidoxamat at 0, 20, 100 or 1000 mg/kg bw per day over gestation days (GD) 6 to 20. The NOAEL for maternal toxicity was 100 mg/kg bw per day due to reduced body weight over GD 6 to 8 at 1000 mg/kg bw per day. The NOAEL for developmental toxicity was 1000 mg/kg bw per day, the highest dose tested.

In a prenatal developmental toxicity study pregnant rabbits were gavaged with spidoxamat at 0, 10, 40 or 160 mg/kg bw per day over GD 6 to 28. The NOAEL for maternal, developmental toxicity was 160 mg/kg bw per day, the highest dose tested.

The meeting concluded that spidoxamat is not a developmental toxicant.

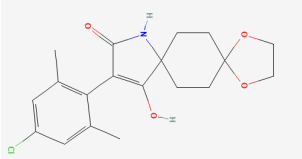
In an acute neurotoxicity study in rats, spidoxamat was administered by gavage at 0, 300, 1000 or 2000 mg/kg bw. The NOAEL for systemic and neurotoxicity after a single dose of spidoxamat is 2000 mg/kg bw, the highest dose tested. Based on neurological evaluations included in the 90-day study of toxicity in rats, spidoxamat was not neurotoxic following repeated daily dietary exposure. The meeting concluded that spidoxamat is not neurotoxic.

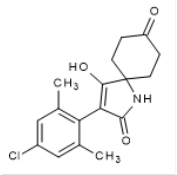
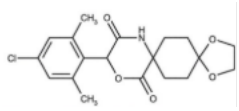
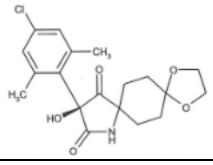
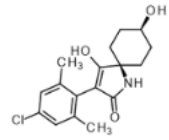
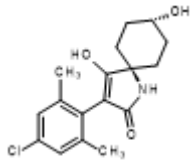
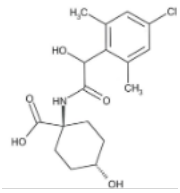
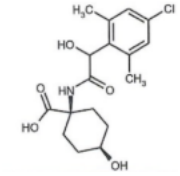
Due to the lack of any evidence of adverse effects on the immune system in the toxicology database the meeting concluded that spidoxamat is not immunotoxic.

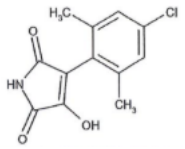
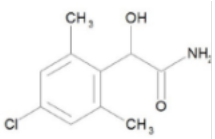
Toxicological data on metabolites and/or degradates

A toxicological evaluation of the metabolites was performed (Table 5.34.1). The metabolites can be divided into 3 groups based on chemical structural similarity: spidoxamat-like (BCS-AH92431, BCS-DG87560 and BCS-DG91770), BCS-CN66620-like (BCS-DH56414, BCS-DI13355 and BCS-DI13356) and those that do not structurally resemble spidoxamat or BCS-CN66620 (BCS-CN53105 and BCS-DM18479). The meeting concluded that the toxicity of the spidoxamat-like metabolites (BCS-AH92431, BCS-DG87560 and BCS-DG91770) was similar to that of the parent compound and could be covered by the health-based guidance values for spidoxamat. The meeting further concluded that the toxicity of the BCS-CN66620-like metabolites (BCS-DH56414, BCS-DI13355 and BCS-DI13356) was similar to that of BCS-CN66620 and like BCS-CN66620 they are not toxicologically relevant. Finally the meeting concluded that the threshold of toxicological concern (TTC) Cramer class III approach for chronic exposure (1.5 µg/kg bw per day) and for acute exposure (5 µg/kg bw) should be used for the dietary risk assessment of BCS-CN53105 and BCS-DM18479.

Table 5.34.1 Summary overview of toxicological characterization of plant/livestock metabolites of spidoxamat

Compound, code and structure	Major rat metabolite (>10% AD)	Genotoxicity assessment (data, QSAR, read-across)	General toxicity	Reference value for dietary risk assessment
Spidoxamat 	N/A	Not genotoxic (data)	Full dataset	ADI: 0–0.07 mg/kg bw per day ARfD: not needed

Compound, code and structure	Major rat metabolite (>10% AD)	Genotoxicity assessment (data, QSAR, read-across)	General toxicity	Reference value for dietary risk assessment
BCS-AH92431 (spidoxamat-7-cyclohexylketone) 	Yes	Not genotoxic (parent)	Covered by parent (major metabolite)	Parent's HBGVs
BCS-DG87560 	No	Not genotoxic (data)	Covered by parent (structural similarity)	Parent's HBGVs
BCS-DG91770 	No	Not genotoxic (data)	Covered by parent (structural similarity)	Parent's HBGVs
BCS-CN66620  BCS-CN66620 (BCS-AA10147-cyclohydroxy (cis)) (R, M)	No	Not genotoxic (data)	NOAEL 90-day study = 746 mg/kg bw per day, HDT	Not toxicologically relevant
BCS-DH56414 	No	Not genotoxic (data)	Covered by BCS-CN66620 (structural similarity)	Not toxicologically relevant
BCS-DI13355 	No	Not genotoxic (data)	Covered by BCS-CN66620 (structural similarity)	Not toxicologically relevant
BCS-DI13356 	No	Not genotoxic (data)	Covered by BCS-CN66620 (structural similarity)	Not toxicologically relevant

Compound, code and structure	Major rat metabolite (>10% AD)	Genotoxicity assessment (data, QSAR, read-across)	General toxicity	Reference value for dietary risk assessment
BCS-CN53105 	No	Not genotoxic (data)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
BCS-DM18479 	No	Not genotoxic (data)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)

Note: AD: Administered dose; TTC: threshold of toxicological concern; HBGVs: health-based guidance values.

Microbiological aspects

There was no information available in the public domain, and no experimental data were submitted, which addressed the possible impact of spidoxamat on the human intestinal microbiome.

Human data

Since spidoxamat is a new compound there is only limited information available. Medical surveillance data during pilot production revealed no problems related to handling of spidoxamat.

The meeting concluded that the existing database on spidoxamat was adequate to characterize the potential hazards to the general population, including fetuses, infants and children.

Toxicological evaluation

The meeting established an acceptable daily intake (ADI) of 0–0.7 mg/kg bw, based on the NOAEL of 9.1 mg/kg bw per day in 13-week study in dogs. Given that the MOA for the urinary tract effects involves the precipitation of spidoxamat and its major metabolite BCS-AH92431 in the glomerular filtrate the toxicodynamic subfactors for the inter- and intra-species differences were reduced to 1. The toxicokinetic subfactors for inter- and intra-species differences were retained. Thus, the total safety factor was 4.0 (interspecies differences due to toxicokinetics) x 3.16 (interindividual differences due to toxicokinetic factors) approximately 13. The ADI also applies to the following metabolites: BCS-AH92431, BCS-DG87560 and BCS-DG91770 expressed as spidoxamat.

The meeting concluded that it was not necessary to establish an acute reference dose (ARfD) for spidoxamat in view of its low acute oral toxicity and the absence of developmental toxicity or any other toxicological effects likely to be elicited by a single dose.

The meeting concluded that the threshold of toxicological concern (TTC) Cramer class III approach for chronic exposure (1.5 µg/kg bw per day) and acute exposure (5 µg/kg bw) should be considered for the risk assessment for the following plant/livestock metabolites BCS-CN53105 and BCS-DM18479 if necessary.

A toxicological monograph was prepared.

Table 5.34.2 Levels relevant to risk assessment of spidoxamat

Species	Study	Effect	NOAEL	LOAEL
Mouse	78-week study of toxicity and carcinogenicity[a]	Toxicity	800 ppm, equal to 94.6 mg/kg bw per day	2400 ppm, equal to 282 mg/kg bw per day
		Carcinogenicity	2400 ppm, equal to 282 mg/kg bw per day	6000 ppm, equal to 763 mg/kg bw per day[c, d]
Rat	Acute neurotoxicity study[b]	Neurotoxicity	2000 mg/kg bw[c]	–
	Two-year studies of toxicity and carcinogenicity[a]	Toxicity	30 mg/kg bw per day	150 mg/kg bw per day
		Carcinogenicity	300 mg/kg bw per day[c]	–
	Two-generation study of reproductive toxicity[a]	Reproductive toxicity	8000 ppm, equal to 738 mg/kg bw per day[c]	–
		Parental toxicity	500 ppm, equal to 40.7 mg/kg bw per day	2000 ppm, equal to 147 mg/kg bw per day
		Offspring toxicity	8000 ppm, equal to 738 mg/kg bw per day[c]	–
	Developmental toxicity study[b]	Maternal toxicity	100 mg/kg bw per day	1000 mg/kg bw per day
		Embryo and fetal toxicity	1000 mg/kg bw per day[c]	–
Rabbit	Developmental toxicity study[b]	Maternal toxicity	160 mg/kg bw per day[c]	–
		Embryo and fetal toxicity	160 mg/kg bw per day[c]	–
Dog	13-week study of toxicity[a]	Toxicity	300 ppm, equal to 9.1 mg/kg bw per day	900 ppm, equal to 26.5 mg/kg bw per day
BCS-CN66620				
Rat	28-day study of toxicity[a]	Toxicity	12 000 ppm, equal to 916 mg/kg bw per day[c]	–
	90-day study of toxicity[a]	Toxicity	12 000 ppm, equal to	–

Species	Study	Effect	NOAEL	LOAEL
			746 mg/kg bw per day[c]	

Notes:
[a] Dietary administration.
[b] Gavage administration.
[c] Highest dose tested.
[d] Not human relevant.

Acceptable daily intake (ADI) for spidoxamat:*

0–0.7 mg/kg bw

Acute reference dose (ARfD) for spidoxamat:

Unnecessary

***** The ADI applies to spidoxamat, BCS-AH92431, BCS-DG87560 and BCS-DG91770 expressed as spidoxamat.

Information that would be useful for the continued evaluation of the compound

None.

Table 5.34.3 Critical end-points for setting guidance values for exposure to spidoxamat

Absorption, distribution, excretion and metabolism in mammals	
Rate and extent of oral absorption	High (males: 79%; females: 78% administered dose) with T_{max} ≤ 1 hour, but sub-dose proportional over the 1 to 200 mg/kg bw range
Distribution	Widely and rapidly distributed; peak concentrations after 1 hour and overall low to not detectable after 24 hours. Highest levels in bile ducts, liver and kidney
Potential for accumulation	No evidence of accumulation
Rate and extent of excretion	Almost complete (95–103% administered dose) within 48 hours. Predominantly via renal route at 1 mg/kg bw
Metabolism in animals	Cleavage of the dioxolane ring followed by reduction of the ketone moiety to the corresponding alcohol and conjugation to glucuronic acid
Toxicologically significant compounds in animals and plants	Parent compound (spidoxamat), BCS-DG87560, BCS-DG91770, BCS-CN53105 and BCS-DM18479
Acute toxicity	
Rat, LD_{50}, oral	>2000 mg/kg bw

Rat, LD_{50}, dermal	>2000 mg/kg bw
Rat, LC_{50}, inhalation	>2.15 mg/L air/4h (nose only, maximum mean achieved concentration)
Rabbit, dermal irritation	Not irritating
Rabbit, ocular irritation	Not irritating
Mouse, dermal sensitization	Not sensitizing (LLNA)
Short-term studies of toxicity	
Target/critical effect	Urinary tract toxicity associated with precipitation in the urinary tract leading to irritation, hyperplasia and retrograde nephropathy
Lowest relevant oral NOAEL	9.1 mg/kg bw per day (dog)
Lowest relevant dermal NOAEL	No data
Lowest relevant inhalation NOAEC	No data
Long-term studies of toxicity and carcinogenicity	
Target/critical effect	Urinary tract toxicity associated with precipitation in the urinary tract, inflammation and retrograde nephropathy
Lowest relevant NOAEL	30 mg/kg bw per day (rat)
Carcinogenicity	Carcinogenic in mice[a, c]
Genotoxicity	Unlikely to be genotoxic
Reproductive toxicity	
Target/critical effect	Parental toxicity: urinary tract toxicity Reproductive toxicity: no adverse effects Offspring toxicity: no adverse effects
Lowest relevant parental NOAEL	40.7 mg/kg bw per day (rat)
Lowest relevant offspring NOAEL	738 mg/kg bw per day (rat)[b]
Lowest relevant reproductive NOAEL	738 mg/kg bw per day (rat)[b]
Developmental toxicity	
Target/critical effect	No developmental or maternal effects observed at the highest doses
Lowest relevant maternal NOAEL	100 mg/kg bw per day (rat)

Lowest relevant embryo/fetal NOAEL	160 mg/kg bw per day (rabbit)[b]
Neurotoxicity	
Acute neurotoxicity NOAEL	2000 mg/kg bw (rat)[b]
Subchronic neurotoxicity NOAEL	938 mg/kg bw per day (rat)[b, d]
Developmental neurotoxicity NOAEL	No data
Other toxicological studies	
Immunotoxicity	No evidence from routine studies
Endocrine disruption	Not an endocrine disruptor
Studies on toxicologically relevant metabolites	
BCS-CN66620	28-d oral (diet) rat: NOAEL 916 mg/kg bw per day[b] 90-d oral (diet) rat: NOAEL 746 mg/kg bw per day[b] Not genotoxic (Ames, micronucleus *in vitro*)
BCS-DH56414	Not genotoxic (Ames, micronucleus *in vitro*)
BCS-DG87560	Not genotoxic (Ames, micronucleus *in vitro*)
BCS-DG91770	Not genotoxic (Ames, micronucleus *in vitro*)
BCS-DG91779	Not genotoxic (Ames, micronucleus *in vitro*)
BCS-DI13355	Not genotoxic (Ames, micronucleus *in vitro*)
BCS-DI13356	Not genotoxic (Ames, micronucleus *in vitro*)
BCS-CN53105	Not genotoxic (Ames, micronucleus *in vitro*)
BCS-DM18479	Not genotoxic (Ames, micronucleus *in vitro*)
BCS-DI17252	Negative predicted genotoxicity (QSAR)
BCS-DI17253	Negative predicted genotoxicity (QSAR)
BCS-DJ42062	Negative predicted genotoxicity (QSAR)
Microbiological data	No data
Human data	No clinical cases or poisoning incidents have been recorded

Notes:

[a] Unlikely to pose a carcinogenic risk to humans via exposure from the diet.

[b] Highest dose tested.

[c] Mode of action not relevant to humans at levels of exposure anticipated to occur in the diet.

[d] In a combined 90-day toxicity and neurotoxicity in rats.

Table 5.34.4 Summary

	Value	Study	Safety factor
ADI	0–0.7 mg/kg bw[a]	90-day study of toxicity in dogs	13
ARfD	Unnecessary	–	–

Note:
[a] Applies to spidoxamat, BCS-AH92431, BCS-DG87560 and BCS-DG91770, expressed as spidoxamat.

Residue and analytical aspects

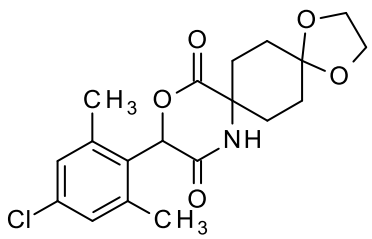
Spidoxamat (IUPAC name: 11-(4-chloro-2,6-dimethylphenyl)12-hydroxy-1,4-dioxa-9-azadispiro-tetradec-11-en-10-one) is a new active ingredient that has not previously been evaluated by the JMPR. It belongs to the ketoenol class of insecticides, subgroup tetramic acids, and is a systemic (xylem and phloem mobile) insecticide which inhibits lipid biosynthesis (acetyl-CoA-carboxylase) in target pests.

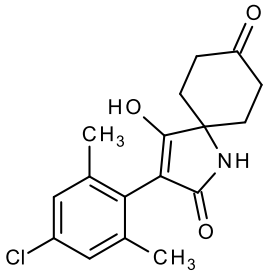
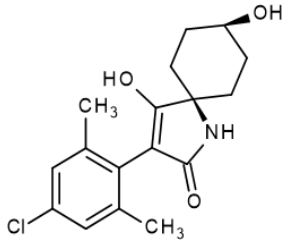
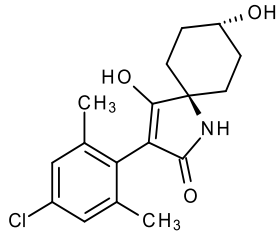
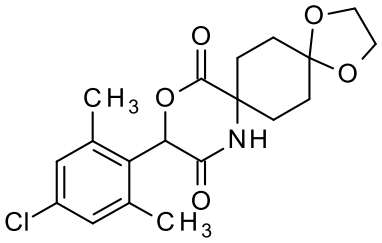
Spidoxamat was scheduled at the 55th Session of the CCPR (2024) for evaluation as a new compound by the 2025 JMPR for toxicology and for residues.

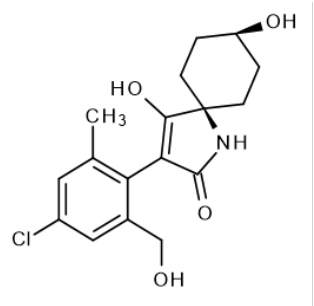
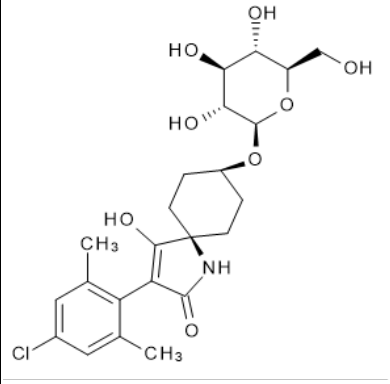
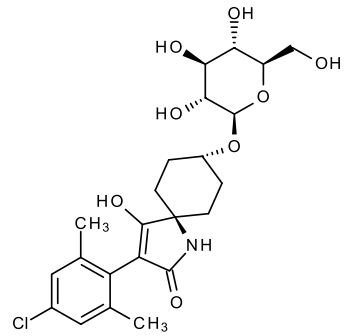
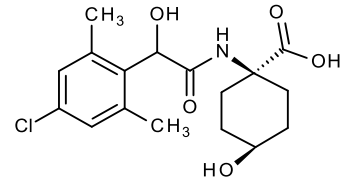
The meeting received information on identity, physical chemical properties, plant and animal metabolism, rotational crops, soil degradation, residue analysis, storage stability, use patterns, residues resulting from supervised trials on citrus fruits, pome fruit, stone fruit, grapes, strawberry, bulb onion, broccoli, cauliflower, head cabbage, cucumber, tomato, peppers, chili peppers, head lettuce, leaf lettuce, soya bean (dry), potato, pecans, and pistachio. The meeting also received information on fate of residues in storage and processing and animal feeding studies.

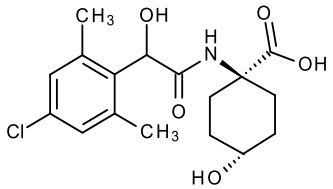
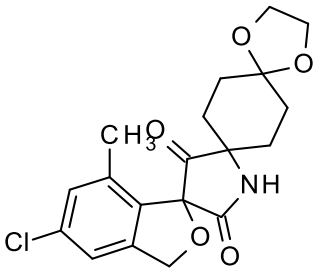
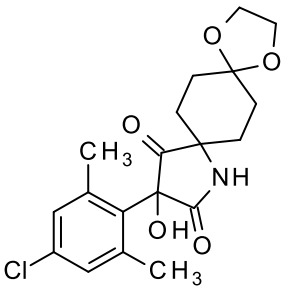
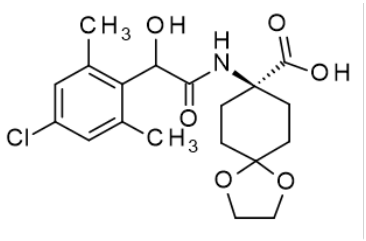
The structures of spidoxamat and its relevant metabolites/degradates are shown in Table 5.34.5.

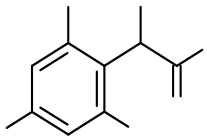
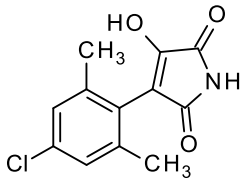
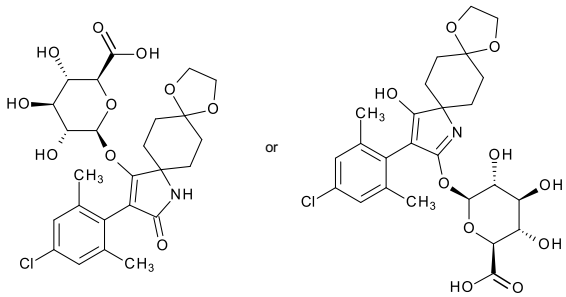
Table 5.34.5 Summary of relevant compounds referred to in the appraisal

Name (code)	Structure
Spidoxamat (BCS-AA10147)	

Name (code)	Structure
Spidoxamat-7-cyclohexylketone (BCS-AH92431)	
Spidoxamat-cyclohydroxy (cis) (BCS-CN66620)	
Spidoxamat-cyclohydroxy (trans) (BCS-DH56414)	
Spidoxamat-amidolactone (BCS-DG91770)	

Name (code)	Structure
Spidoxamat-cyclohydroxy-benzylalcohol (cis) (BCS-DI17253)	
Spidoxamat-cyclohydroxy-gluc (cis) (BCS-DH60611)	
Spidoxamat--cyclohydroxy-gluc (trans) (BCS-DH60608)	
Spidoxamat-cyclohydroxy-MA-amide (cis) (BCS-DI13356)	

Name (code)	Structure
Spidoxamat-cyclohydroxy-MA-amide (trans) (BCS-DI13355)	
Spidoxamat-cyclo-ketohydroxy (BCS-DI17252)	
Spidoxamat-ketohydroxy (BCS-DG91779)	
Spidoxamat-MA-amide (BCS-DG87560)	

Name (code)	Structure
Spidoxamat-mandelic acid-amide (BCS-DM18479)	
Spidoxamat-des-cyclohexylketone (BCS-CN53105)	
Spidoxamat-GA	

Physical and chemical properties

Spidoxamat has low vapour pressure and solubility in water is pH-dependent, high at pH 7 and above, but low in acidic conditions. The Log P_{OW} is 0.7 at pH 7, and the compound is unlikely to sequester in fatty matrices.

Metabolism and environmental fate

The meeting received plant metabolism studies using [phenyl-UL-^{14}C]- or [tetradecene-8-^{14}C]-labelled spidoxamat in primary crops after foliar application (soya bean, apples and potatoes) or after post-emergence drench (tomatoes). Environmental fate studies and rotational crops (wheat, Swiss chard and turnip) were also submitted.

Plant metabolism

Apple – foliar application

In two studies, one with each label, apple trees were grown in containers in a vegetation hall under natural temperature and light conditions but protected from rainfall. ^{14}C-spidoxamat was applied twice at 0.144 kg ai/ha each, at BBCH 57 (pink bud stage) and BBCH 79 (fruit about 90 percent of final size). Fruits and leaves were collected 27 days after the last application (DALA) at maturity (BBCH 87–89).

Most of the total radioactive residues (TRR) was found in the dichloromethane surface wash (85–87 percent TRR, 0.43–0.45 mg eq/kg). Only 12–14 percent TRR (0.063–0.069 mg eq/kg) was found in surface washed fruit.

The total TRR in fruit was 0.50–0.52 mg eq/kg, primarily as spidoxamat (75–76 percent TRR; 0.37–0.40 mg/kg). Six metabolites were also found, and those at ≥10 percent TRR or ≥0.01 mg eq/kg were spidoxamat-7-cyclohexylketone (BCS-AH92431) (9.8–10 percent TRR, 0.049–0.052 mg eq/kg), spidoxamat-cyclohydroxy (cis) (BCS-CN66620) (5.1–6.5 percent TRR, 0.026–0.032 mg eq/kg), and spidoxamat-cyclohydroxy-MA-amide (cis) (BCS-DI13356) (2.2–2.4 percent TRR, 0.012 mg eq/kg).

Soya bean – foliar application

In two studies one with each label, in soya bean plants maintained in containers in a vegetation hall (under natural temperature and light conditions but protected from rainfall), ^{14}C-spidoxamat was applied as 2 foliar treatments of 36 g ai/ha each, at BBCH 13 (trifoliate leaf unfolded on 3rd – 4th node) and BBCH 83 (30 percent of pulses ripened, beans gained final color, are dry and hard). Forage samples were collected at BBCH 49 (13 days after application 1 [DAA1]), hay at BBCH 64–66 (36 DAA1), and straw, pods and seeds at maturity (BBCH 89) (28 DALA).

TRRs reported were highest in forage (0.881–1.122 mg eq/kg), followed by seeds (0.523–0.894 mg eq/kg) and hay (0.421–0.552 mg eq/kg).

Radioactivity released by conventional extraction using 4:1 acetonitrile:water ranged between 84–86 percent TRR, 81–84 percent TRR and 99–99 percent TRR for forage, hay and seeds, respectively. Exhaustive extraction with 1:1 acetonitrile:water with microwave assistance at 120 °C released another 12–13 percent TRR and 13–16 percent TRR for forage and hay, respectively. Post-extraction solids (PES) were not further investigated due to their low amount of radioactivity (<3.4 percent TRR).

Spidoxamat was the major residue in forage and hay, accounting for 60–80 percent TRR (0.25–0.89 mg/kg), and was also a major residue in seeds (21–22 percent of the TRR, 0.11–0.20 mg/kg).

Spidoxamat-cyclohydroxy (cis) (BCS-CN66620) was the main residue found in seed, accounting for 60–61 percent TRR (0.31–0.54 mg eq/kg), and was also found in forage (5.5–6.4 percent TRR, 0.056–0.062 mg/kg) and hay (7.7–8.7 percent TRR, 0.037–0.042 mg eq/kg). Together with its conjugate, spidoxamat-cyclohydroxy-gluc (cis) (BCS-DH60611) accounted for 63.1–64.5 percent TRR in seeds, 5.6–6.6 percent TRR in forage and 8.2–10.4 percent TRR in hay.

Eight minor metabolites (spidoxamat-cyclohydroxy-benzylalcohol (cis) (BCS-DI17253), spidoxamat--cyclohydroxy-gluc (trans) (BCS-DH60608), spidoxamat-cyclohydroxy-MA-amide (cis) (BCS-DI13356), spidoxamat-cyclohydroxy-MA-amide (trans) (BCS-DI13355) and its conjugate spidoxamat-MA-amide (BCS-DG87560), spidoxamat-ketohydroxy (BCS-DG91779), spidoxamat-cyclo-ketohydroxy (BCS-DI17252) and spidoxamat-amidolactone (BCS-DG91770) were identified in forage, hay or seeds, each accounting for less than 6.3 percent of the TRR.

Potato – foliar application

In two studies, one with each label, on potatoes grown in containers in a vegetation hall (under natural light and temperature conditions but protected from rainfall), ^{14}C-spidoxamat was applied as 2 foliar applications of 48 g ai/ha each, at BBCH 15–16 (5th–6th leaf of main stem unfolded) and 9 days later at BBCH 32–33 (beginning of crop cover: 20–30 percent of plants meet between rows). Potato plants were sampled at BBCH 91–93 (88 DALA), and tubers at maturity (BBCH 99, 97 DALA).

The TRR in potato tubers were 0.029–0.039 mg eq/kg. Parent spidoxamat accounted for 12.1–14.9 percent TRR. Spidoxamat-cyclohydroxy-gluc (cis) (BCS-DH60611) was the major metabolite identified in the acetonitrile:water extract of potato tubers, accounting for 76.0–83.0 percent TRR.

Tomatoes – soil drench

In two studies one with each label, on tomato plants grown in containers in a climate chamber, ^{14}C-spidoxamat was applied as 2 soil drench treatments of 0.20 kg ai/ha each to the soil around the tomato plants, at BBCH 15 (5th true leaf unfolded), and 14 days later at BBCH 51–61 (1st-19th inflorescence visible/ first bud erected). Fruits and leaves were collected 65 DALA at maturity (BBCH 74–89).

TRR values were 0.024–0.028 mg eq/kg in fruits and 0.35 mg eq/kg in leaves. The majority of the radioactive residue in fruit (98 percent TRR) was extracted with 4:1 acetonitrile:water.

In fruit, spidoxamat accounted for 10–15 percent TRR (0.003 mg/kg). Five metabolites accounting for over 10 percent of the TRR, were identified: spidoxamat-cyclohydroxy-gluc (cis) (BCS-DH60611) (26–27 percent TRR, 0.006–0.007 mg eq/kg), spidoxamat-cyclohydroxy-benzylalcohol (cis) (BCS-DI17253) 7.4–12 percent TRR (0.002–0.003 mg eq/kg), spidoxamat--cyclohydroxy-gluc (trans) (BCS-DH60608) (10–13 percent TRR (0.003 mg eq/kg), spidoxamat-cyclohydroxy-MA-amide (trans) (BCS-DI13355) (11–12 percent, 0.003 mg eq/kg), and spidoxamat-cyclohydroxy (cis) (BCS-CN66620) (15–19 percent TRR, 0.004–0.005 mg eq/kg).

Summary of plant metabolism

The general metabolic pathway of spidoxamat in apple, soyabean, potato and tomato were similar and occurred through cleavage of the dioxolane ring followed by reduction of the ketone to the cyclohydroxy metabolite, spidoxamat-cyclohydroxy (BCS-CN66620) and its glucose conjugate spidoxamat-cyclohydroxy-gluc (BCS-DH60611).

Environmental fate

The meeting received information on hydrolysis, soil photolysis and soil aerobic metabolism for spidoxamat.

Hydrolysis

Radiolabelled [phenyl-UL-^{14}C]-spidoxamat incubated in the dark in sterile aqueous buffered solutions was stable at pH 7 for 30 days at 50 °C (DT_{50} of >1000 days) and 25 °C at pH 4 (DT_{50} of 42.9 days).

Soil photolysis

The photolytic route and rate of degradation of radiolabelled [tetradecene-8-^{14}C]-spidoxamat was determined in soil samples treated with 810 µg/kg soil dry weight under exposure to simulated sunlight in the laboratory for 15 days at 25 °C.

The experimental DT_{50} value for soil photolysis of spidoxamat was 14 days (irradiated).

The amount of spidoxamat in the soil extracts decreased to 57 percent of the applied radioactivity (AR) in irradiated samples but remained stable at around 96 percent AR in dark samples over the course of the studies. Two degradation products, spidoxamat-MA-amide (BCS-DG87560) (up to 9.9 percent AR, day 10) and spidoxamat-amidolactone (BCS-DG91770 (up to 9.2 percent AR, day 7) were observed in the irradiated samples.

Soil photolysis is moderately fast and may be a route of degradation for spidoxamat in the soil.

Aerobic soil metabolism (laboratory studies)

Aerobic degradation of radiolabelled [phenyl-UL-^{14}C]- or [tetradecene-8-^{14}C]-spidoxamat was investigated in six different soils, for 120 days in the dark at 20 °C. Four soils were treated with 0.8 µg/g soil (dry weight), corresponding to a maximum single field application rate of 300 g spidoxamat/ha, and a futher two soils at or 0.267 µg/g soil (dry weight), corresponding to a maximum single field application rate of 100 g spidoxamat/ha.

Spidoxamat is non-persistent in fresh soil, with DT_{50} values ranging from 1.0 to 18.8 days. Three degradation products were identified with maximum occurrences of over 10 percent AR: BCS-CN53105 at day 30 in one soil, BCS-DG87560 at days 14 to 120 in three soils, and BCS-AH92431 at days 7 to 29 in three soils. A number of additional degradates were detected, however no single component exceeded 5.3 percent AR at any sampling time. Formation of significant amounts of non-extracted residues and carbon dioxide indicated significant mineralization of spidoxamat. Bridging samples at a lower rate of 0.096 µg/g soil (dry weight) showed similar proportions and metabolites.

Rotational crop metabolism

Confined rotational crop studies

The metabolism of spidoxamat was investigated in rotational crops at three plant back intervals (PBI) after application of spidoxamat to bare soil (1x 400 g ai/ha) using [phenyl-UL-^{14}C] and [tetradecene-8-^{14}C]-labelled spidoxamat formulated as an SC formulation. Root crops were represented by turnips, leafy crops by Swiss chard and cereals by wheat, kept mainly in the greenhouse. PBIs were 30, 173–174 and 363–366 days.

TRRs ranged from 0.041 mg eq/kg in turnip roots to 1.60 mg eq/kg in wheat straw at 30 days PBI. All values declined over time, with highest TRRs at PBI 363 DAT remaining in wheat straw (0.135 mg eq/kg) and all other matrices <0.040 mg eq/kg at PI 363–366 DAT. Swiss chard generally had higher TRRs than grain or roots.

Parent spidoxamat was detected in low amounts at 30 days PBI (up to 0.040 mg/kg, 21 percent TRR), with only very low amounts in wheat forage (2.9 percent of TRR, 0.002 mg/kg) and immature Swiss chard leaves (2.3 percent of TRR, 0.003 mg/kg) at the 173–174 days PBI in the [phenyl-UL-^{14}C]-labelled trial, showing extensive metabolism and degradation.

Prominent metabolites at all PBIs were spidoxamat-mandelic acid-amide (BCS-DM18479) (highest in wheat straw, with 0.397 mg eq/kg, 24.8 percent at 30 day PBI declining to 0.019 mg eq/kg, 13.8 percent at 363 day PBI), spidoxamat-cyclohydroxy-MA-amide (cis) (BCS-DI13356) (highest in Swiss chard, mature, with 0.072 mg eq/kg, 15.1 percent TRR, declining to 0.008 mg eq/kg, 21 percent TRR at 363 day PBI) and spidoxamat-cyclohydroxy-MA-amide-glyc (isomer 1 and 2) (highest in wheat hay, with 0.10 mg eq/kg at 30-day PBI, 6.3 percent TRR to 0.015 mg eq/kg, 10.9 percent TRR at 363-day PBI).

Field rotational crop studies

In a series of rotational crop field trials involving two applications onto bare soil of 200 g ai/ha, 5–6 days apart, residues were measured in a number of representative crops planted 24–30 DALA. Spidoxamat and its metabolites spidoxamat-7-cyclohexylketone (BCS-AH92431), spidoxamat-cyclohydroxy (cis) (BCS-CN66620), spidoxamat-cyclohydroxy (trans) (BCS-DH56414), spidoxamat-cyclohydroxy-MA-amide (trans) (BCS-DI13355), spidoxamat-cyclohydroxy-MA-amide (cis) (BCS-DI13356) and spidoxamat-mandelic acid-amide (BCS-DM18479) were determined in all crop matrices using method RF-004-P20-02 with an LOQ for all analytes of 0.01 mg/kg, except for spidoxamat-mandelic acid-amide (BCS-DM18479) (LOQ of 0.025 mg/kg).

Residues of spidoxamat and metabolites in cucumber, strawberry, celery, carrot roots, potato tubers, leaf lettuce, cabbage, broccoli, cereal grain, field pea seed, and soya bean seed samples at harvest were <LOQ at PBIs of 24–30 days, with the exception of spidoxamat-mandelic acid-amide (BCS-DM18479), found at 0.035 mg eq/kg in one celery trial.

For animal feed commodities, residues of parent spidoxamat of 0.013 mg/kg and 0.021 mg/kg were found in one soya bean hay and one pea hay sample, respectively. spidoxamat-cyclohydroxy (cis) (BCS-CN66620) were found at 0.010 mg eq/kg and 0.024 mg eq/kg in the soya bean hay and pea hay sample, respectively. For the sum of spidoxamat-cyclohydroxy (cis) (BCS-CN66620) and its conjugate, spidoxamat-cyclohydroxy-gluc (cis) (BCS-DH60611), residues were 0.028 and 0.013 mg eq/kg in the soya bean and pea hay samples, respectively, and in a wheat hay sample at 0.011 mg eq/kg. A residue of 0.012 mg eq/kg for metabolite spidoxamat-cyclohydroxy-MA-amide (cis) (BCS-DI13356) was found in one soya bean hay sample.

The meeting concluded that while spidoxamat and some metabolites can persist at low levels in soil, particularly at short PBIs, they are generally not taken up by rotational crops at quantified levels in field studies when scaled to the maximum total rate per crop (72 g ai/ha) for annual crops.

Animal metabolism

The meeting received animal metabolism studies with spidoxamat on rats, lactating goats and laying hens. The metabolism of spidoxamat in rats was reviewed in the framework of the toxicological evaluation by the WHO Core Assessment Group of the 2025 JMPR.

Lactating goats

Lactating goats were administered daily doses in gelatine capsules over five days of [phenyl-UL-^{14}C] or [tetradecene-8-^{14}C]-labelled spidoxamat at rates equivalent to 18–20 ppm in dry feed in the morning after milking and were sacrificed approximately 6 hours after the last dose.

Most of the radioactivity was recovered in the excreta, with 39–46 percent of the administered dose (AD) excreted with faeces and 43– 45 percent with urine. A further 11 percent AD was present in the gastrointestinal tract at sacrifice.

The radioactivity recovered in milk and tissues was low, each accounting for ≤0.54 percent AD. Analysis of milk cream and skimmed milk showed no quantified radioactivity in cream.

Radioactivity plateaued in milk at around 2 days after the first dose, at 0.0035–0.00356 mg eq/kg. The highest radioactivities were observed in liver (0.314 to 0.646 mg eq/kg), followed by kidney (0.384–0.561 mg eq/kg), muscle (0.017–0.022 mg eq/kg), and fat (0.013– 0.017 mg eq/kg).

Residues were efficiently extracted (>98 percent) from milk and tissues using 4:1 acetonitrile:water.

Spidoxamat was the main residue in all matrices, accounting for 69.4–70.9 percent (0.003 mg/kg) of the TRR in milk, 82.4–86.5 percent (0.014–0.019 mg/kg) of the TRR in muscle, 74.9–75.6 percent (0.010 mg/kg) of the TRR in fat, 59.9–62.6 percent (0.197–0.387 mg/kg) of the TRR in liver, and 72.9–74.1 percent (0.284–0.409 mg/kg) of the TRR in kidney.

Spidoxamat-cyclohydroxy (cis) (BCS-CN66620) was a main compound in liver (0.048– 0.076 mg eq/kg, 11.7–15.2 percent TRR), kidney (0.048–0.077 mg eq/kg, 12.6–13.7 percent TRR), milk (0.001 mg eq/kg, 13.5–14.5 percent TRR), and fat (0.002 mg eq/kg, 14.6–14.8 percent TRR), and was also found in muscle (0.001–0.002 mg eq/kg, 6.2–10.0 percent TRR).

Spidoxamat-cyclohydroxy (trans) (BCS-DH56414) was found at 0.028–0.044 mg eq/kg (7.2–7.8 percent TRR) in kidney, 0.010–0.023 mg eq/kg (3.3–3.6 percent TRR) in liver, 0.001 mg eq/kg (5.5–7.6 percent of the TRR) in muscle, and 0.001 mg eq/kg (5.7–6.2 percent of the TRR) in fat.

Spidoxamat-7-cyclohexylketone (BCS-AH92431) was found at 0.013–0.061 mg eq/kg (4.2–9.5 percent TRR) in liver, 0.001 mg eq/kg (5.5–7.6 percent TRR) in muscle, 0.013–0.017 mg eq/kg (3.1–3.3 percent TRR) in kidney and 0.001 mg eq/kg (4.1 percent TRR) in fat.

Spidoxamat-GA was found at 6.8–11.6 percent TRR (0.021–0.075 mg eq/kg) in liver, and 1.6–1.8 percent TRR (0.006–0.010 mg eq/kg) in kidney.

Laying hens

Laying hens were administered daily doses of [phenyl-UL-^{14}C]- or [tetradecene-8-^{14}C]-labelled spidoxamat by gavage for 14 days at doses equivalent to 17.1–18.1 ppm in dry feed in the morning and were sacrificed approximately 6 hours after the last dose. Eggs were collected once daily.

Between 90–95 percent AD was recovered from the excreta and 0.02–0.03 percent AD was measured in the eggs. At sacrifice, radioactive residues in the tissues dissected from the body were calculated or estimated to be about 0.13 percent AD.

Radioactivity plateaued in egg whites at 0.008–0.010 mg eq/kg at day 5–9, and egg yolks at 0.031 mg eq/kg at day 8–9. TRRs were 0.13–0.14 mg eq/kg in liver, 0.023–0.024 mg eq/kg in muscle (composite of leg and breast muscle), and 0.009–0.010 mg eq/kg in body fat (composite of subcutaneous and omental fat).

Solvent extractions (4:1 acetonitrile:water) released >87 percent TRR in eggs and tissues.

Parent spidoxamat was found in all matrices, and was the predominant residue in egg white (60 percent TRR, 0.006 mg/kg), with 17–25 percent TRR in muscle (0.005–0.006 mg/kg), liver (0.027–0.030 mg/kg) and fat (0.002 mg/kg) and 5.9–7.7 percent TRR (0.002 mg/kg) in egg yolk.

Spidoxamat-cyclohydroxy (cis) (BCS-CN66620) was found in all matrices tested, accounting for 39 percent TRR (0.004 mg eq/kg) in egg white, and 45–67 percent TRR in other tissues (0.014–0.020 mg eq/kg in egg yolk, 0.013–0.015 mg eq/kg in muscle, 0.086–0.088 mg eq/kg in liver and 0.004 –0.006 mg eq/kg in fat).

pidoxamat-cyclohydroxy (trans) (BCS-DH56414) was detected in all tissues except egg white, in fat at 23–31 percent TRR (0.002–0.003 mg eq/kg), egg yolk at 8.5–13 percent TRR (0.003–0.004 mg eq/kg), muscle at 7.4–12 percent TRR (0.002–0.003 mg eq/kg) and in liver at 4.3–4.4 percent (0.006 mg eq/kg).

pidoxamat-7-cyclohexylketone (BCS-AH92431) was detected in egg yolk at 19.1 percent TRR (0.006 mg eq/kg) and in fat at 2.3 percent TRR (0.003 mg eq/kg).

Summary of animal metabolism

In summary, residues of spidoxamat were present in all tissues, milk and eggs, with highest levels at 0.40 mg/kg in goat kidney and 0.03 mg/kg hen liver.

Goat and hen metabolism was based on cleavage of the dioxolane ring leading to the formation of the metabolite spidoxamat-7-cyclohexylketone (BCS-AH92431). In a successive step, the cyclohexylketone was reduced to an alcohol resulting in spidoxamat-cyclohydroxy (cis) (BCS-CN66620) and spidoxamat-cyclohydroxy (trans) (BCS-DH56414).

In goats, this was followed with conjugation with glucuronic acid at the pyrrolidine ring leading to spidoxamat-GA. In hens, this was followed by cleavage of the cyclohexyl moiety followed by oxidation, leading to spidoxamat-des-cyclohexylketone (BCS-CN53105).

Methods of residue analysis

The meeting received descriptions and validation data for three similar analytical methods, RF-004-P20-01 (and its extension RF-010-P22-01), RF-004-P20-02 and RF-007-P21-01, capable of quantifying residues of spidoxamat and the metabolites spidoxamat-cyclohexylketone (BCS-AH92431), spidoxamat-cyclohydroxy (cis) (BCS-CN66620), spidoxamat-cyclohydroxy (trans)(BCS-DH56414), spidoxamat-cyclohydroxy-MA-amide (cis) (BCS-DI13356), spidoxamat-cyclohydroxy-MA-amide (trans) (BCS-DI13355), spidoxamat-cyclohydroxy-gluc (cis) (BCS-DH60611) and spidoxamat-cyclohydroxy-gluc (trans) (BCS-DH60608) in diverse plant matrices. Method RF-004-P20-02 additionally quantified spidoxamat-mandelic acid-amide (BCS-DM18479). Samples were extracted with acetonitrile:water (4:1). For the analysis of the conjugates, an additional hydrolysis step is performed using 6 mol/L HCl at 100 ºC in order to hydrolyse the pair of glycosides to their hydroxyl forms and analysed as the aglycon. After dilution, the samples are analysed by LC-MS/MS.

Radiovalidation data were provided for the Method RF-004-P20-01 to investigate extraction efficiency using incurred radioactive residues in primary and rotational crops. The total extraction efficiencies were sufficient for each of the analytes without the hydrolysis step (71.1–114.0 percent). For the conjugates, an increase of the aglycon could be determined after the hydrolysis step, but no conclusion on extraction efficiency could be made from the radiovalidation study. Radiovalidation data were also provided for extraction in acetonitrile:water using QuEChERS salts in the plant metabolism studies. Extraction efficiency was sufficent for parent spidoxamat in soya bean (all matrices), tomato and apple, but not potato tubers.

The methods were satisfactorily validated at LOQ of 0.01 mg/kg, except for spidoxamat-mandelic acid-amide (BCS-DM18479) with an LOQ of 0.025 mg /kg, for all tested plant matrices (high protein, high oil, high acid, high water and high starch content commodities).

For animal matrices, Method RF-006-A21-01 is suitable for the analysis of spidoxamat and its metabolites spidoxamat-7-cyclohexylketone (BCS-AH92431), spidoxamat-cyclohydroxy (cis) (BCS-CN66620) and spidoxamat-cyclohydroxy (trans) (BCS-DH56414) in poultry (muscle and eggs) and cattle (muscle, liver, kidney, fat, cream and milk). The LOQ for each analyte was 0.01 mg/kg.

The meeting concluded that the methods provided were suitable and sufficiently validated.

Stability of pesticide residues in stored analytical samples

The meeting received information on the stability of residues of spidoxamat and its metabolites in representative plant commodities with high water (tomato fruit and wheat forage), high starch (wheat grain), high oil (soybean seed), high protein (dry lima bean), and high acid (orange), stored at freezer temperatures of –18 °C. These studies demonstrated a storage stability of at least 24 months, except for the metabolite spidoxamat-cyclohydroxy-MA-amide (cis) (BCS-DI13356 in high acid commodities (orange), which was stable for up to 19 months.

The meeting agreed that the demonstrated storage stability on various representative plant commodities covered the residue sample storage intervals used in the field trials considered by the meeting.

No specific storage stability studies were provided for animal commodities. All samples from the livestock feeding studies were analysed within 30 days.

Definition of the residue

Plant commodities

In the plant metabolism studies after foliar application, parent spidoxamat was found in apple (75–76 percent TRR), soya bean seed (21–22 percent TRR), and potato tubers (12–15 percent TRR). In tomato fruits 65 days after soil drench treatment, parent compound was present in similar amounts to five other metabolites (10–15 percent TRR). In soya bean animal feed commodities, parent spidoxamat was the main residue (70–80 percent TRR in forage, 60–65 percent TRR in hay).

Spidoxamat was found at quantified levels in almost all of the supervised residue field trials at the proposed field application rates, as well as processing studies at exaggerated rates. While parent spidoxamat was found at low levels in confined rotational crop trials at exaggerated rates with short PBIs, it was rarely found in rotational field trials at exaggerated rates.

As spidoxamat is found in all primary crop commodities tested in the metabolism studies and was the main residue found in the supervised field trials, it is considered a suitable marker compound. The meeting noted that suitable analytical methods exist to measure spidoxamat in plant commodities. The meeting decided to define the residue for compliance with the MRL as *spidoxamat*.

In deciding which compounds should be included in the residue definition for dietary intake, the meeting considered the likely occurrence of the compound and toxicological properties of spidoxamat and its metabolites.

The meeting concluded metabolites spidoxamat-cyclohydroxy (cis) (BCS-CN66620), its isomer spidoxamat-cyclohydroxy (trans) (BCS-DH56414), as well as spidoxamat-cyclohydroxy-MA-amide (cis) (BCS-DI13356) and spidoxamat-cyclohydroxy-MA-amide (trans) (BCS-DI13355), are not toxicologically relevant, and therefore do not need to be included in the dietary exposure residue definition.

Parent spidoxamat alone covered 87–100 percent of the expected exposure to compounds covered by the HBGV of the parent compound in the metabolism studies.

<u>Spidoxamat-7-cyclohexylketone (BCS-AH92431)</u> was found in apple fruit in the metabolism studies (0.049–0.052 mg eq/kg, 9.8–10 percent TRR), and was only found in a small number of samples in the supervised field trials, up to 6.7 percent of parent in one grape sample. It was the main degradate found in hydrolysis studies simulating processing, and in processing studies, with residues found in apple sauce, dried plum, and some processed commodities of grapes and tomato. The highest level found was 0.83 mg eq/kg (280 percent of parent) in raisin at the exaggerated rate (4x).

The meeting did not have sufficient time to conclude on the definition of the residue for estimation of dietary intake.

Animal commodities

Residues of spidoxamat were present in all tissues including milk and eggs in the metabolism studies, from 60–87 percent TRR in all tissues and milk from goat, and up to 61 percent TRR in all tissues and eggs from hens.

The meeting noted that suitable enforcement methods exist to measure spidoxamat residues in animal commodities.

Spidoxamat is therefore a suitable marker compound and the meeting decided to define the residue for compliance with the MRL in animal commodities as *spidoxamat.*

In deciding which compounds should be included in the residue definition for dietary intake, the meeting considered the likely occurrence of the compound and its toxicological properties for compounds found at greater than 10 percent of the parent and more than 0.01 mg eq/kg in animal tissues in the metabolism studies.

The meeting concluded that spidoxamat-cyclohydroxy (cis) (BCS-CN66620)and its trans isomer BCS-DH56414 are not toxicologically relevant.

The metabolism studies using the [phenyl-^{14}C]-labelled spidoxamat showed that parent spidoxamat accounted for 84–100 percent of the toxicity in all animal matrices tested. The [tetradecene-8-^{14}C] label showed that parent accounted for 74–100 percent of the expected exposure to metabolites covered by the HBGV of the parent compound, except for egg yolk, which was only 24 percent. There were no label specific metabolites observed in the metabolism studies.

The conjugate spidoxamat-GA was characterized in goat liver from the metabolism study, but was not found in the hen metabolism study, and spidoxamat-7-cyclohexylketone (BCS-AH92431) was found in goat liver and egg yolk at 9.5 percent of TRR in the metabolism study, but not found in the feeding studies.

BCS-CN53105 was found in egg yolk at 9.3–11.2 percent (0.003 mg eq/kg) of the TRR. It was not found in the hen feeding study at any dose tested. The meeting concluded that BCS-CN53105 is not covered by the HBGV of spidoxamat and should be assessed under TTC as a Cramer class III compound for long-term (1.5 µg/kg bw/day) dietary intake.

The meeting noted that octanol/water partition co-efficient is pH dependent (Log P_{OW} 2.7 at pH 4, 0.7 at pH 7, 1.1 at pH 9) and it is unlikely to sequester in fatty matrices. Information from the animal metabolism studies indicates that spidoxamat residues are not higher in fat than muscle. In the feeding studies, spidoxamat was similarly lower in cream than milk. The meeting therefore considers the residue is not fat soluble.

The meeting recommended the following residue definitions for spidoxamat.

Definition of the residue for compliance with the MRL for plant and animal commodities: *spidoxamat.*

The meeting did not have sufficient time to conclude on the definition of the residue for estimation of dietary intake.

The residue is not fat soluble.

Results of supervised residue trials on crops

Supervised trials were available for the outdoor use of spidoxamat on citrus fruit, pome fruit, stone fruit, grapes, strawberry, bulb onion, broccoli, head cabbage, cauliflower, tomato, peppers, chili peppers, leaf lettuce, head lettuce, soya bean, dry, potato, pecans, and pistachio, applied as foliar treatments. These trials were conducted in the United States, Cambodia, Thailand, and Brazil. A product label from Cambodia was provided to the meeting.

Citrus fruits

The GAP for lemon, lime, mandarins, orange, and grapefruits from Cambodia is 2 applications each at 144 g ai/ha, with a 10-day retreatment interval (RTI) and a PHI of 1 day.

Lemon

Sixteen trials in lemon (whole fruit) conducted in the United States, Cambodia and Thailand approximated the Cambodian GAP (RTI 8–11 days) were provided.

Residues of spidoxamat in lemon (whole fruit) were (n = 16): 0.012, 0.020, 0.029, 0.05, 0.12, 0.12, 0.17, 0.19, 0.22, 0.22, 0.24, 0.25, 0.27, 0.33, 0.35, 0.55 mg/kg.

The meeting estimated a maximum residue level of 0.8 mg/kg for lemon (whole fruit).

As the GAP for lime is identical to lemon, the meeting decided to extrapolate this estimation to lime.

Subgroup of mandarins

Four trials conducted in the United States approximating Cambodian GAP (RTI 8–11 days) were provided.

Residues of spidoxamat in independent trials in mandarin (whole fruit) were (n = 4): 0.097, 0.14, 0.20, 0.30 mg/kg.

As an insufficient number of trials were provided for mandarins, the meeting did not estimated a maximum residue level based on the mandarin trial data alone. As the Mann-Whitney test showed that mandarin and lemon residue populations were not statistically different, and the medians were within a five-fold difference, the meeting agreed to use the lemon data for mutual support to estimate an maximum residue level for mandarin.

Residues of spidoxamat in independent trials in mandarin and lemon were (n = 20): 0.022, 0.030, 0.039, 0.060, 0.097, 0.13, 0.13, 0.14, 0.18, 0.20, 0.20, 0.23, 0.24, 0.24, 0.26, 0.28, 0.30, 0.34, 0.36, 0.56 mg/kg.

The meeting estimated a maximum residue level of 0.8 mg/kg for spidoxamat in the subgroup of Mandarins (including Mandarin-like hybrids).

Subgroup of oranges, sweet, sour

Twenty trials conducted in the United States, Cambodia and Thailand approximating the Cambodian GAP (RTI 8–11 days) were provided.

Residues of spidoxamat in independent trials in oranges (whole fruit) were (n = 20): 0.063, 0.069, 0.093, 0.10, 0.10, 0.10, 0.12, 0.16, 0.16, 0.17, 0.19, 0.20, 0.21, 0.22, 0.23, 0.26, 0.29, 0.35, 0.38, 0.39 mg/kg.

The meeting estimated a maximum residue level of 0.6 mg/kg and a median of 0.16 mg/kg for spidoxamat in Subgroup of oranges, sweet, sour.

Subgroup of pummelo and grapefruits

Eight trials conducted in the United States approximating the Cambodian GAP (RTI 8–11 days) were provided.

Residues of spidoxamat in independent trials in grapefruit (whole fruit) were (n = 8): 0.015, 0.084, 0.095, 0.098, 0.13, 0.14, 0.16, 0.19 mg/kg.

The meeting estimated a maximum residue level of 0.4 mg/kg for spidoxamat in the Subgroup of pummelo and grapefruits.

Apple and pears

The GAP for apple and pears from Cambodia is 2 applications each at 108 g ai/ha, with a 10-day RTI and a PHI of 14 days.

Sixteen trials conducted with apples in the United States approximating the Cambodian GAP (RTI 8–11 days) were provided.

Residues of spidoxamat in apples were (n = 16): 0.018, 0.021, 0.035, 0.045, 0.047, 0.048, 0.049, 0.052, 0.054, 0.056, 0.062, 0.064, 0.080, 0.091, 0.13, 0.20 mg/kg.

The meeting estimated a maximum residue level of 0.3 mg/kg and a median of 0.053 mg/kg for spidoxamate in apple.

Eight trials conducted in pears in the United States approximating the Cambodian GAP (RTI 8–11 days) were provided.

Residues of spidoxamat in pears were (n = 8): 0.010, 0.031, 0.061, 0.062, 0.062, 0.087, 0.10, 0.14 mg/kg.

The meeting estimated a maximum residue level of 0.3 mg/kg mg/kg for spidoxamat in pear.

Stone fruits

The GAP for cherry, plum, nectarines and apricots in Cambodia is 2 applications each at 108 g ai/ha, with a 10-day RTI and a PHI of 14 days.

Subgroup of cherries

Nine independent trials on sweet and sour cherries conducted in the United States approximating the Cambodian GAP (RTI 8–10 days, PHI 13–14 days) were provided.

Residues of spidoxamat in cherries (without stone) (n = 9): 0.09, 0.091, 0.217, 0.229, 0.268, 0.31, 0.376, 0.404, 0.564 mg/kg.

The meeting estimated a maximum residue level of 0.9 mg/kg for spidoxamat in the Subgroup of Cherries.

Plum

In eight independent trials on plums (without stone) conducted in the United States approximating the Cambodian GAP residues of spidoxamat were (n = 8): 0.026, 0.044, 0.053, 0.069, 0.086, 0.10, 0.12, 0.14 mg/kg.

The meeting estimated a maximum residue level of 0.3 mg/kg for spidoxamat in plum.

Subgroup of peaches (including nectarines and apricots)

In peaches (without stone), residues of spidoxamat in eight independent trials approximating the Cambodian GAP (RTI from 9–10 days) were (n = 8): 0.056, 0.093, 0.161, 0.17, 0.171, 0.201, 0.28, 0.398 mg/kg (median 0.171 mg/kg).

In nectarines (without stone), residues of spidoxamat in four independent trials approximating the GAP (RTI 9–10 days), were (n = 4): 0.102, 0.114, 0.154, 0.159 mg/kg (median 0.134 mg/kg).

In apricot (without stone), residues of spidoxamat in four independent trials approximating the GAP (RTI 8–10 days, PHI 12–14 days) were (n = 4): 0.098, 0.13, 0.31, 1.49 mg/kg (median 0.22 mg/kg).

As the medians were within a five-fold difference, and were not significantly different using a Kruskal Wallis test, the datasets were combined.

Residues of spidoxamat on peaches, nectarines and apricots (without stone) were (n = 16): 0.056, 0.093, 0.098, 0.10, 0.11, 0.13, 0.15, 0.16, 0.16, 0.17, 0.17, 0.20, 0.28, 0.31, 0.40, 1.49 mg/kg.

The meeting estimated a maximum residue level of 2 mg/kg for spidoxamat in the Subgroup of peaches (including nectarines and apricots).

Grapes

The GAP for grapes in Cambodia is 2 applications each at 108 g ai/ha, with a 10-day RTI and a PHI of 7 days.

Seventeen independent trials on grapes conducted in the United States accoring to the GAP were provided.

Residues of spidoxamat were (n = 17): 0.054, 0.081, 0.20, 0.23, 0.26, 0.26, 0.27, 0.27, 0.28, 0.28, 0.35, 0.36, 0.37, 0.38, 0.40, 0.65, 0.68 mg/kg.

The meeting estimated a maximum residue level of 1 mg/kg and a median of 0.28 mg/kg for spidoxamat in grape.

Strawberries

The critical GAP for strawberries is from Cambodia and consists of 2 applications each at 36 g ai/ha, with a 10-day RTI and a PHI of 1 day.

Eight independent trials on strawberries conducted in the United States according to GAP were provided.

Residues of spidoxamat were (n = 8): <0.010, 0.015, 0.046, 0.053, 0.072, 0.076, 0.093 and 0.15 mg/kg.

The meeting estimated a maximum residue level of 0.3 mg/kg for spidoxamat in strawberry.

Onion, bulb

The GAP for onion, bulb i from Cambodia is 2 applications each at 36 g ai/ha, with a 7-day RTI and a PHI of 7 days.

Sixteen independent trials conducted in the United States, Thailand and Cambodia according to GAP were provided.

Residues of spidoxamat were (n = 16): < 0.01 (13), 0.011, 0.024, 0.032 mg/kg.

The meeting estimated a maximum residue level of 0.04 mg/kg for spidoxamat in onion, bulb.

Broccoli

The GAP for broccoli from Cambodia is 2 applications each at 36 g ai/ha, with a 7-day RTI and a PHI of 7 days.

Eight independent trials with broccoli conducted in the United States approximating the GAP (RTI 6–7 days, PHI 5–7 days) were provided.

Residues of spidoxamat were (n = 8): <0.01, 0.026, 0.051, 0.099, 0.17, 0.26, 0.37, 0.60 mg/kg.

The meeting estimated a maximum residue level of 1 mg/kg for spidoxamat in broccoli.

Cabbage, head

The GAP for cabbage from Cambodia is 2 applications each at 36 g ai/ha, with a 7-day RTI and a PHI of 7 days.

Eight independent trials in head cabbage conducted in the United States approximating the GAP (RTI 6–7 days, PHI 6–7 days) were provided.

Residues of spidoxamat in cabbage (with wrapper leaves) were (n = 8): <0.01, <0.01, 0.012, 0.016, 0.037, 0.080, 0.12, 0.46 mg/kg.

The meeting estimated a maximum residue level of 0.7 mg/kg for spidoxamat in head cabbage.

Cauliflower
The GAP for cauliflower from Cambodia is 2 applications each at 36 g ai/ha, with a 7-day RTI and a PHI of 7 days.

Eight independent trials in cauliflower conducted in the United States according to GAP were provided.

Residues of spidoxamat were (n = 8): <0.01, <0.01, 0.026, 0.032, 0.12, 0.14, 0.14, 0.15 mg/kg.

The meeting estimated a maximum residue level of 0.4 mg/kg for spidoxamat in cauliflower.

Cucumber
The GAP for cucumber from Cambodia is 2 applications each at 36 g ai/ha, with a 7-day RTI and a PHI of 1 day.

Eight independent trials in cucumber conducted in the United States according to GAP were provided.

Residues of spidoxamat were (n = 8): <0.01 (5), 0.011, 0.021, 0.022 mg/kg.

The meeting estimated a maximum residue level of 0.04 mg/kg for spidoxamat in cucumber.

Tomato
The GAP for tomato from Cambodia is 2 applications each at 36 g ai/ha, with a 7-day RTI and a PHI of 1 day.

Twenty four independent trials in tomato, including 3 trials in cherry tomato (CT), conducted in the United States, Thailand and Cambodia according to GAP were provided.

Residues of spidoxamat were (n = 24): <0.01, 0.011, 0.011, 0.013, 0.016, 0.016, 0.019, 0.020, 0.021, 0.024, 0.026, 0.027, 0.028, 0.032^{CT}, 0.033, 0.034, 0.036^{CT}, 0.036, 0.037, 0.041, 0.045, 0.050, 0.072^{CT}, 0.15 mg/kg.

The meeting estimated a maximum residue level of 0.15 mg/kg and a median of 1 mg/kg for spidoxamat in tomato. The meeting decided to extrapolate this estimation to cherry tomato.

Peppers, sweet
The GAP for sweet pepper from Cambodia is 2 applications each at 36 g ai/ha, with a 7-day RTI and a PHI of 1 day.

Twelve independent trials in sweet pepper conducted in the United States, Thailand and Cambodia according to GAP were provided.

Residues of spidoxamat were (n = 12): 0.024, 0.030, 0.035, 0.043, 0.046, 0.050, 0.053, 0.066, 0.070, 0.094, 0.097, 0.10 mg/kg.

The meeting estimated a maximum residue level of 0.2 mg/kg for indoxamat in sweet pepper.

Lettuce

The GAP for lettuce (head, leaf, Cos) from Cambodia is 2 applications each at 36 g ai/ha, with a 7-day RTI and a PHI of 1 day.

Head lettuce

Nine independent trials in head lettuce conducted in the United States and Thailand according to GAP were provided. Residues of spidoxamat were (n = 9): <0.01 (4), 0.010, 0.042, 0.049, 0.15, 0.30 mg/kg.

The meeting estimated a maximum residue level of 0.5 mg/kg for spidoxamat in head lettuce.

Leaf lettuce

Fourteen independent trials in leaf lettuce (without wrapper) conducted in the United States, Cambodia and Thailand according to GAP were provided. Residues of spidoxamat were (n = 14): 0.01 (6), 0.027, 0.072, 0.092, 0.25, 0.26, 0.27, 0.35, 3.7 mg/kg.

The meeting estimated a maximum residue level of 5 mg/kg for spidoxamat in leaf lettuce.

Cos lettuce

One trial in Cos lettuce, without wrapper leaves, conducted according to GAP was provided, giving residues of <0.01 mg/kg.

The meeting did not estimate a maximum residue level for Cos lettuce as one trial was not sufficient.

Soya bean seed (dry)

The GAP for soya bean from Cambodia and consists of 3 applications each at 24 g ai/ha, with a 7-day RTI and a PHI of 14 days.

Ten trials in soya bean conducted in Brazil according to GAP were provided. Residues were (n = 10): 0.01, 0.01, 0.013, 0.023, 0.032, 0.068, 0.091, 0.17, 0.29, 0.73 mg/kg.

The meeting estimated a maximum residue level of 1 mg/kg and a median of 1 mg/kg for spidoxamat in soya bean seed (dry).

Potato

The GAP for potatoes from Cambodia is 2 applications each at 36 g ai/ha, with a 7-day retreatment interval and a PHI of 7 days.

Twenty four independent trials conducted in potato tubers in the United States, Cambodia and Thailand according to GAP were provided. American trials were conducted with surfactant.

Residues of spidoxamat were (n = 24): <0.01 (6), 0.010, 0.011 (2), 0.013, 0.014, 0.017, 0.020 (2), 0.028, 0.032, 0.034 (2), 0.037, 0.048, 0.050, 0.052, 0.063, 0.066 mg/kg.

The meeting estimated a maximum residue level of 0.1 mg/kg and a median of 0.018 mg/kg for spidoxamat in potato.

Pecan

The critical GAP for pecan from Cambodia is 2 applications each at 108 g ai/ha in 2000 L water/ha, with a 10-day RTI and a PHI of 14 days.

Five trials in pecan nuts conducted in the United States according to the GAP (RTI 12–14 days) were provided.

Residues of spidoxamat were (n = 5): <0.01 (5) mg/kg.

The meeting estimated a maximum residue level of 0.01* mg/kg for spidoxamate in pecan nuts.

Pistachio

The critical GAP for pistachio from Cambodia is 2 applications each at 108 g ai/ha in 2000 L water/ha, with a 10-day RTI and a PHI of 14 days.

Three independent trials in pistachio nuts conducted in the United States according to GAP (RTI ranging from 13 to 14 days) were provided. Residues of spidoxamat were (n = 3): 0.091, 0.245, 0.426 mg/kg.

The meeting did not estimate a maximum residue level for pistachio as three trials were not sufficient.

Fate of residues during processing

Spidoxamat was shown to be moderately to strongly degraded to the metabolite BCS-AH92431 under conditions simulating pasteurization, baking, brewing, boiling and sterilization. Spidoxamat accounted for 47.5–51.6 percent AR (pasteurization), 51.6–54.4 percent AR (baking, brewing and boiling) and 89.8–89.9 percent AR (sterilization). SBCS-AH92431 accounted for the remaining radioactivity.

In a separate study, the spidoxamat-cyclohydroxy-MA-amide isomers BCSDI13355 and BCS-DI13356 largely remained unchanged under simulated processing conditions, accounting for 99.0–99. 6 percent AR.

The fate of spidoxamat residues has been examined in a number of studies simulating commercial processing of oranges, apple, plum, grape, tomato, soya bean and potato, and estimated processing factors are presented in the evaluation. Values used to estimate maximum residue levels values for the processed food or feed commodities are summarized in Table 5.34.6.

The meeting could not calculate processing factors for estimation of dietary intake as the meeting did not have sufficient time to conclude on the definition of the residue for estimation of dietary intake for plant commodities.

Table 5.34.6 Processing factor (PF) and maximum residue level and median for processed food and feed commodities considered at the meeting

Raw commodity (maximum residue level/median)[b]	Processed commodity	Individual PF[a]	Median or best estimate PF	Median residue (mg/kg)	Maximum residue level (mg/kg)
Orange (0.6 /0.18 mg/kg)	Pulp dry	0.63, 1.30	0.97	0.174	–
Apple (0.3 /0.053 mg/kg)	Pomace, wet	1.59, 2.15,	1.87	0.099	–
	Pomace, dry	Calculated[b]	–	–	1.5
Grapes (1 /0.28 mg/kg)	Pomace, wet	1.02, 3.38, 1.51, 1.78	1.92	0.54	–
	Pomace, dry	Calculated[c]	–	–	7
	Wine – white	0.18, 0.6	0.39	–	–
	Wine – red	0.42, 2.70	1.56	–	2
Tomatoes (0.15/0.028 mg/kg)	Dried fruit	3.14, 3.79	3.46	0.097	0.6
	Pomace, wet	0.64, 1.03	0.84	0.0234	–
	Pomace, dry	Calculated[d]	–	–	0.7
Soya bean (1/0.05 mg/kg)	AGF	317, 546	431	21.59	
	Hulls	3.67, 5.31	4.49	0.224	5
	Toasted meal	0.42, 0.8	0.61	0.0305	–
Potato (0.1/0.018 mg/kg)	Process waste	<0.67, 0.16	0.42	0.00746	–
	Pulp, dry	1.24, 1.47	1.35	0.0243	–
	Flakes	3.33, 4.00	3.67	–	0.4

Notes: AGF: aspired grain fraction.

[a] Each value represents a separate study where residues were above the LOQ in the RAC. The factor is the ratio of spidoxamat residues in the processed item divided by the residue of spidoxamat in the RAC.

[b] The conversion factor used to estimate the dry apple pomace maximum residue level from wet pomace was 2.5 (based on 100 percent DM), assuming 40 percent dry matter in the wet pomace.

[c] The conversion factor used to estimate the dry grape pomace maximum residue level from wet pomace was 6.667 (based on 100 percent DM), assuming 15 percent dry matter in the wet pomace.

[d] The conversion factor used to estimate the dry tomato pomace maximum residue level from wet pomace was 5 (based on 100 percent DM), assuming 20 percent dry matter in the wet pomace.

Using the estimated maximum residue level of 0.3 mg/kg for apple and the processing factor of 1.87 for wet pomace and a conversion factor of 2.5 to adjust for dry matter, the meeting estimated a maximum residue level of spidoxamat of 1.5 mg/kg in apple pomace, dried (AB 0226).

Using the estimated maximum residue level of 1 mg/kg for grape and the processing factor of 1.56 and 1.92 (with a conversion factor of 6.667 from wet pomace to account for dry matter), the meeting estimated a maximum residue level of 2 mg/kg in wine (FB 0269) and of 7 mg/kg in grape, pomace dry.

Using the estimated maximum residue level of 0.15 mg/kg in tomato and the processing factor of 3.46 and0.84 (with a conversion factor of 5 from wet pomace to account for dry matter), the meeting estimated a maximum residue level of 0.6 mg/kg in tomato, dried (DV 0448) and of 0.7 mg/kg in tomato pomace, dried (DM 3525).

Using the estimated maximum residue level of 1 mg/kg in soyabean and the processing factor of 4.49, the meeting estimated maximum residue levels of 5 mg/kg in soya bean hulls (AL 3538).

Using the estimated maximum residue level of 0.1 mg/kg in potato and the processing factor of 3.67, the meeting estimated a maximum residue level of 0.4 mg/kg in potato, flakes/granules (DV 0589).

Residues in animal commodities

Farm animal feeding studies

Lactating cows

Eighteen lactating cows were dosed daily with spidoxamat for 28 days at rates of 3.81, 7.64, 22.8 and 76.7 ppm in feed, corresponding to 0.14, 0.28, 0.82 and 2.61 mg/kg bw/day. Spidoxamat and metabolites spidoxamat-7-cyclohexylketone (BCS-AH92431), spidoxamat-cyclohydroxy (cis) (BCS-CN66620) and spidoxamat-cyclohydroxy (trans) (BCS-DH56414) were analysed.

In milk, only spidoxamat parent residues were found at quantified levels only at the highest dose, (0.014 to 0.019 mg/kg), reaching a plateau between 4 and 7 days after first dosing (highest mean residue 0.0185 mg/kg at day 7). Spidoxamat residues did not concentrate in the cream.

In tissues, parent spidoxamat was the main residue found. Mean spidoxamat residues in the ranged from <0.01 mg/kg (muscle, fat) to 0.18 mg/kg (kidney) at the 3.8 ppm dose level, from <0.01 mg/kg (muscle) to 0.31 mg/kg (kidney) at the 7.6 ppm dose level, from 0.022 mg/kg (mesenteric fat) to 1.02 mg/kg (kidney) at the 22.8 ppm dose level, and from 0.078 mg/kg (mesenteric fat) to 2.93 mg/kg (kidney) at the 76.7 ppm dose level.

Laying hens

Laying hens were dosed daily with spidoxamat for 29 days at rates of 0.33 ppm, 0.66 ppm, 1.9 ppm, and 6.6 ppm, corresponding to 0.021, 0.042, 0.12 and 0.42 mg/kg bw/day.

No residues of spidoxamat or its metabolites spidoxamat-7-cyclohexylketone (BCS-AH92431), spidoxamat-cyclohydroxy (cis) (BCS-CN66620) and spidoxamat-cyclohydroxy (trans) (BCS-DH56414) were found above the LOQ of 0.01 mg/kg at any dose level or sampling time point for eggs or any of the tissues sampled.

Farm animal dietary burden

Dietary burdens were calculated for beef cattle, dairy cattle, broilers and laying poultry. Livestock feed commodities considered by the meeting were citrus pomace, apple pomace, grape pomace, tomato pomace, soybean aspired grain fraction and hulls, potato culls and waste.

The dietary burdens, estimated using the OECD diets listed in Appendix IX of the 2016 edition of the FAO manual (OECD 2018 feed calculator, version October 2019), are presented in Annex 5 and summarized in Table 5.34.7.

Table 5.34.7 Estimated maximum and mean dietary burdens of farm animals for spidoxamat, spidoxamat sum, ppm of dry matter diet

	United States/Canada		European Union		Australia		Japan	
	Max.	Mean	Max.	Mean	Max.	Mean	Max.	Mean
Beef cattle	2.6[a]	1.6[c]	1.7	0.15	1.1	0.76	0.058	0.058
Dairy cattle	0.39	0.070	1.7[b]	0.12	1.1	0.76[d]	0.030	0.030
Poultry – broiler	0.020	0.020	0.37	0.052	0.017	0.017	0.012	0.012
Poultry – layer	0.020	0.020	0.52[e,g]	0.052[f, h]	0.017	0.017	0.010	0.010

Notes:

[a] Highest maximum beef or dairy cattle dietary burden suitable for MRL estimates for mammalian tissues.

[b] Highest maximum dairy cattle dietary burden suitable for MRL estimates for mammalian milk.

[c] Highest mean beef or dairy cattle dietary burden suitable for STMR estimates for mammalian tissues.

[d] Highest mean dairy cattle dietary burden suitable for STMR estimates for milk.

[e] Highest maximum poultry dietary burden suitable for MRL estimates for poultry tissues.

[f] Highest mean poultry dietary burden suitable for STMR estimates for poultry tissues.

[g] Highest maximum poultry dietary burden suitable for MRL estimates for poultry eggs.

[h] Highest mean poultry dietary burden suitable for STMR estimates for poultry eggs.

Estimated maximum residue levels in animal commodities

Mammalian

For beef and dairy cattle, a maximum dietary burden of 2.3 ppm and 1.7 ppm were estimated, respectively. For beef and dairy cattle, a mean dietary burden of 1.4 ppm and 0.77 ppm were estimated, respectively. For maximum residue level estimation, the maximum dietary burden of 2.3 ppm was evaluated by interpolating between the 0 and 3.8 ppm dosing levels of the lactating cow feeding study (Table 3.34.8).

Table 5.34.8 Animal commodity maximum residue levels for spidoxamat in beef or dairy cattle

Spidoxamat feeding study	Feed level (ppm) for milk/egg residues	Residues (mg/kg) in milk/egg	Feed level (ppm) for tissue residues	Residues (mg/kg)			
				Muscle	Liver	Kidney	Fat
Maximum residue level							
Feeding study	0	0	0	0	0	0	0
–	3.8	0.01	3.8	0.01	0.0981	0.0223	0.0296
Dietary burden and high residue	1.7	0.004	2.6	0.007	0.067	0.015	0.02

The meeting estimated a maximum residue level of 0.01* mg/kg for spidoxamat in Group of milks.

The meeting noted that spidoxamat residues were below 0.02 mg/kg in the metabolism study when goats were fed at 20 ppm and slaughtered 6 hours after the last dose. The highest dose rate (76.7 ppm) in the feeding study resulted in 0.085 mg/kg in muscle 3 to 12 hours after the last dose. When scaled down to the estimated dietary burden of 2.6 ppm, very low spidoxamat residues are expected in mammalian muscle. The meeting therefore estimated a maximum residue level of 0.01* mg/kg for the Group of muscle (from mammals other than marine mammals).

The meeting estimated a maximum residue level of 0.07 mg/kg for the Group of edible offal (mammalian).

The meeting estimated a maximum residue level of 0.02 mg/kg for the Group of mammalian fats (except milk fats).

Avians

The meeting estimated a maximum dietary burden of 0.51 ppm and a median burden of 0.046 ppm for broilers and layer poultry. No residues of spidoxamat were found in any commodity in the feeding study at up to 6.6 ppm dose level.

The meeting estimated a maximum residue level of 0.01* mg/kg for Group of avian muscle, Group of avian fats, Group of avian, edible offal of and Group of eggs.

Recommendations

No recommendations were made because the meeting did not have sufficient time to conclude on the residue definitions for estimation of dietary risk assessment for plant and animal commodities. Table 5.34.9 shows the residues used in the dietary burden calculation

Definition of the residue for compliance with the MRL for plant and animal commodities: *spidoxamat.*

The meeting did not conclude on the residue definition for dietary assessment for plant or animal commodities.

The residue is not fat soluble.

Table 5.34.9 Residues levels used in the livestock dietary burden calculations

Feed commodity	Median-P, in mg/kg	Highest-P, in mg/kg	% DM assumed
Apple, pomace, wet	0.1	–	40
Cabbage, heads, leaves	0.0265	0.46	15
Citrus, dried pulp	0.174	–	91
Grape, pomace, wet	0.54	–	15
Potato, culls	0.018	0.66	20
Potato, dried pulp	0.024	–	88

Potato, process waste	0.0075	–	12
Soybean, asp gr fn	25.91	–	85
Soybean, hulls	0.269	–	90
Soybean, meal	0.0309	–	92
Soybean, okara	0.05	–	92
Soybean, seed	0.05	–	89
Tomato, pomace, wet	0.02	–	20

Dietary risk assessment

The meeting did not have sufficient time to conclude on the residue definition for estimation of dietary intake for plant and animal commodities and no dietary risk assessment was conducted.

A dietary risk assessment will be conducted when a conclusion is reached on the residue definition.

5.35 Spinetoram (233) (R)

Residue and analytical aspects

Spinetoram is a multicomponent tetracyclic macrolide in the class of spinosyn insecticides obtained from chemical modification of a fermentation product of *Saccharopolyspora spinosa*. It consists of two closely related active ingredients, spinetoram-J and spinetoram-L in ratios ranging from 70:30 to 90:10.

Spinetoram was first evaluated by the 2008 JMPR, when an ADI of 0–0.05 mg/kg bw was established and an ARfD was considered unnecessary. The compound was evaluated for residues only in 2012, 2017 and 2021.

The residue definitions for plant and animal commodities follow.

For compliance with the MRL: *spinetoram (sum of spinetoram-J and spinetoram-L).*

For estimation of dietary intake: *spinetoram (sum of spinetoram-J and spinetoram-L) and N-demethyl and N-formyl metabolites of the major spinetoram component (spinetoram-J).*

The residue is fat soluble.

At the 55th Session of the CCPR (2024), spinetoram was scheduled for evaluation of new uses in 2025. The meeting received additional analytical methods, storage stability data, GAP information and residue trial data from uses on asparagus, Chinese broccoli, coffee and sugarcane.

Methods of analysis

Analytical method GRM 05.03, previously evaluated by the 2008 JMPR, was extended to the analysis of spinetoram in asparagus, Chinese broccoli, coffee beans and sugarcane. Extraction of residues is with acetonitrile water (80:20) with quantification by LC-MS/MS. The additional recovery data supported an LOQ of 0.01 mg/kg for each analyte in each crop. The method is suitable for the analysis of spinetoram in asparagus, Chinese broccoli, coffee beans and sugarcane.

Stability of pesticide residues in stored analytical samples

The 2008 and 2017 JMPR evaluated freezer storage stability data and concluded on storage stability of spinetoram residues in high water content (at least 24 months), high oil content (at least 12 months), high acid content (at least 12 months) and high starch content (at least 12 months) commodities.

Concurrent storage stability samples in the asparagus supervised residue trials supported stability on freezer storage for at least 12 months.

Results of supervised residue trials on crops

Chinese broccoli

The critical GAP for spinetoram on Chinese broccoli in Thailand is two foliar applications of an SC formulation at 3.6 g ai/hL at a minimum interval of 5 days and a PHI of 3 days.

In trials matching cGAP, residues of spinetoram were (n = 6): 0.49, 0.64, 1.4, 1.7, 2.7, 5.5 mg/kg.

Total residues for estimation of dietary intake were (n = 6): 0.79, 2.2, 2.3, 3.0, 3.0, 7.8 mg/kg.

The meeting estimated a maximum residue level of 10 mg/kg and an STMR of 2.65 mg/kg spinetoram in Chinese broccoli.

Eggplant

The current meeting was requested to consider extrapolating the recommendations made by the 2017 JMPR for peppers (maximum residue level of 0.4 mg/kg, STMR of 0.026 mg/kg) to eggplants.

The cGAP for eggplant in Brazil is the same as considered by the 2017 JMPR for peppers, 4 applications at 50 g ai/ha and a PHI of 3 days.

The meeting agreed to extrapolate the recommendations of the 2017 JMPR for peppers to eggplant and estimated a maximum residue level of 0.4 mg/kg and STMR of 0.026 mg/kg for spinetoram in Subgroup of Eggplants (VO 2046).

Asparagus

The critical GAP for spinetoram on asparagus in the United States is four foliar applications of an SC formulation at 87.5 g ai/ha at a minimum interval of 4 days and a PHI of 1 day.

In trials matching cGAP, residues of spinetoram were (n = 6): 0.032, 0.046, 0.048, 0.054, 0.09, 0.13 mg/kg.

Total residues for estimation of dietary intake were (n = 6): 0.065, 0.078, 0.15, 0.17, 0.17, 0.19 mg/kg.

The meeting estimated a maximum residue level of 0.3 mg/kg and an STMR of 0.16 mg/kg for spinetoram in asparagus.

Sugar cane

The critical GAP for spinetoram on sugar cane in Brazil is two foliar applications of an SC formulation at 12 g ai/ha, interval not specified and a PHI of 60 days. There is also the possibility for a directed spray immediately following harvest, but this use pattern would not contribute to residues.

In trials matching cGAP, residues of spinetoram were (n = 8): <0.02 (8) mg/kg.

Total residues for estimation of dietary intake were (n = 8): <0.03 (8) mg/kg.

The meeting estimated a maximum residue level of 0.02* mg/kg and an STMR of 0.03 mg/kg for spinetoram in sugar cane.

Coffee

The critical GAP for spinetoram on coffee in Brazil is two foliar applications of an SC formulation at 18 g ai/ha at a minimum interval of 30 days and a PHI of 7 days.

In trials matching cGAP, residues of spinetoram in coffee beans were (n = 6): <0.02 (6) mg/kg.

Total residues for estimation of dietary intake were (n = 6): <0.03 (6) mg/kg.

The meeting estimated a maximum residue level of 0.02* mg/kg and an STMR of 0.03 mg/kg for spinetoram in coffee beans.

Fate of residues during processing

The meeting received processing studies for sugar cane. Residues of spinetoram in the RAC were <0.02 mg/kg with residues in processed commodities (brown sugar and molasses) also <0.02 mg/kg.

Residues in animal commodities

Farm dietary burden

No commodities evaluated by the meeting is utilized as animal feed. Following the update of the Codex Classification and a request by CCPR 56, the meeting recalculated dietary burdens based on residue estimates from previous meetings with updates to reflect feed commodities addressed by the meeting (sugarcane molasses). The dietary burdens were estimated the most recent version of the OECD livestock dietary burden calculator diets and are presented in Annex 5 and summarized in Table 5.35.1.

Table 5.35.1 Estimation of maximum (spinetoram residues) and mean dietary burden (total residues), as ppm of dry matter

	United States/ Canada		European Union		Australia		Japan	
Livestock	**Max.**	**Mean**	**Max.**	**Mean**	**Max.**	**Mean**	**Max.**	**Mean**
Beef cattle	1.1	0.12	5.6[a]	0.54[c]	5.5	0.39	0.31	0.12
Dairy cattle	3.1	0.24	4.4	0.52[d]	5.5[b]	0.36	3.4	0.21
Broiler chickens	0.02	0.03	0.02	0.03	0.02	0.04	0.01	0.02
Layer hens	0.02	0.03	0.06[f]	0.06[e]	0.02	0.04	0.01	0.03

Notes:

[a] Highest maximum dietary burden for beef or dairy cattle; suitable for estimating the maximum residue levels for mammalian meat, fat, and offal.

[b] Highest maximum dietary burden for dairy cattle; suitable for estimating the maximum residue levels for milk.

[c] Highest mean dietary burden for beef or dairy cattle suitable for estimating median residue levels for mammalian meat, fat, and offal.

[d] Highest mean dietary burden for dairy cattle suitable for estimating median residue levels for milk.

[e] Highest maximum dietary burden for broiler chickens or laying hens; suitable for estimating the maximum residue levels for poultry meat, fat, offal, and eggs.

[f] Highest mean dietary burden for laying hens suitable for estimating median residue levels for poultry meat, fat, offal, and eggs.

Estimation of residues in mammalian commodities

Mammalian

Table 5.35.2 Estimation of maximum residue levels and STMR in mammalian commodities

	Feed level (ppm) for milk residues	Spinetoram residues (mg/kg) in milk	Feed level (ppm) for tissue residues	Spinetoram residues (mg/kg)			
				Muscle	Liver	Kidney	Fat
Maximum residue level (beef or dairy cattle) spinetoram							
Feeding study	3.7	0.0187	3.7	0.043	0.057	0.040	0.69
–	11.5	0.076	11.5	0.086	0.11	0.074	1.41
Dietary burden and estimate of highest residue	5.5	0.032	5.6	0.053	0.070	0.048	0.87
STMR (beef or dairy cattle), total residues							
Feeding study	1.2	<0.02	1.2	<0.02	<0.02	<0.02	0.10
Dietary burden and estimate of highest residue	0.52	0.0087	0.54	0.009	0.009	0.009	0.045

The meeting estimated a maximum residue level of 0.03 mg/kg and a STMR of 0.0087 mg/kg for Group of milks and withdrew its previous recommendation of 0.02 mg/kg for milk.

Using the mean ratio of spinetoram residues in cream to those in whole milk of 6.6, and taking into account a fat content in cream of 50 percent (factor of 2), the meeting estimated a maximum residue level of 0.5 mg/kg for the Group of Milk Fats and withdrew its previous recommendation of 0.15 mg/kg for milk fat.

The mean ratio of the total residues in cream to those in whole milk is 5.7 and the meeting estimates an STMR for the Group of milk fat of 0.050 mg/kg.

The meeting estimated a maximum residue level of 0.05 mg/kg and a STMR of 0.009 mg/kg for the Group of muscle (from mammals other than marine mammals) and withdrew its previous recommendation of 1 (fat) mg/kg for meat (from mammals other than marine mammals).

The meeting estimated a maximum residue level of 1 mg/kg and a STMR of 0.045 mg/kg for Group of Mammalian fats (except milk fats) and withdrew its previous recommendation of 1 mg/kg for fat from mammals (other than marine mammals).

The meeting estimated a maximum residue level of 0.07 mg/kg for Group of Edible offal (mammalian) based on liver, estimated STMR values of 0.009 mg/kg for liver and 0.009 mg/kg for kidney and withdrew its previous recommendation of 0.1 mg/kg for edible offal (mammalian).

Avian

Table 5.35.3 Residues of spinetoram in avian commodities

	Feed level (ppm) for egg residues	Spinetoram residues (mg/kg) in eggs	Feed level (ppm) for tissue residues	Spinetoram residues (mg/kg)			
				Muscle	Liver	Kidney	Fat
Maximum residue level (spinetoram)							
Feeding study	10	0.078	10	0.037	0.078	–	0.886
Dietary burden and estimate of highest residue	0.06	0.00047	0.06	0.00022	0.00047	–	0.0053
STMR (total residues)							
Feeding study	10	0.078	10	0.037	0.081	–	0.886
Dietary burden and estimate of highest residue	0.06	0.00047	0.06	0.00022	0.00049	–	0.0053

The meeting estimated a maximum residue level of 0.01* mg/kg in Group of eggs, Group of avian, Edible offal, Group of avian fats and Group of avian muscle with STMRs of 0.00022 mg/kg for muscle, 0.00049 mg/kg for liver, and 0.0053 mg/kg for fat and 0.00047 for eggs. The meeting withdrew its previous maximum residue level recommendations of 0.01* mg/kg for poultry meat, fat, edible offal and eggs.

Recommendations

Based on the data obtained from supervised trials, the meeting concluded that the residue levels listed in Table 5.35.4 and Annex 1 are suitable for establishing maximum residue limits and for estimates of dietary intake. Table 5.35.5 and Table 5.35.6 show the residues included in the dietary burden calculations.

The residue definitions for plant and animal commodities follow.

For compliance with the MRL: *spinetoram (sum of spinetoram-J and spinetoram-L)*

For estimation of dietary intake: *spinetoram (sum of spinetoram-J and spinetoram-L) and N-demethyl and N-formyl metabolites of the major spinetoram component (spinetoram-J).*

The residue is fat soluble.

Table 5.35.4 Residue levels suitable for establishing maximum residue limits and for estimation of dietary intake

CCN	Commodity	Recommended maximum residue levels (mg/kg)		STMR or STMR-P mg/kg
		New	Previous	
VS 0621	Asparagus, raw	0.3	–	0.16
VL 0401	Broccoli, Chinese	10	–	2.65
SB 0716	Coffee bean, raw (i.e. green coffee)	0.02*	–	0.03

CCN	Commodity	Recommended maximum residue levels (mg/kg)		STMR or STMR-P mg/kg
		New	Previous	
MO 0105	Edible offal (mammalian)	W	0.1	–
PE 0112	Eggs	W	0.01*	–
VO 2046	Subgroup of Eggplants	0.4	–	0.026
PO 0111	Group of avian, edible offal of	0.01*	–	0.00049
PF 0111	Group of avian fats	0.01*	–	0.0053
PM 0110	Group of avian muscle	0.01*	–	0.00022
MO 0105	Group of edible offal (mammalian)	0.07	–	0.009
PE 0112	Group of eggs	0.01*	–	0.00047
MF 0100	Group of mammalian fats (except milk fats)	1	–	0.045
FM 0106	Group of milk fats[a]	0.5	–	0.05 cream
ML 0106	Group of milks	0.03	–	0.0087
MM 0095	Group of muscle (from mammals other than marine mammals)	0.05	–	0.009
MM 0095	Meat (from mammals other than marine mammals)	W	1 (fat)	–
FM 0183	Milk fats	W	0.15	–
ML 0106	Milks	W	0.02	–
PO 0111	Poultry, edible offal of	W	0.01*	–
PM 0110	Poultry meat	W	0.01* (fat)	–
GS 0659	Sugar cane	0.02*	–	0.03
DM 0659	Sugar cane molasses	–	–	0.03
DM 3524	Sugar cane refined sugar	–	–	0.03

Note:

[a] For monitoring and regulatory purposes, whole milk is to be analysed, and the result compared to the MRLs for whole milk.

Table 5.35.5 Residue values for livestock dietary burden calculations for estimation of maximum residue level in animal commodities

Codex group	Feed commodity	Median or STMR (-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed	Source (JMPR)
AB	Apple, pomace, wet	0.081	–	40	2008 medianx8.1
AB	Beet, sugar, dried pulp	0.01	–	88	2008 field trials tops J+L
AB	Beet, sugar, ensiled pulp	0.01	–	15	2008 RAC
DM	Beet, sugar, molasses	0.01	–	75	2008 RAC
AM/AV	Beet, sugar, tops	0.135	0.2	23	2008 RAC
AM/AV	Cabbage, heads, leaves	0.016	0.063	15	2012 field trials
AB	Citrus, dried pulp	0.0396	–	91	2008 STMRx2.4
CM/CF	Corn gluten, feed	0.01	–	40	2017 RAC
CM/CF	Corn gluten, meal	0.01	–	40	2017 RAC
CM/CF	Corn, field, asp gr fn	0.01	–	85	2017 RAC
AF/AS	Corn, field, forage/silage	0.136	2.72	40	2017 field trials sweet corn forage
GC	Corn, field, grain	0.01	–	88	2017 RAC
CM/CF	Corn, field, hominy meal	0.01	–	88	2017 RAC
CM/CF	Corn, field, milled bypdts	0.01	–	85	2017 RAC
AF/AS	Corn, sweet, cannery waste	0.025	0.048	30	2017 field trials sweet corn

Codex group	Feed commodity	Median or STMR (-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed	Source (JMPR)
					fodder
AF/AS	Corn, sweet, forage	0.136	2.72	48	2017 field trials sweet corn forage
AF/AS	Corn, sweet, stover	0.025	0.048	83	2017 field trials sweet corn fodder
SM	Cotton, hulls	0.01	–	90	2017 RAC
SM	Cotton, meal	0.01	–	89	2017 RAC
SO	Cotton, undelinted seed	0.01	–	88	2017 RAC
VR	Potato, culls	0.01	0.01	20	2017 RAC
AB	Potato, dried pulp	0.01	–	88	2017 RAC
AB	Potato, process waste	0.01	–	12	2017 RAC
CM/CF	Rice, bran/pollard	0.02	–	90	2017 RAC
GC	Rice, grain	0.02	–	88	2017 RAC
CM/CF	Rice, hulls	0.04	–	90	2017 field trials
AF/AS	Rice, straw	0.125	0.5	90	2017 RAC
SM	Soybean, asp gr fn	0.01	–	85	2017 RAC
SM	Soybean, hulls	0.01	–	90	2017 RAC
SM	Soybean, meal	0.01	–	92	2017 RAC
SM	Soybean, okara	0.01	–	92	2025 RAC
VD	Soybean, seed	0.01	–	89	2025 RAC
DM	Sugarcane, bagasse	0.02	–	32	2008 RAC
DM	Sugarcane, molasses	0.02	–	75	–
AB	Tomato, pomace,wet	0.01	–	20	–

Table 5.35.6 Residue values for livestock dietary burden calculations for estimation of STMR in animal commodities

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed	Source (JMPR, type)
AB	Apple, pomace, wet	0.15	–	40	2008 STMRx6
AM/AV	Beet, mangel, fodder	0.135	0.2	15	2008 field trials tops J+L
AB	Beet, sugar, dried pulp	0.02	–	88	2008 RAC
AB	Beet, sugar, ensiled pulp	0.02	–	15	2008 RAC
DM	Beet, sugar, molasses	0.02	–	75	2008 RAC
AM/AV	Beet, sugar, tops	0.135	0.2	23	2008 field trials
AM/AV	Cabbage, heads, leaves	0.033	0.1	15	2012 field trials
AB	Citrus, dried pulp	0.105	–	91	2008 STMRx2.3
CM/CF	Corn gluten, feed	0.02	–	40	2017 RAC
CM/CF	Corn gluten, meal	0.02	–	40	2017 RAC
AF/AS	Corn, field, forage/silage	0.155	3.3	40	2017 field trials sweet corn

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed	Source (JMPR, type)
					forage
GC	Corn, field, grain	0.02	–	88	2017 RAC
CM/CF	Corn, field, hominy meal	0.02	–	88	2017 RAC
CM/CF	Corn, field, milled bypdts	0.02	–	85	2017 RAC
AF/AS	Corn, sweet, cannery waste	0.034	0.058	30	2017 field trials sweet corn fodder
AF/AS	Corn, sweet, forage	0.155	3.3	48	2017 field trials sweet corn forage
AF/AS	Corn, sweet, stover	0.034	0.058	83	2017 field trials sweet corn fodder
SM	Cotton, hulls	0.02	–	90	2017 RAC
SM	Cotton, meal	0.02	–	89	2017 RAC
SO	Cotton, undelinted seed	0.02	–	88	2017 RAC
VR	Potato, culls	0.02	0.02	20	2017 RAC
AB	Potato, dried pulp	0.02	–	88	2017 RAC
CM/CF	Rice, bran/pollard	0.04	–	90	2017 RAC
GC	Rice, grain	0.04	–	88	2017 RAC
CM/CF	Rice, hulls	0.08	–	90	2017 RAC
AF/AS	Rice, straw	0.16	0.54	90	2017 field trials
SM	Soybean, hulls	0.02	–	90	2017 RAC
SM	Soybean, meal	0.02	–	92	2017 RAC
SM	Soybean, okara	0.02	–	92	2017 RAC
VD	Soybean, seed	0.02	–	89	2017 RAC
DM	Sugarcane, bagasse	0.03	–	32	2025 RAC
DM	Sugarcane, molasses	0.03	–	75	2025 RAC
AB	Tomato, pomace,wet	0.02	–	20	2008 RAC

Dietary risk assessment

Long-term dietary exposure

The ADI for spinetoram is 0–0.05 mg/kg bw. The IEDIs for spinetoram were estimated for the 17 GEMS/Food Consumption Cluster Diets using the STMR or STMR-P values estimated by the JMPR. The results are shown in Annex 3.

The IEDIs ranged from 2 to 20 percent of the maximum ADI. The meeting concluded that long-term dietary exposure to residues of spinetoram from uses considered by the JMPR is unlikely to present a public health concern.

Acute dietary exposure

An ARfD for spinetoram is unnecessary. The meeting concluded that the acute dietary exposure to residues of spinetoram, from uses considered by the present meeting, is unlikely to present a public health concern.

5.36 Thiamethoxam (245) (R)

Residue and analytical aspects

Thiamethoxam (ISO common name) is a broad-spectrum, neonicotinoid insecticide with registered uses on multiple crops. It was evaluated for the first time by JMPR 2010, which established an ADI of 0–0.08 mg/kg bw and an ARfD of 1 mg/kg bw. Thiamethoxam underwent subsequent evaluations for residues only by the JMPR in 2011, 2012, 2014, 2021 (extra) and 2023.

Definition of the residue for compliance with MRLs for plant and animal commodities: thiamethoxam.

Definition of the residue for estimation of dietary risk assessmen for plant and animal commodities (except poultry): thiamethoxam and clothianidin (a.k.a. CGA322704), assessed separately.

Definition of the residue for estimation of dietary risk assessmen for poultry: sum of thiamethoxam, CGA 265307 (N-(2-chlorothiazol-5-ylmethyl)-N'- nitroguanidine), and MU3 (amino-([(2-chlorothiazol-5-ylmethyl)-amino]-methylene)-hydrazide), expressed as thiamethoxam, along with clothianidin (assessed separately).

The residue is not fat soluble.

Thiamethoxam was scheduled at the 55th Session of the CCPR for the evaluation of additional uses by the 2025 JMPR. The current meeting received new information on thiamethoxam use patterns and supervised field trials in Welsh onions.

Clothianidin is a major metabolite of thiamethoxam and a registered active ingredient. In addition to considering residues of thiamethoxam, the meeting also considered residues of clothianidin arising from the use of thiamethoxam (see Section 5.8 Clothianidin).

Methods of residue analysis

The meeting received new information on a QuEChERS-like LC-MS/MS method, where Welsh onions are extracted with acetonitrile with the addition of $MgSO_4$ and NaCl. The method was demonstrated being fit-for-purpose with a LOQ of 0.01 mg/kg for thiamethoxam and clothianidin in fresh and dried Welsh onions.

Stability of pesticide residues in stored analytical samples

The 2010 JMPR determined that residues of thiamethoxam and clothianidin are stable for 1–2 years under frozen conditions (–18 °C or lower) for a large range of commodities, including high-water and dried commodities considered by the meeting.

The meeting received additional information on the storage stability and confirmed that thiamethoxam and clothianidin are stable for at least 110 days in fresh Welsh onions and 99 days in dried Welsh onions. Samples from the supervised residue trials were analysed within these intervals.The stability of residues in fresh and dried Welsh onions is considered to be adequately demonstrated.

Results of supervised residue trials of crops

Welsh onion (fresh)

The critical GAP is the thiamethoxam for Welsh onions is from the Republic of Korea, involving two foliar spray applications at 0.004 kg ai/hL with a10-day retreatment interval and a PHI of 14 days. Six supervised field trials conducted in the Republic of Korea approximated the cGAP.

The meeting decided not to use the data, since the procedure for sampling of the raw commodity is not in line with the description in the Codex Classification for green onions (Subgroup 009B) and the FAO manual for sampling of green onions. For these reasons, the meeting could not estimate a maximum residue level for fresh Welsh onions.

Fate of residues during processing

The meeting received new information on the magnitude of residues following drying of Welsh onions. Fresh Welsh onions were trimmed (roots and outer layer removed), washed with water, cut into slices and air-dried until a moisture content of 8.1–19 percent. The meeting considered removal of the outer layer prior to drying appropriate as this is a common industrial procedure in the Republic of Korea.

The critical GAP is the thiamethoxam use pattern for from the Republic of Korea, involving two foliar spray applications at 0.004 kg ai/hL with a10-day retreatment interval and a PHI of 14 days.

Three supervised field trials were conducted in the Republic of Korea approximating the GAP for Welsh onions (2 x 0.004 kg ai/hL, RTI 10 days and PHI 14 days).

Residues of thiamethoxam in dried Welsh onions were (n = 3): 0.11, 0.16, 0.26 mg/kg.

Residues of clothianidin in dried Welsh onion were (n = 3): 0.02, 0.04, 0.05 mg/kg.

The meeting did not estimate a maximum residue level for dried Welsh onions as three trials were not sufficient.

In addition, the meeting did not estimate processing factors because of lack of residue information in the fresh Welsh onions.

Residues in animal commodities

Farm animal feeding studies

No new farm animal feeding studies were submitted.

Farm animal dietary burden

No commodities evaluated by the meeting are utilized as animal feed. Using the latest version of the OECD feed calculator (2018, rev 5.1), the dietary burden estimates for thiamethoxam differed from the JMPR 2023 dietary burden calculations. The results are shown in Annex 5 and summarized in Table 5.36.1

Table 5.36.1 Estimated maximum and mean dietary burdens for thiamethoxam in farm animals, ppm of dry matter diet

	United States/Canada		European Union		Australia		Japan	
	Max.	Mean	Max.	Mean	Max.	Mean	Max.	Mean
Beef cattle	6.89	5.56	8.22	1.66	18.3	17.3	2.72	2.40
Dairy cattle	9.96	7.19	9.43	3.86	22.6[a, b]	19.0[c, d]	1.83	1.26
Poultry – broiler	4.99	4.99	1.38	1.15	11.8	11.8	0.59	0.59
Poultry – layer	4.99	4.99	2.66	0.95	11.8[e, g]	11.8[f, h]	2.15	2.15

Notes:

[a] Highest maximum beef or dairy cattle dietary burden suitable for MRL estimates for mammalian tissues.

[b] Highest maximum dairy cattle dietary burden suitable for MRL estimates for mammalian milk.

[c] Highest mean beef or dairy cattle dietary burden suitable for STMR estimates for mammalian tissues.

[d] Highest mean dairy cattle dietary burden suitable for STMR estimates for milk.

[e] Highest maximum poultry dietary burden suitable for MRL estimates for poultry tissues.

[f] Highest mean poultry dietary burden suitable for STMR estimates for poultry tissues.

[g] Highest maximum poultry dietary burden suitable for MRL estimates for poultry eggs.

[h] Highest mean poultry dietary burden suitable for STMR estimates for poultry eggs.

Estimation of animal commodity residue levels

Farm animal dietary burdens for thiamethoxam changed from 20.6 ppm (max) and 18.8 ppm (mean) to 22.6 ppm (max) and 19.0 ppm (mean) for beef and dairy cattle. Dietary burdens for broiler and layer poultry stayed the same (11.8 ppm [max, mean]). As these dietary burdens are within 10 percent difference, the meeting did not estimate new maximum residue levels for animal commodities.

Following the update of the Codex Classification and based on the dietary burden derived by JMPR 2021 (extra) and the thiamethoxam feeding study in lactating cows, the meeting recommended a maximum residue level of 0.15 mg/kg and a STMR of 0.096 mg/kg for thiamethoxam in the Group of milks and withdrew its previous recommendation of 0.15 mg/kg for milk.

The meeting estimated a maximum residue level of 0.07 mg/kg and a STMR of 0.033 mg/kg and HR of 0.062 mg/kg for thiamethoxam for the Group of muscle (from mammals other than marine mammals) and withdrew its previous recommendation of 0.07 mg/kg for meat (from mammals other than marine mammals).

The meeting estimated a maximum residue level of 0.01* mg/kg and a STMR of 0.01 mg/kg and a HR of 0.01 mg/kg for thiamethoxam for the Group of Mammalian fats (except milk fats) and withdrew its previous recommendation of 0.01* mg/kg for fat from mammals (other than marine mammals).

The meeting estimated a maximum residue level of 0.05 mg/kg for the Group of Edible offal (mammalian) based on kidney and estimated an STMR of 0.025 mg/kg and an HR of 0.041 mg/kg and withdrew its previous recommendation of 0.05 mg/kg for edible offal (mammalian).

Following the update of the Codex Classification and based on the dietary burden derived by JMPR 2021 (extra) and the metabolism study in laying hens, the meeting recommended a maximum residue level of 0.01* mg/kg and a STMR of 0.028 mg/kg and a HR of 0.028 mg/kg for the Group of eggs and withdrew its previous recommendation of 0.01* mg/kg for eggs.

The meeting estimated a maximum residue level of 0.03 mg/kg and a STMR of 0.064 mg/kg and HR of 0.064 mg/kg for the Group of avian muscle and withdrew its previous recommendation of 0.03 mg/kg for poultry meat.

The meeting estimated a maximum residue level of 0.01* mg/kg and a STMR of 0.033 mg/kg and a HR of 0.033 mg/kg for thiamethoxam for the Group of avian fats and withdrew its previous recommendation of 0.01* mg/kg for poultry fat.

The meeting estimated a maximum residue level of 0.01* mg/kg for the Group of avian edible offal based on liver and estimated an STMR of 0.36 mg/kg and an HR of 0.36 mg/kg and withdrew its previous recommendation of 0.01* mg/kg for poultry edible offal.

Farm animal feeding studies for lactating cows for thiamethoxam (2, 6, 20 ppm) evaluated by the 2010 JMPR were used to estimate maximum residue levels for clothianidin in mammalian commodities (see section on clothianidin).

Metabolism studies for thiamethoxam (98 ppm) in laying hens evaluated by the 2010 JMPR were used to estimate maximum residue levels for clothianidin in poultry commodities (see section on clothianidin).

Recommendations

On the basis of the data obtained, the meeting concluded that the residue levels listed in Table 5.36.2 and Annex 1 are suitable for establishing maximum residue limits and for IEDI and IESTI assessments. Table 5.36.3 shows the residue values included in the dietary burden calculation.

Definition of the residue for compliance with MRLs for plant and animal commodities: *thiamethoxam.*

Definition of the residue for estimation of dietary risk assessmen for plant and animal commodities (except poultry): *thiamethoxam and clothianidin (a.k.a. CGA322704), assessed separately.*

Definition of the residue for estimation of dietary risk assessmen for poultry: *sum of thiamethoxam, CGA 265307 (N-(2-chlorothiazol-5-ylmethyl)-N'- nitroguanidine), and MU3 (amino-([(2-chlorothiazol-5-ylmethyl)-amino]-methylene)-hydrazide), expressed as thiamethoxam, along with clothianidin (assessed separately).*

The residue is not fat soluble.

Table 5.36.2 Residue levels suitable for recommending maximum residue limits and estimation of dietary intake

CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
		New	Previous		
MO 0105	Edible offal (mammalian)	W	0.05	–	–
PE 0112	Eggs	W	0.01*	–	–
PF 0111	Group of avian fats	0.01*	–	0.033	0.033
PM 0110	Group of avian muscle	0.03	–	0.064	0.064
PO 0111	Group of avian, Edible offal	0.01*	–	0.36	0.36
MO 0105	Group of Edible offal (mammalian)	0.05	–	0.025	0.041
PE 0112	Group of eggs	0.01*	–	0.028	0.028
MF 0100	Group of Mammalian fats (except milk fats)	0.01*	–	0.01	0.01
ML 0106	Group of milks	0.15	–	0.096	–
MM 0095	Group of Muscle (from mammals other than marine mammals)	0.07	–	0.033	0.062
MF 0100	Mammalian fats (except milk fats)	W	0.01*	–	–
MM 0095	Meat (from mammals other than marine mammals)	W	0.07	–	–
ML 0106	Milks	W	0.15	–	–
PF 0111	Poultry fats	W	0.01*	–	–
PM 0110	Poultry meat	W	0.03	–	–
PO 0111	Poultry, edible offal of	W	0.01*	0.36	0.36

Table 5.36.3 Residue values for the dietary burden calculations for thiamethoxam

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed	Source
AM/AV	Almond, hulls	0.32	–	90	JMPR 2023
AB	Apple, pomace, wet	0.11	–	40	JMPR 2010
CM/CF	Barley, bran fractions	0.269	–	90	JMPR 2021e
AF/AS	Barley, forage	0.12	2	30	JMPR 2021e Extrapolated from wheat forage
GC	Barley, grain	0.112	–	88	JMPR 2021e
AF/AS	Barley, hay	0.2	6.7	88	JMPR 2021e – Based on barley + wheat hay

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed	Source
AF/AS	Barley, straw	0.53	6.7	89	JMPR 2021e Based on barley + wheat straw
VD	Bean, seed	0.02	–	88	JMPR 2010 Pulses
AL	Bean, vines	0.875	1.4	35	JMPR 2014 Portuguese GAP for fresh beans Phaseolus beans only (VP 0061)
AM/AV	Beet, mangel, fodder	0.02	0.02	15	JMPR 2010 Sugar beet tops and leaves
AB	Beet, sugar, dried pulp	0.01	–	88	JMPR 2010 Root and tubers RAC – STMR
AB	Beet, sugar, ensiled pulp	0.01	–	15	JMPR 2010 Root and tubers RAC – STMR
DM	Beet, sugar, molasses	0.01	–	75	JMPR 2010 Root and tubers RAC – STMR
AM/AV	Beet, sugar, tops	0.02	0.02	23	JMPR 2010 Sugar beet tops and leaves
SM	Brewer's grain, dried	0.112	–	92	JMPR 2021e Barley grain RAC – STMR
AM/AV	Cabbage, heads, leaves	0.78	3	15	JMPR 2010
SM	Canola, meal	0.02	–	88	JMPR 2010 Oilseeds RAC-STMR
VR	Carrot, culls	0.01	0.2	12	JMPR 2010 Root and tuber vegetables
VR	Cassava/tapioca, roots	0.01	0.2	37	JMPR 2010 Root and tuber vegetables
AB	Citrus, dried pulp	0.073	–	91	JMPR 2010
SM	Coconut, meal	0.01	–	91	JMPR 2023 Tree nuts RAC – STMR
CM/CF	Corn gluten, feed	0.02	–	40	JMPR 2010 Maize grains RAC-STMR
CM/CF	Corn gluten, meal	0.02	–	40	JMPR 2010 Maize grains RAC-STMR
CM/CF	Corn, field, asp gr fn	0.02	–	85	JMPR 2010 Maize grains RAC-STMR

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed	Source
AF/AS	Corn, field, forage/silage	0.01	0.05	40	JMPR 2010 Maize forage
GC	Corn, field, grain	0.02	–	88	JMPR 2010 Maize grains
CM/CF	Corn, field, hominy meal	0.02	–	88	JMPR 2010 Maize grains RAC-STMR
CM/CF	Corn, field, milled bypdts	0.02	–	85	JMPR 2010 Maize grains RAC-STMR
AF/AS	Corn, field, stover	0.01	0.04	83	JMPR 2010 Maize fodder
GC	Corn, pop, grain	0.01		88	JMPR 2010
AF/AS	Corn, pop, stover	0.01	0.04	85	JMPR 2010 Maize fodder
AF/AS	Corn, sweet, cannery waste	0.01	0.01	30	JMPR 2021e Subgroup of sweet corns RAC-STMR
AF/AS	Corn, sweet, forage	1.5	2.8	48	JMPR 2021e
AF/AS	Corn, sweet, stover	0.0165	0.099	83	JMPR 2021e
AM/AV	Cotton, gin by-products	0.02	0.02	90	JMPR 2010 Oilseeds RAC-STMR
SM	Cotton, hulls	0.02	–	90	JMPR 2010 Oilseeds RAC-STMR
SM	Cotton, meal	0.0054	–	89	JMPR 2010
SO	Cotton, undelinted seed	0.02	–	88	JMPR 2010 Oilseeds RAC-STMR
VD	Cowpea, seed	0.02	–	88	JMPR 2010 Pulses
SM	Distiller's grain, dried	0.112	–	92	JMPR 2021e Barley grain RAC-STMR
SM	Flaxseed/linseed, meal	0.02	–	88	JMPR 2010 Oilseeds RAC-STMR
AB	Grape, pomace, wet	0.21	–	91	JMPR 2010 Grape dry pomace = dw 91
AM/AV	Kale, leaves	0.54	1.9	15	JMPR 2010 Leafy vegs
SM	Lupin seed, meal	0.02	–	85	JMPR 2010 Pulses RAC – STMR
VD	Lupin, seed	0.02	–	88	JMPR 2010 Pulses

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed	Source
AF/AS	Oat, forage	0.12	2	30	JMPR 2021e Extrapolated from wheat forage
GC	Oat, grain	0.112	–	89	JMPR 2021e Extrapolated from barley grain
AF/AS	Oat, hay	0.2	6.7	90	JMPR 2021e Extrapolated from barley+wheat hay
AF/AS	Oat, straw	0.53	6.7	90	JMPR 2021e Extrapolated from barley+wheat straw
SM	Palm, kernel meal	0.02	–	90	JMPR 2010 Oilseeds RAC-STMR
AL	Pea, hay	0.05	0.24	88	JMPR 2010 Pea fodder
VD	Pea, seed	0.02	–	90	JMPR 2010 Pulses
AL	Pea, vines	0.04	0.1	25	JMPR 2010
SM	Peanut, meal	0.02	–	85	JMPR 2010 Oilseeds RAC-STMR
AB	Pineapple, process waste	0	–	25	JMPR 2010 Pineapple RAC – STMR
VR	Potato, culls	0.01	0.2	20	JMPR 2010 Root and tuber vegetables
AB	Potato, dried pulp	0.01	–	88	JMPR 2010 Root and tuber vegetables RAC – STMR
AB	Potato, process waste	0.01	–	12	JMPR 2010 Root and tuber vegetables RAC – STMR
AM/AV	Rape, forage	0.05	0.05	30	JMPR 2010
SM	Rape, meal	0.02	–	88	JMPR 2010 Oilseeds RAC-STMR
CM/CF	Rice, bran/pollard	9.35	–	90	JMPR 2021e
GC	Rice, grain	17	–	88	JMPR 2021e Using reverse processing factors
CM/CF	Rice, hulls	95.2	–	90	JMPR 2021e
AF/AS	Rice, straw	0.47	1	90	JMPR 2021e

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed	Source
SM	Safflower, meal	0.02	–	91	JMPR 2010 Oilseeds RAC-STMR
SM	Sesame seed, meal	0.02	–	90	JMPR 2010 Oilseeds RAC-STMR
CM/CF	Sorghum, grain, asp gr fn	0.908	–	85	JMPR 2021e
AF/AS	Sorghum, grain, forage	0.06	0.3	35	JMPR 2021e
GC	Sorghum, grain, grain	0.079	–	86	JMPR 2021e
AF/AS	Sorghum, grain, stover	0.14	0.49	88	JMPR 2021e Sorghum straw & fodder, dry
SM	Soybean, asp gr fn	0.02	–	85	JMPR 2010 Pulses RAC – STMR
SM	Soybean, hulls	0.02	–	90	JMPR 2010 Pulses RAC- STMR
SM	Soybean, meal	0.02	–	92	JMPR 2010 Pulses RAC – STMR
SM	Soybean, okara	0.02	–	92	JMPR 2010 Pulses RAC – STMR
VD	Soybean, seed	0.02	–	89	JMPR 2010 Pulses
SM	Sunflower, meal	0.02	–	92	JMPR 2010 Oilseeds RAC- STMR
VR	Swede, roots	0.01	0.2	10	JMPR 2010 Root and tuber vegetables
AB	Tomato, pomace,wet	0.08	–	20	JMPR 2010 Fruiting vegs RAC-STMR
AF/AS	Triticale, forage	0.12	2	30	JMPR 2021e Extrapolated from wheat forage
GC	Triticale, grain	0.032	–	89	JMPR 2021e Extrapolated from wheat grain
AF/AS	Triticale, hay	0.2	6.7	88	JMPR 2021e Extrapolated from barley+wheat hay
AF/AS	Triticale, straw	0.53	6.7	90	JMPR 2021e Extrapolated from barley+wheat hay
VR	Turnip, roots	0.01	0.2	15	JMPR 2010 Root and tuber vegetables

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed	Source
AM/AV	Turnip, tops (leaves)	0.54	1.9	30	JMPR 2010 Leafy vegs
VD	Vetch, seed	0.02	–	89	JMPR 2010 Pulses
CM/CF	Wheat gluten, meal	0.032	–	40	JMPR 2021e Wheat RAC -STMR
CM/CF	Wheat, asp gr fn	0.467	–	85	JMPR 2021e
AF/AS	Wheat, forage	0.12	2	25	JMPR 2021e
GC	Wheat, grain	0.032		89	JMPR 2021e
AF/AS	Wheat, hay	0.2	6.7	88	JMPR 2021e based barley+wheat hay
CM/CF	Wheat, milled bypdts	0.0768	–	88	JMPR 2021e Wheat bran processed
AF/AS	Wheat, straw	0.53	6.7	88	JMPR 2021e Extrapolated from barley+wheat hay

Dietary risk assessment

The meeting did not change the previous recommendations for STMRs and HRs for animal commodities and therefore a new dietary risk assessment was not necessary.

5.37 Tiafenacil (349) (T, R)*

Toxicology

Tiafenacil (DCC-3825) is the common name approved by the International Organization for Standardization (ISO) for methyl-3-[(2*RS*)-2-{2-chloro-4-fluoro-5-[1,2,3,6-tetrahydro-3-methyl-2,6-dioxo-4-(trifluoromethyl) pyrimidin-1(6*H*)-yl]phenylthio}propionamido]propionate (International Union of Pure and Applied Chemistry [IUPAC]), for which the Chemical Abstracts Service (CAS) number is 1220411-29-9. It is a novel pyrimidinedione herbicide and acts by inhibiting protoporphyrinogen oxidase in the target weeds.

Tiafenacil has not previously been evaluated by the Joint FAO/WHO Meeting on Pesticide Residues (JMPR) and was reviewed by the present meeting at the request of Codex Committee on Pesticide Residues (CCPR). All studies were performed to national or international test guidelines and contained statements of compliance with good laboratory practice (GLP), unless otherwise specified. A literature search was performed by the sponsor, but no relevant papers were identified.

Biochemical aspects

Absorption was rapid with T_{max} at 0.5 hours with peak concentrations of radioactivity occurring in plasma between 0.5 and 1.25 hours across sexes and radiolabels (pyrimidyl and phenyl) in the dose range of 10–100 mg/kg bw. Values for T_{max} were slightly higher for the pyrimidyl label at 100 mg/kg bw than for the phenyl label, or for both labels at 10 mg/kg. There was a sex difference in the absorption of total radioactivity, with all C_{max} and area under the concentration–time curve (AUC) values higher in males than in females. Oral absorption of tiafenacil was approximately 90 percent with no significant effect of label or sex.

Tiafenacil was widely distributed. Tissue distribution of radioactivity was similar in animals across sexes at 10 or 100 mg/kg bw, and after single or repeated dosing (for both label positions). Tissue radioactivity was mostly found with the liver and kidney at early timepoints after dosing. By 24 hours post dose most of the radioactivity had been excreted.

Excretion of total radioactivity was rapid after both single and repeated dosing, especially within the first 24 hours post dose, with most (approximately 90 percent) of the radioactivity recovered by 48 hours. After 168 hours, excretion was complete with no radioactivity remaining in the carcass or tissues. No radioactivity was present in the expired air. Regardless of sex, dose level or radiolabel position, most of the radioactivity administered to intact rats was excreted via the faeces. Following administration to bile duct-cannulated animals, most of the radioactivity was excreted via the bile (about 75 percent in males and about 70 percent in females) and to a lesser extent in urine (about 8–12 percent in males and about 16–20 percent in females) over the 72-hour collection period. The pattern of excretion was almost identical following multiple oral administrations, demonstrating no changes to the pathways of excretion following multiple doses of tiafenacil.

Tiafenacil was rapidly transformed into metabolite M-01 by cleavage of the methyl ester. M-01 was further metabolized by degradation of the thioalkyl chain, oxidation of the sulfur atom, modification of the pyrimidine ring, demethylation, ring opening and a combination of these, followed by a methylation of the free thiol and its oxidation. Major metabolites (more than 10 percent of the administered dose) excreted in urine and bile were M-01 and M-52. The less abundant metabolites in urine and bile were M-07, M-12, M-32, M-33, M-40, M-58, and M-59 as well as unchanged tiafenacil.

Toxicological data

The acute oral median lethal dose (LD_{50}) of tiafenacil was greater than 2000 mg/kg bw and the dermal LD_{50} was greater than 2000 mg/kg bw. The inhalation median lethal concentration (LC_{50}) of tiafenacil was greater than 5.38 mg/L. Tiafenacil was not irritating to skin or to eyes in rabbits and was not skin sensitizing in the local lymph node assay (LLNA) and guinea pig maximization test.

In repeated dose toxicity studies on mice, rats and dogs, the main effects were on body weight, liver (hepatocellular hypertrophy and pigmented Kupffer cells) and haematological changes (including anaemia and extramedullary haematopoiesis).

In a 90-day dietary toxicity study in mice, tiafenacil was administered at dietary concentrations of 0, 75, 250 or 750 ppm (equal to 0, 11, 39 and 111 mg/kg bw per day in males, and 0, 13, 43 and 126 mg/kg bw per day in females). No NOAEL could be identified, based on increased liver weight, hepatocellular hypertrophy, vacuolation and necrosis at the lowest-observed-adverse effect level (LOAEL) of 75 ppm in males (equal to 11 mg/kg bw per day), the lowest dose tested.

In a second 90-day dietary toxicity study in mice, tiafenacil was administered at 0, 10, or 75 ppm in both males and females (equal to 0, 1.7 and 12.9 mg/kg bw per day in males and 0, 1.9 and 14 mg/kg in females), with an additional low dose of 3 ppm in males only (equal to 0.5 mg/kg bw per day) and an additional high dose of 250 ppm in females only (equal to 46.5 mg/kg bw per day). The NOAEL was 75 ppm (equal to 12.9 mg/kg bw per day), the highest dose tested in males.

In a 90-day dietary toxicity study in rats, tiafenacil was administered at dietary concentrations of 0, 110, 330 or 1100 ppm (equal to 0, 9, 25 and 84 mg/kg bw per day in males, and 0, 10, 28 and 94 mg/kg bw per day in females).The NOAEL was 110 ppm (equal to 9 mg/kg bw per day) based on an increase in pigmented Kupffer cells in both sexes and slight anaemia in males at 330 ppm (equal to 25 mg/kg bw per day).

In a 90-day oral toxicity study in dogs, tiafenacil was administered in gelatine capsules at dose levels of 0, 10, 50 or 250 mg/kg bw per day. The NOAEL was 10 mg/kg bw per day based on anaemia, changes in red blood cell morphology in both sexes and increased cellularity in sternum/femur bone marrow in females at 50 mg/kg bw per day.

In a one-year oral toxicity study in dogs, tiafenacil was administered in gelatine capsules at dose levels of 0, 5, 20 or 120 mg/kg bw per day. The NOAEL was 20 mg/kg bw per day based on anaemia, reduced body weight gain, extramedullary haematopoiesis in spleen and increased bone marrow cellularity in the sternum at 120 mg/kg bw per day.

The overall short-term NOAEL in dogs was 20 mg/kg bw per day based on anaemia, changes in red blood cell morphology in both sexes and increased cellularity in sternum/femur bone marrow in females at 50 mg/kg bw per day.

In a 78-week carcinogenicity study in mice, tiafenacil was administered at 0, 10, or 75 ppm in both males and females (equal to 0, 1.11 and 8.0 mg/kg bw per day in males and 0, 1.3 and 9.7 mg/kg bw per day in females), with an additional low dose of 3 ppm in males only (equal to 0.35 mg/kg bw per day) and an additional high dose of 250 ppm in females only (equal to 32.6 mg/kg bw per day).

The NOAEL for toxicity was 3 ppm (equal to 0.35 mg/kg bw per day) based on the effects in the liver (pigmented Kupffer cells, hepatocellular hypertrophy and vacuolation) at 10 ppm (equal to 1.11 mg/kg bw per day). The NOAEL for carcinogenicity was 75 ppm (equal to 8 mg/kg bw per day), the highest dose tested.

In a 104-week combined chronic toxicity and carcinogenicity study in rats, tiafenacil was administered in the diet at a concentration of 0, 50, 150 and 500 ppm in males and 0, 50, 250 and 1000 ppm in females (equal to 0, 3, 8 and 28 mg/kg bw per day in males, and 0, 4, 18 and 72 mg/kg bw per day in females). The NOAEL for toxicity was 150 ppm (equal to 8 mg/kg bw per day), based on slight anaemia, haematopoiesis in bone marrow and bile hyperplasia at 500 ppm (equal to 28 mg/kg bw per day). The NOAEL for carcinogenicity in rats was 500 ppm (equal to 28 mg/kg bw per day), the highest dose tested.

The meeting concluded that tiafenacil is not carcinogenic in mice or rats.

Tiafenacil was tested for genotoxicity in an adequate range of *in vitro* and *in vivo* assays. No evidence of genotoxicity was found.

The meeting concluded that tiafenacil is unlikely to be genotoxic.

In view of the lack of carcinogenicity in mice and rats and the fact that the compound is unlikely to be genotoxic, the meeting concluded that tiafenacil is unlikely to pose a carcinogenic risk to humans.

In a two-generation reproductive toxicity study in rats, tiafenacil was administered at dietary concentrations of 0, 10, 50 or 150 ppm (equal to 0, 0.53, 2.6 and 8 mg/kg bw per day for males, and 0, 0.86, 4.3 and 12.7 mg/kg bw per day for females). The NOAEL for parental toxicity was 50 ppm (equal to 2.6 mg/kg bw per day) based on decreased body weight and increased total liver porphyrin concentrations at 150 ppm (equal to 8 mg/kg bw per day). The reproductive NOAEL was 150 ppm (equal to 8 mg/kg bw per day), highest dose tested. The offspring NOAEL was 50 ppm (equal to 2.6 mg/kg bw per day), based on increased total liver porphyrin concentrations at 150 ppm (equal to 8 mg/kg bw per day).

In a developmental toxicity study in rats, tiafenacil was administered by gavage at dose levels of 0, 10, 20 or 50 mg/kg bw per day from gestation day (GD) 6 to 19. The maternal and embryo/fetal NOAEL was 20 mg/kg bw per day, based on increase in maternal white blood cell parameters and lower mean embryo/fetal weights at the LOAEL of 50 mg/kg bw per day.

In a developmental toxicity study in rabbits, tiafenacil was administered by gavage at dose levels of 0, 30, 100 or 300 mg/kg bw per day from GD 6 to 28. The maternal NOAEL was 30 mg/kg bw per day based on anaemia at 100 mg/kg bw per day. The embryo/fetal NOAEL was 300 mg/kg bw per day, the highest dose tested.

The meeting concluded that tiafenacil does not cause congenital malformation.

In an acute neurotoxicity study in rats, tiafenacil was administered by gavage at doses of 0, 50, 300 or 2000 mg/kg bw. The NOAEL for acute neurotoxicity and systemic toxicity was 2000 mg/kg bw, the highest dose tested.

In a 90-day neurotoxicity study in rats, tiafenacil was administered at dietary concentrations of 0, 110, 330 or 1100 ppm (equal to 0, 9, 26 and 89 mg/kg bw per day in males, and 0, 10, 29 and 105 mg/kg bw per day in females). The systemic NOAEL was 330 ppm (equal to 26 mg/kg bw per day) based on severe clinical signs (two animals were killed prematurely for humane reasons) and reduced body weights and food consumption in the remaining animals, at 1100 ppm (equal to 89 mg/kg bw per day). The NOAEL for repeated dose neurotoxicity was 1100 ppm (equal to 89 mg/kg bw per day), the highest dose tested.

The meeting concluded that tiafenacil is not neurotoxic.

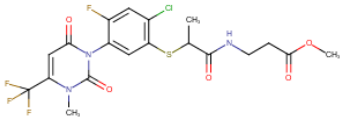
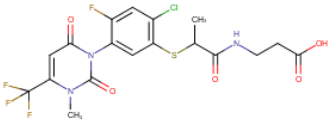
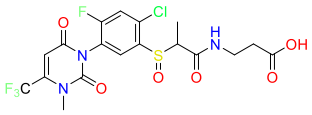
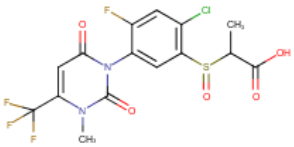
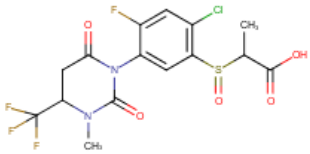
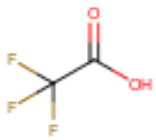
In an immunotoxicity study in male mice, tiafenacil was administered at dietary concentrations of 0, 25, 200 or 2000 ppm (equal to 0, 3.9, 31.3 and 348 mg/kg bw per day) for 28 days. The NOAEL for systemic toxicity was 25 ppm (equal to 3.9 mg/kg bw per day) based on effects on the liver, thymus and spleen (higher relative organ weights, enlargement of the spleen and prominent liver architecture) at 200 ppm (equal to 31.9 mg/kg bw per day). The NOAEL for immunotoxicity was 2000 ppm (equal to 348 mg/kg bw per day), the highest dose tested, as the effects on the thymus and spleen are considered not specific.

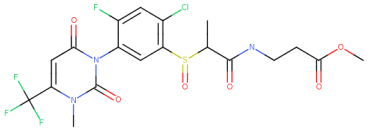
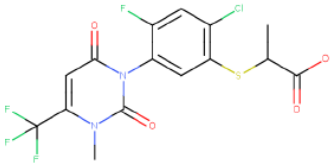
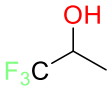
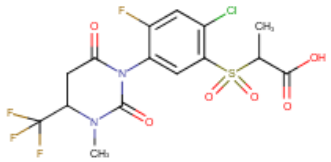
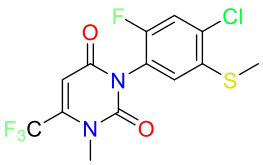
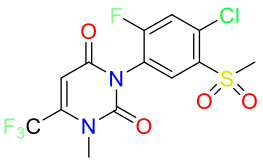
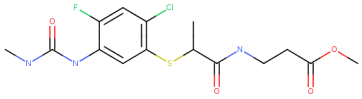
The meeting concluded that tiafenacil is not immunotoxic.

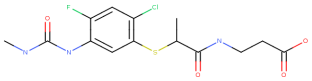
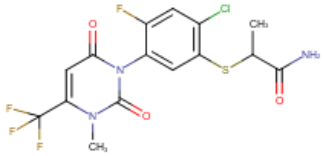
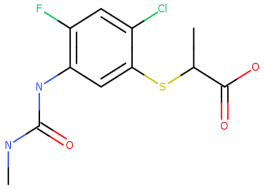
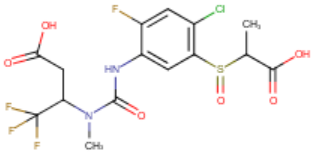
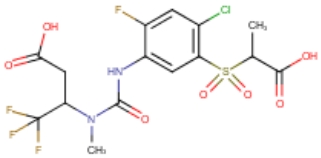
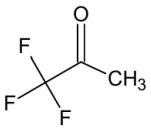
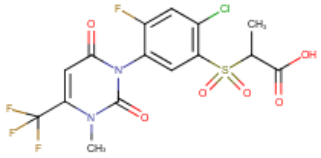
Toxicological data on metabolites and/or degradates

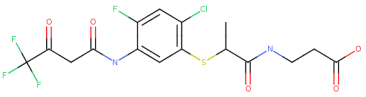
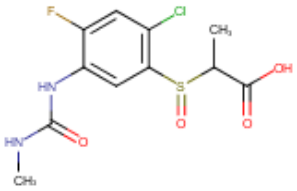
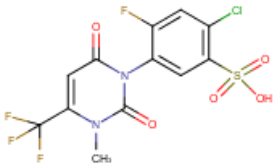
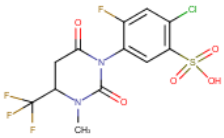
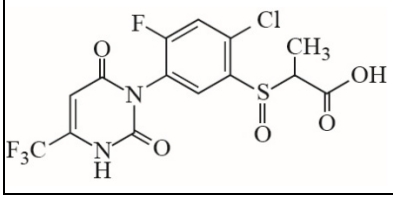
A toxicological evaluation of the following metabolites was performed. The following table shows an overall summary of the toxicological characterization of the plant/livestock metabolites for potential inclusion in the residue definition.

Table 5.37.1 Summary overview of toxicological characterization of plant/livestock metabolites of tiafenacil

Compound code (other names) and structure	Major rat metabolite (>10% AD)	Genotoxicity assessment (data, QSAR, read-across)	General toxicity	Reference value for dietary risk assessment
Tiafenacil (DCC-3825) (CAS) number 1220411-29-9 	Parent	Not genotoxic by data	Full dataset	ADI: 0–0.004 mg/kg bw ARfD: unnecessary
M-01 	Yes	Not genotoxic (covered by parent, QSAR)	Covered by parent	Parent's HBGVs
M-52 	Yes	Not genotoxic (covered by parent, QSAR)	Covered by parent	Parent's HBGVs
M-36 	No	Not genotoxic (data and QSAR)	LD_{50} >2000 mg/kg bw	TTC Cramer class III value: 1.5 µg/kg bw per day (chronic)
M-53 	No	Not genotoxic (data and QSAR)	LD_{50}: >2000 mg/kg bw	TTC Cramer class III value: 1.5 µg/kg bw per day (chronic)
M-32 Trifluoroacetic acid (TFA)  Conclusions on TFA taken from Report item for cyclobutrifluram (339) evaluated by the 2024 JMPR	No	–	–	Based on 2024 evaluation: ADI: 0–0.04 mg/kg bw ARfD: 0.5 mg/kg bw for women of child-bearing age ARfD for general population: unnecessary

M-10 	No	Not genotoxic (QSAR)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
M-12 	No	Not genotoxic (QSAR)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
M-34 (1,1,1-Trifluoropropan-2-ol) 	No	Not genotoxic (QSAR)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
M-63 	No	Not genotoxic (QSAR)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
M-87 	No	Not genotoxic (QSAR)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
M-88 	No	Not genotoxic (QSAR)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
M-06 	No	Not genotoxic (QSAR)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)

M-07 	No	Not genotoxic (QSAR)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
M-13 	No	Not genotoxic (QSAR)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
M-20 	No	Not genotoxic (QSAR)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
M-29 	No	Not genotoxic (QSAR)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
M-30 	No	Not genotoxic (QSAR)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
M-33 	No	Not genotoxic (QSAR)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
M-35 	No	Not genotoxic (QSAR)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)

M-39 	No	Not genotoxic (QSAR)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
M-69 	No	Not genotoxic (QSAR)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
M-72 	No	Not genotoxic (QSAR)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
M-73 	No	Not genotoxic (QSAR)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)
M-56 	No	Not genotoxic (QSAR)	No information	TTC Cramer class III values: 1.5 µg/kg bw per day (chronic) 5 µg/kg bw (acute)

Notes: AD: Administered dose; TTC: threshold of toxicological concern; HBGVs: health-based guidance values.

There are several other metabolites for which insufficient information was provided, and no conclusion can be drawn on toxicological evaluation. Details are given in the monograph.

Microbiological aspects

A search of the literature available in the public domain identified no relevant information on the potential effects of tiafenacil on the microbiome. No experimental data were submitted by the sponsor in this regard.

Human data

In health surveillance of personnel employed in the manufacture of tiafenacil, no negative impacts were observed. In addition, there are no data reported in the public domain, concerning incidents or clinical cases of poisoning with tiafenacil.

The meeting concluded that the existing database on tiafenacil was adequate to characterize the potential hazards to the general population, including fetuses, infants and children.

Toxicological evaluation

The meeting established an acceptable daily intake (ADI) of 0–0.004 mg/kg bw based on the NOAEL of 0.35 mg/kg bw per day from the mouse 18-month carcinogenicity study. A safety factor of 100 was applied. This ADI applies also to the following plant/livestock metabolites: M-01 and M-52.

The meeting concluded that it was not necessary to establish an acute reference dose (ARfD) for tiafenacil in view of its low acute oral toxicity and the absence of developmental toxicity or any other toxicological effects likely to be elicited by a single dose.

The meeting recognized that TFA (M-32), a common metabolite of a number of pesticides, was evaluated by the 2024 JMPR, where an ADI of 0–0.04 mg/kg bw and an ARfD of 0.5 mg/kg bw were established for women of child-bearing age, while an ARfD for general population was considered unnecessary.

The meeting concluded that the threshold of toxicological concern (TTC) Cramer class III approach for chronic exposure (1.5 µg/kg bw per day) should be considered in the risk assessment of the following plant/livestock metabolites, if necessary: M-36 and M-53.

The meeting concluded that the TTC Cramer class III approach for chronic exposure (1.5 µg/kg bw per day) and for acute exposure (5 µg/kg bw) should be considered in the dietary risk assessment of the following plant/livestock metabolites, if necessary: M-10, M-12, M-34, M-63, M-87, M-88, M-06, M-07, M-13, M-20, M-29, M-30, M-33, M-35, M-39, M-56, M-69, M-72 and M-73.

A toxicological monograph was prepared.

Table 5.37.2 Levels relevant to risk assessment of tiafenacil

Species	Study	Effect	NOAEL	LOAEL
Mouse	78-week study of toxicity and carcinogenicity[a]	Toxicity	3 ppm, equal to 0.35 mg/kg bw per day	10 ppm, equal to 1.11 mg/kg bw per day
		Carcinogenicity	75 ppm, equal to 8 mg/kg bw per day[c]	–
Rat	Acute neurotoxicity study[b]	Neurotoxicity	2000 mg/kg bw[c]	–
	Two-year studies of	Toxicity	150 ppm, equal to	500 ppm, equal to

	toxicity and carcinogenicity[a]		8 mg/kg bw per day	28 mg/kg bw per day
		Carcinogenicity	500 ppm, equal to 28 mg/kg bw per day[c]	–
	Two-generation study of reproductive toxicity[a]	Reproductive toxicity	150 ppm, equal to 8 mg/kg bw per day[c]	–
		Parental toxicity	50 ppm, equal to 2.6 mg/kg bw per day	150 ppm, equal to 8 mg/kg bw per day
		Offspring toxicity	50 ppm, equal to 2.6 mg/kg bw per day	150 ppm, equal to 8 mg/kg bw per day
	Developmental toxicity study[b]	Maternal toxicity	20 mg/kg bw per day	50 mg/kg bw per day
		Embryo/fetal toxicity	20 mg/kg bw per day	50 mg/kg bw per day
Rabbit	Developmental toxicity study[b]	Maternal toxicity	30 mg/kg bw per day	100 mg/kg bw per day
		Embryo/fetal toxicity	300 mg/kg bw per day[c]	–
Dog	13-week and one-year studies of toxicity[d, e]	Toxicity	20 mg/kg bw per day	50 mg/kg bw per day

Notes:
[a] Dietary administration.
[b] Gavage administration.
[c] Highest dose tested.
[d] Two or more studies combined.
[e] Capsule administration.

Acceptable daily intake (ADI) for tiafenacil:*

0–0.004 mg/kg bw

Acute reference dose (ARfD) for tiafenacil:

Unnecessary

* Applies to tiafenacil, M-01 and M-52, expressed as tiafenacil.

Table 5.37.3 Critical end-points for setting guidance values for exposure to tiafenacil

Absorption, distribution, excretion and metabolism in mammals	
Rate and extent of oral absorption	Rapid with T_{max} at 0.5 hours; approximately 90%
Distribution	Widely distributed, mostly associated with the liver and kidney
Potential for accumulation	No evidence of accumulation

Rate and extent of excretion	Rapid and nearly complete mostly via bile; 90% within 48 hours
Metabolism in animals	Rapidly transformed into M-01 by cleavage of the methyl ester Metabolite M-01 was further metabolized by degradation of the thioalkyl chain, oxidation of the sulfur atom, modification of pyrimidine ring, demethylation, ring opening, and a combination of these
Toxicologically significant compounds in animals and plants	Tiafenacil, M-01, M-52
Acute toxicity	
Rat, LD_{50}, oral	>2000 mg/kg bw
Rat, LD_{50}, dermal	>2000 mg/kg bw
Rat, LC_{50}, inhalation	>5.38 mg/L
Rabbit, dermal irritation	Not irritating
Rabbit, ocular irritation	Not irritating
Mouse, dermal sensitization	Not sensitizing (LLNA)
Guinea pig, dermal sensitization	Not sensitizing (Magnusson & Kligman)
Short-term studies of toxicity	
Target/critical effect	Decrease in body weight, liver (hepatocellular hypertrophy and pigmented Kupffer cells) and haematological changes (including anaemia and extramedullary haematopoiesis)
Lowest relevant oral NOAEL	9 mg/kg bw per day (rat) <11 mg/kg per day (mouse)
Long-term studies of toxicity and carcinogenicity	
Target/critical effect	Effects in the liver (pigmented Kupffer cells, hepatocellular hypertrophy and vacuolation)
Lowest relevant NOAEL	0.35 mg/kg bw per day (mouse)
Carcinogenicity	Not carcinogenic
Genotoxicity	Unlikely to be genotoxic[a]
Reproductive toxicity	
Target/critical effect	Decreased body weight and higher total liver porphyrin concentrations.
Lowest relevant parental NOAEL	2.6 mg/kg bw per day (rat)

Lowest relevant offspring NOAEL	2.6 mg/kg bw per day (rat)
Lowest relevant reproductive NOAEL	8 mg/kg bw per day, highest dose tested (rat)
Developmental toxicity	
Target/critical effect	Changes in maternal white blood cell parameters and lower mean embryo/fetal weights in rats and anaemia in rabbits.
Lowest relevant maternal NOAEL	20 mg/kg bw per day (rat)
Lowest relevant embryo/fetal NOAEL	20 mg/kg bw per day (rat)
Neurotoxicity	
Acute neurotoxicity NOAEL	>2000 mg/kg bw, highest dose tested (rat)
Subchronic neurotoxicity NOAEL	89 mg/kg bw per day, highest dose tested (rat)
Developmental neurotoxicity NOAEL	No data
Other toxicological studies	
Immunotoxicity	348 mg/kg bw per day, highest dose tested (mouse)
Studies on toxicologically relevant metabolites	
M-36	Acute oral LD_{50}: >2000 mg/kg bw (rat) Not genotoxic (Ames)
M-52	Acute oral LD_{50}: >2000 mg/kg bw (rat) Not genotoxic (Ames)
Microbiological data	Not applicable
Human data	No clinical cases or poisoning incidents have been recorded

Notes: LLNA: Local lymph node assay.

[a] Unlikely to pose a carcinogenic risk to humans via exposure from the diet.

Table 5.37.4 Summary

	Value	Study	Safety factor
ADI	0–0.004 mg/kg bw[a]	18-month carcinogenicity study (mice)	100
ARfD	Unnecessary	–	–

Note:

[a] Applies to tiafenacil, M-01 and M-52, expressed as tiafenacil.

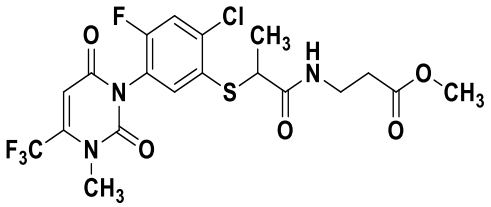
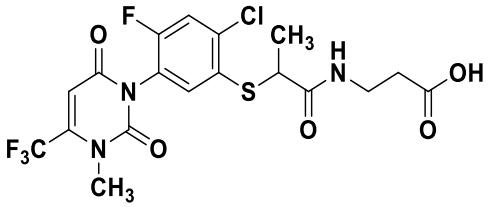
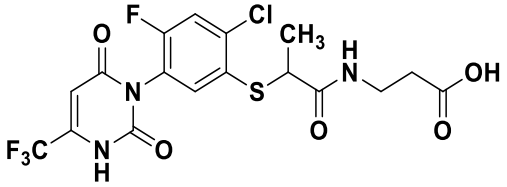
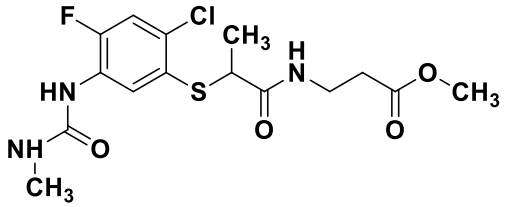
Residue and analytical aspects

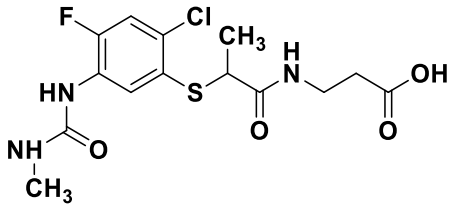
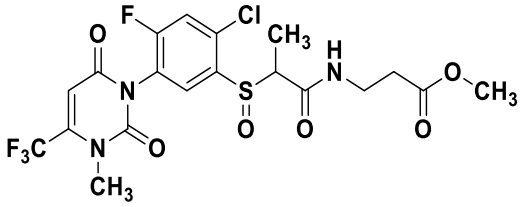
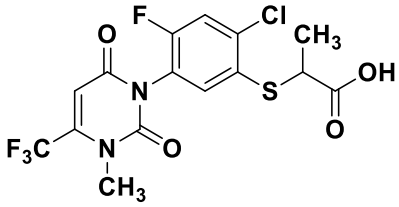
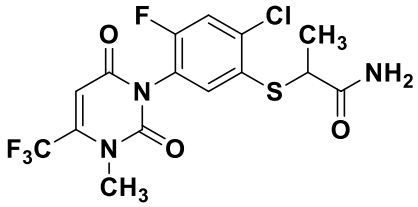
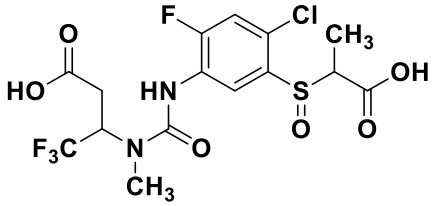
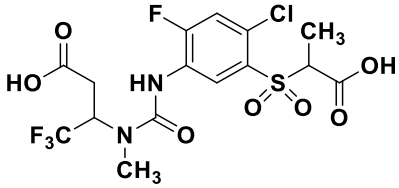
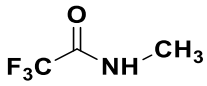
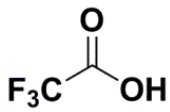
Tiafenacil (UPAC name: methyl 3-[2-[2-chloro-4-fluoro-5-[3-methyl-2,6-dioxo-4-(trifluoromethyl) pyrimidin-1-yl]phenyl]sulfanylpropanoylamino]propanoate), is an herbicide belonging to the pyrimidinedione chemical class. It is a protoporphyrinogen oxidase inhibitor (PPO) which causes disruption of chlorophyll synthesis, protoporphyrin IX accumulation and oxidative damage in plants.

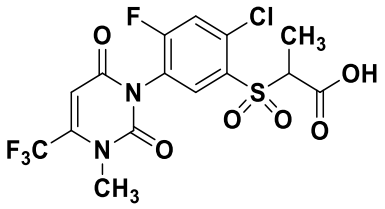
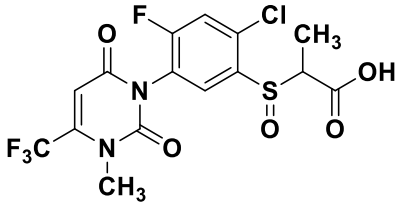
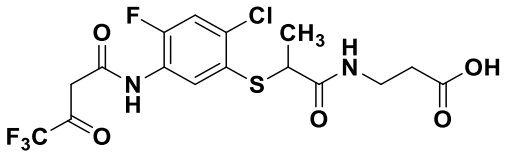
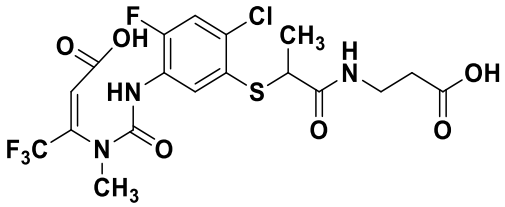
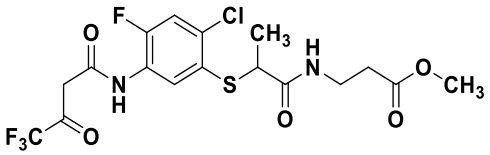
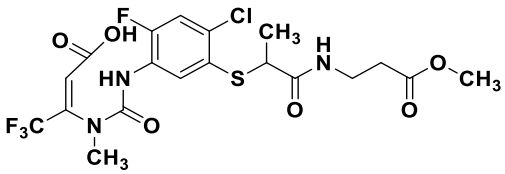
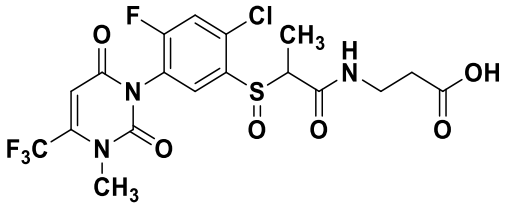
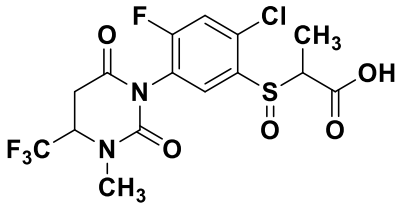
Tiafenacil was scheduled at the 55th Session of the CCPR for evaluation as a new compound by the 2025 JMPR. The meeting received information from the manufacturer on physical and chemical properties, metabolism studies on plants and animals, environmental fate data, analytical method and stability in stored analytical samples, use pattern, supervised residue trials, processing studies and dairy cattle feeding study.

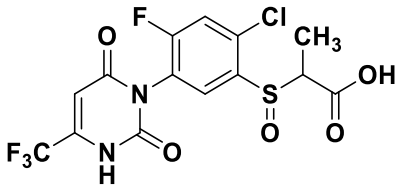
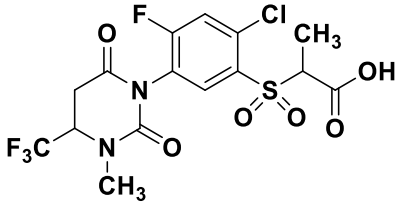
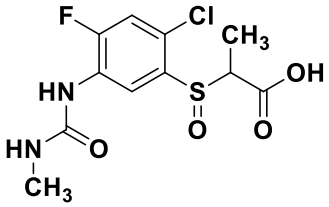
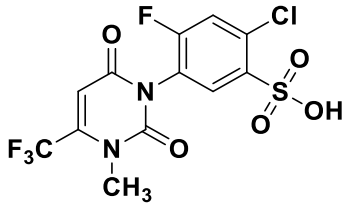
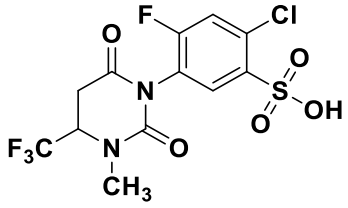
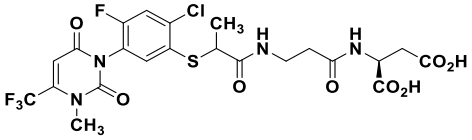
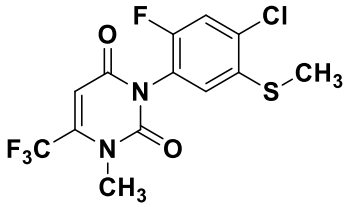
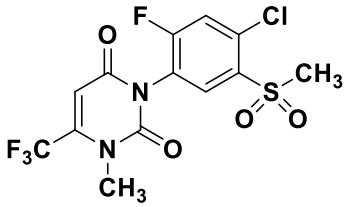
The structure of tiafenacil and its metabolites/degradates are shown in Table 5.37.5.

Table 5.37.5 Summary information on tiafenacil and its metabolites mentioned in this appraisal

Compound	Chemical name	Structure
Tiafenacil	methyl 3-[2-[2-chloro-4-fluoro-5-[3-methyl-2,6-dioxo-4-(trifluoromethyl)pyrimidin-1-yl]phenyl]sulfanylpropanoylamino]propanoate	
M-01	3-(2-((2-chloro-4-fluoro-5-(3-methyl-2,6-dioxo-4-(trifluoromethyl)-3,6-dihydropyrimidin-1(2H)-yl)phenyl)thio)propanamido)propanoic acid	
M-03	3-(2-((2-chloro-5-(2,6-dioxo-4-(trifluoromethyl)-3,6-dihydropyrimidin-1(2H)-yl)-4-fluorophenyl)thio)propanamido)propanoic acid	
M-06	Methyl 3-(2-((2-chloro-4-fluoro-5-(3-methylureido)phenyl)thio)propanamido)propanoate	

Compound	Chemical name	Structure
M-07	3-(2-((2-chloro-4-fluoro-5-(3-methylureido) phenyl)thio)propanamido)propanoic acid	
M-10	Methyl 3-(2-((2-chloro-4-fluoro-5-(3-methyl-2,6-dioxo-4-(trifluoromethyl)-3,6-dihydropyrimidin-1(2H)-yl)phenyl)sulfinyl)propanamido)propanoate	
M-12	2-((2-chloro-4-fluoro-5-(3-methyl-2,6-dioxo-4-(trifluoromethyl)-3,6-dihydropyrimidin-1(2H)-yl)phenyl)thio)propanoic acid	
M-13	2-((2-chloro-4-fluoro-5-(3-methyl-2,6-dioxo-4-(trifluoromethyl)-3,6-dihydropyrimidin-1(2H)-yl)phenyl)thio)propanamide	
M-29	3-(3-(5-((1-carboxyethyl)sulfinyl)-4-chloro-2-fluorophenyl)-1-methylureido)-4,4,4-trifluorobutanoic acid	
M-30	3-(3-(5-((1-carboxyethyl)sulfonyl)-4-chloro-2-fluorophenyl)-1-methylureido)-4,4,4-trifluorobutanoic acid	
M-31	2,2,2-trifluoro-N-methylacetamide	
TFA	Trifluoroacetic acid)	

Compound	Chemical name	Structure
M-35	2-((2-chloro-4-fluoro-5-(3-methyl-2,6-dioxo-4-(trifluoromethyl)-3,6-dihydropyrimidin-1(2H)-yl)phenyl)sulfonyl)propanoic acid	
M-36	2-((2-chloro-4-fluoro-5-(3-methyl-2,6-dioxo-4-(trifluoromethyl)-3,6-dihydropyrimidin-1(2H)-yl)phenyl)sulfinyl)propanoic acid	
M-39	3-(2-((2-chloro-4-fluoro-5-(4,4,4-trifluoro-3-oxobutanamido)phenyl)thio)propanamido)propanoic acid	
M-40	(Z)-3-(3-(5-((1-((2-carboxyethyl)amino)-1-oxopropan-2-yl)thio)-4-chloro-2-fluorophenyl)-1-methylureido)-4,4,4-trifluorobut-2-enoic acid	
M-49	Methyl 3-(2-((2-chloro-4-fluoro-5-(4,4,4-trifluoro-3-oxobutanamido)phenyl)thio)propanamido)propanoate	
M-50	(Z)-3-(3-(4-chloro-2-fluoro-5-((1-((3-methoxy-3-oxopropyl)amino)-1-oxopropan-2-yl)thio)phenyl)-1-methylureido)-4,4,4-trifluorobut-2-enoic acid	
M-52	3-(2-((2-chloro-4-fluoro-5-(3-methyl-2,6-dioxo-4-(trifluoromethyl)-3,6-dihydropyrimidin-1(2H)-yl)phenyl)sulfinyl)propanamido)propanoic acid	
M-53	2-((2-chloro-4-fluoro-5-(3-methyl-2,6-dioxo-4-(trifluoromethyl)tetrahydropyrimidin-1(2H)-yl)phenyl)sulfinyl)propanoic acid	

Compound	Chemical name	Structure
M-56	2-((2-chloro-5-(2,6-dioxo-4-(trifluoromethyl)-3,6-dihydropyrimidin-1(2H)-yl)-4-fluorophenyl)sulfinyl)propanoic acid	
M-63	2-((2-chloro-4-fluoro-5-(3-methyl-2,6-dioxo-4-(trifluoromethyl)tetrahydropyrimidin-1(2H)-yl)phenyl)sulfonyl)propanoic acid	
M-69	2-((2-chloro-4-fluoro-5-(3-methylureido)phenyl)sulfinyl)propanoic acid	
M-72	2-chloro-4-fluoro-5-(3-methyl-2,6-dioxo-4-(trifluoromethyl)-3,6-dihydropyrimidin-1(2H)-yl)benzenesulfonic acid	
M-73	2-chloro-4-fluoro-5-(3-methyl-2,6-dioxo-4-(trifluoromethyl)tetrahydropyrimidin-1(2H)-yl)benzenesulfonic acid	
M-74	(3-(2-((2-chloro-4-fluoro-5-(3-methyl-2,6-dioxo-4-(trifluoromethyl)-3,6-dihydropyrimidin-1(2H)-yl)phenyl)thio)propanamido)propanoyl)-L-aspartic acid	
M-87	3-(4-chloro-2-fluoro-5-(methylthio)phenyl)-1-methyl-6-(trifluoromethyl)pyrimidine-2,4(1H,3H)-dione	
M-88	3-(4-chloro-2-fluoro-5-(methylsulfonyl)phenyl)-1-methyl-6-(trifluoromethyl)pyrimidine-2,4(1H,3H)-dione	

Based on its physical chemical properties, tiafenacil is slightly soluble in water and highly soluble in organic solvents. It is not likely to sequester to fatty matrices based on its octanol/water partition coefficient. It has low potential for volatilization and hydrolysis and photolysis are unlikely to be important routes of degradation at environmentally relevant pH levels.

Plant metabolism

Tiafenacil metabolism data were submitted for mandarin (soil-directed), soya bean (desiccation), maize (pre-plant), potato (pre-plant and desiccation) and cotton (desiccation).

Mandarin – soil directed

Mandarin trees, maintained outdoors, received one soil-directed application of [pyrimidinyl-4-^{14}C]-tiafenacil (referred to as [PY-^{14}C]-tiafenacil) and [phenyl-U-^{14}C]-tiafenacil (referred to as [PH-^{14}C]-tiafenacil), formulated as a soluble concentrate, at 432–476 g ai/ha using a handheld sprayer system. Samples of immature fruit and foliage samples and mature fruit (separated into peel and pulp) and foliage were collected at 30 and 60 days after the last applications (DALA).

For both radiolabels, total radioactive residues (TRR) in immature fruit (≤0.001 mg eq/kg) and mature peel (<0.001–0.004 mg eq/kg) and pulp (≤0.001 mg eq/kg) were comparable at the 30 and 60 DALA. However, for immature and mature foliage, TRRs increased with increasing DALA, from 0.001 to 0.013 mg eq/kg and 0.002 to 0.036 mg eq/kg, respectively, demonstrating gradual migration from the roots of the trees to the foliage.

Only samples of mature foliage (30 DALA) and immature and mature foliage (60 DALA) from the PY-experiment had TRR >0.01 mg eq/kg and were subjected to further extraction and analysis. Solvent extraction of all foliage samples using acetonitrile:water released 91–98 percent TRR.

Total identified residues in immature and mature foliage samples accounted for 90–96 percent TRR. No parent tiafenacil was observed. The major metabolite identified was trifluoroacetic acid (TFA) at concentrations up to 91 percent TRR (0.013–0.031 mg eq/kg). Minor metabolites, only identified in the 60 DALA mature foliage, included M-36, M-52 and M-63, each accounting for ≤3 percent TRR (≤0.001 mg eq/kg).

Soya bean – desiccation

[PH-^{14}C]-tiafenacil and [PY-^{14}C]-tiafenacil, formulated as wettable granules, were applied once at a rate of 146–150 g ai/ha to soya beans grown in containers maintained outdoor. Soya bean straw and seed pods were harvested at maturity (BBCH 89), 7 days following application. The seeds were manually removed from the pods and the pods were added to the straw samples.

The TRRs in seed and straw samples were 0.03–0.06 mg eq/kg and 2.49–2.58 mg eq/kg, respectively. Extraction using aqueous acetonitrile released the majority of the radioactivity (≥98 percent TRR) in both straw and seed samples.

Total identified residues in straw accounted for 86–87 percent TRR. Tiafenacil accounted for 67 percent TRR (1.18–1.66 mg/kg). The only significant metabolite, M-10, accounted for 13–16 percent TRR (0.33–0.41 mg eq/kg). Additional metabolites identified included M-01 (4 percent TRR; 0.10 mg eq/kg), M-06 (1 percent TRR; 0.02 mg eq/kg) and TFA (3 percent TRR; 0.07 mg eq/kg).

In soya bean seeds, total identified residues were >100 percent TRR, where tiafenacil was the predominant residue (88–93 percent TRR; 0.02–0.05 mg/kg). All other identified metabolites (M-01, M-10 and TFA) were present at <0.01 mg eq/kg.

Maize – pre-plant

Maize received a single pre-plant soil application of [PH-^{14}C]-tiafenacil and [PY-^{14}C]-tiafenacil, 14 days prior to planting, at a rate of 153–154 g ai/ha. Immature forage (BBCH 15) and cobs and grain (BBCH 78) were collected 28 days and 145 days after planting, respectively, while mature stover, cobs and grain were collected at BBCH 89 (173 days after planting).

TRRs were highest in stover (0.012–0.035 mg eq/kg), followed by forage (0.015–0.023 mg eq/kg) and mature cobs (0.001–0.005 mg eq/kg). The lowest radioactivity was detected in immature cobs and grain and mature grain (≤0.002 mg eq/kg). In turn, no further analysis was conducted on these matrices.

Extraction of immature maize foliage samples using aqueous acetonitrile and 0.1percent formic acid released the majority of the radioactivity (90–95 percent TRR). Total identified residues accounted for 54–73 percent TRR. Tiafenacil was not identified in the foliage samples. The significant metabolite observed was TFA (58 percent TRR; 0.013 mg eq/kg). All other identified metabolites (M-10, M-36, M-52, M-53, M-56, M-63) were present at <0.01 mg eq/kg.

The extractability of mature maize stover using the same organic solvents ranged from 90 to 94 percent TRR. Total identified residues accounted for 52–62 percent TRR. The metabolic profile was the same as that in maize foliage, where tiafenacil was not identified and the significant metabolite observed was TFA (52 percent TRR; 0.018 mg eq/kg). All other identified metabolites (M-10, M-36, M-52, M-53, M-56, M-63) were present at <0.01 mg eq/kg.

Potato – pre-plant

[PH-^{14}C]-tiafenacil and [PY-^{14}C]-tiafenacil, formulated as suspension concentrates, were applied once to bare soil, 14 days prior to planting potatoes. The rates of application ranged from 147 to 149 g ai/ha. Potato tubers and foliage (leaves and stems) were sampled at maturity, 146 days following treatment. Soil particles were rinsed from the tubers using water prior to analysis.

The TRRs in potato tuber samples were 0.002 mg eq/kg and 0.001 mg eq/kg, which were magnitudes lower than those in foliage samples, 0.057 mg eq/kg and 0.247 mg eq/kg, for PH- and PY-experiments, respectively, an evidence of migration from the roots to the foliage. No further analysis of the potato tuber samples was conducted.

Solvent extraction of mature potato foliage with acetonitrile:water:formic acid released 90–96 percent TRR. Total identified residues accounted for 71–83 percent TRR. The major metabolite observed was TFA, accounting for 43 percent TRR (0.11 mg eq/kg). Other significant metabolites observed included M-36 representing 12–25 percent TRR (0.01–0.03 mg eq/kg), followed by M-52 representing 12–16 percent TRR (0.009–0.03 mg eq/kg), M-56 present at 6–14 percent TRR (0.008–0.02 mg eq/kg) and M-53 accounting for 6–10 percent TRR (0.006–0.015 mg eq/kg). The minor metabolites M-10 and M-63 were present at ≤3.5 percent TRR (≤0.006 mg eq/kg).

Potato – desiccation

[PH-^{14}C]-tiafenacil and [PY-^{14}C]-tiafenacil, formulated as suspension concentrates, were applied once to potatoes grown in containers maintained outdoor at a rate of application of 51 g ai/ha. Potato plants were sampled 14 days following treatment, and separated into tubers and foliage. Soil particles were rinsed from the tubers using water and the rinsate was discarded.

The TRR in potato tuber samples were <0.001 mg eq/kg and therefore were not subjected to further characterization/identification. TRR in foliage samples were 3.25 mg eq/kg and 3.81 mg eq/kg for the PH- and PY-experiments, respectively.

Extraction of foliage samples with aqueous acetonitrile recovered 93–96 percent TRR. Total identified residues in immature and mature foliage samples accounted for 92 percent TRR. Tiafenacil was the predominant residue, ranging from 43 to 52 percent TRR (1.63–1.70 mg/kg). Major metabolites identified included metabolite M-10 (20–26 percent TRR; 0.65–1.00 mg eq/kg), M-01 (6–9 percent TRR; 0.20–0.33 mg eq/kg), M-03 (2–5 percent TRR; 0.08–0.18 mg eq/kg), M-52 (3–5 percent TRR; 0.09–0.2 mg eq/kg) and M-74 (4–9 percent TRR; 0.16–0.30 mg eq/kg). TFA was a minor metabolite accounting for only 0.4 percent TRR (0.015 mg eq/kg).

Cotton – desiccation

[PH-^{14}C]-tiafenacil and [PY-^{14}C]-tiafenacil, formulated as wettable granules, were applied once at 142–151 g ai/ha to cotton grown in containers maintained outdoor. Cotton gin trash was removed from the plants manually at maturity, 7 days following application. The mature seeds were separated from the cotton gin trash and the straw, comprising burrs, leaves, stems, lint, and immature seeds, was sampled separately.

The TRR in cotton seed samples were 0.002–0.007 mg eq/kg, and therefore no further analysis was conducted. TRR in straw and gin trash samples were 1.77–1.81 mg eq/kg and 1.30–1.63 mg eq/kg, respectively.

Solvent extraction using acetonitrile:water:formic acid released 97–99 percent TRR in straw and gin samples. In cotton gin trash, total identified residues represented 98–100 percent TRR, predominantly parent tiafenacil, accounting for 84–85 percent TRR (1.10–1.37 mg/kg), followed by M-10 (8–13 percent TRR; 0.14–0.17 mg eq/kg). Additional metabolites included M-01 (4 percent TRR; 0.10 mg eq/kg), M-06 (1 percent TRR; 0.02 mg eq/kg) and TFA (2 percent TRR; 0.02 mg eq/kg).

A similar profile was observed in cotton straw, where total identified residues represented 93–100 percent TRR, predominantly parent tiafenacil (70–87 percent TRR; 1.24–1.58 mg/kg) and M–10 (5–11 percent TRR; 0.09–20 mg eq/kg). Additional metabolites included M–01 (2–5 percent TRR; 0.04–0.09 mg eq/kg), M–06 (5 percent TRR; 0.10 mg eq/kg) and TFA (6 percent TRR; 0.11 mg eq/kg).

Summary of plant metabolism

The metabolism of tiafenacil was investigated following desiccation application to potatoes, cotton and soya bean and soil application to maize, potatoes and mandarin trees.

Following desiccation application, the most prominent residue identified in mature potato foliage, soybean straw and seeds and cotton gin trash and straw was tiafenacil (43–93 percent TRR; 0.02–1.70 mg/kg), M-10 (5–26 percent TRR; 0.004–1.00 mg eq/kg). Other major metabolites identified, based on absolute TRRs, included M-01 (4–9 percent TRR; 0.10–0.33 mg eq/kg), M-03 (2–5 percent TRR; 0.08–0.18 mg eq/kg), M-06 (1 percent TRR; 0.02 mg eq/kg), M-52 (3–5 percent TRR; 0.09–0.20 mg eq/kg), M-74 (4–9 percent TRR; 0.16–0.30 mg eq/kg) and TFA (0.4–6 percent TRR; 0.015–0.11 mg eq/kg).

Following soil application, tiafenacil was extensively metabolized into several identified metabolites. The most prominent metabolite identified in mature mandarin foliage, mature potato foliage and maize immature foliage and mature stover was TFA (43–92 percent TRR; 0.013–0.107 mg eq/kg) which was postulated to be potentially produced in the soil by degradation (ring opening) of the pyrimidine ring and subsequently taken up by the plant. Other major metabolites identified were M-36 (12–25 percent TRR; 0.001–0.03 mg eq/kg), M-52 (12–16 percent TRR; 0.002–0.030 mg eq/kg), M-53 (6–10 percent TRR; 0.001–0.015 mg eq/kg), and M-56 (6–19 percent TRR; 0.008–0.015 mg eq/kg). The metabolic pathway of tiafenacil was found to be more extensive following soil application.

Metabolism on animals

Tiafenacil metabolism data were submitted for rats, lactating goats and laying hens. The metabolism of tiafenacil in rats was evaluated by the WHO Core Assessment Group of the 2025 JMPR.

Lactating goat

The metabolism of [PY-^{14}C]-tiafenacil and [PH-^{14}C]-tiafenacil was investigated in lactating goats. The average daily dose administered via gelatin capsule for 7 or 8 days, based on average feed consumption was equivalent to 31.0 and 13.5 ppm in the diet (ca. 0.26–0.28 mg/kg bw/day) for [PY-^{14}C]- and [PH-^{14}C]-tiafenacil dosed goats, respectively. Faeces and urine were collected once daily and milk collected twice daily. The goats were sacrificed approximately 6 hours after the last dose and bile, liver, kidney, flank muscle, loin muscle, peritoneal fat, subcutaneous fat, omental fat, gastrointestinal tract and gastrointestinal tract contents were collected.

Most of the radioactivity was recovered in the excreta, with feces containing 47–61 percent of the administered dose (AD) and urine 12–22 percent AD. The radioactivity recovered in milk and tissues was low, collectively accounting for ≤1 percent AD. Plateau levels of radioactive residues in milk could not be determined for [PY-^{14}C]-tiafenacil as there was a continued increase in radioactivity as a function of time. However, radioactive residues appeared to plateau at 96 hours for the goat dosed with [PH-^{14}C]-tiafenacil.

The calculated TRR in the pooled milk samples from the [PY-^{14}C]-label experiment were 0.016 and 0.029 mg eq/kg at days 2–3 and days 4–6, respectively. For the [PH-^{14}C]-label experiment TRR was 0.006 mg eq/kg (Days 4–6). For tissues, TRR were highest in liver (0.22–0.50 mg eq/kg), followed by kidney (0.14–0.19 mg eq/kg), composite fat (0.012–0.029 mg eq/kg) and composite muscle (0.009–0.028 mg eq/kg).

Up to 95 percent of the TRRs in milk samples were released using hexane and acetonitrile:water. No further characterization/identification was performed on the milk extracts from the PH-experiment due the low TRR. For the PY-experiment, total identified residues accounted for 32–43 percent TRR, where unchanged tiafenacil was detected at a very low level (2 percent TRR; <0.001 mg/kg), while several metabolites were identified (M-01, M-31, M-33, M-34, M-88 and TFA), neither accounting for greater than 10 percent TRR (≤0.003 mg eq/kg).

Solvent extraction of liver samples using acetonitrile:water released 93–94 percent TRR. Total identified residues accounted for 87–89 percent TRR, with tiafenacil being only detected in the PH-experiment at low levels (3 percent TRR; 0.006 mg/kg). The major metabolites were M-34 (65 percent TRR; 0.33 mg eq/kg), M-01 (14–55 percent TRR, 0.07–0.12 mg eq/kg) and M-63 (8–22 percent TRR, 0.04–0.05 mg eq/kg). Two additional minor metabolites M-36 and M-88 accounted for ≤6 percent TRR (≤0.013 mg eq/kg).

Solvent extraction of kidney samples using acetonitrile:water released 94–99 percent TRR. Total identified residues accounted for 90 percent TRR, with tiafenacil observed at low levels (5 percent TRR; 0.007 mg/kg). The major metabolites identified were M-01 (27–64 percent TRR; 0.05–0.09 mg eq/kg), TFA (62 percent TRR; 0.12 mg eq/kg) and M-36 (12 percent TRR; 0.016 mg eq/kg). M-63 and M-88, accounted for ≤7 percent TRR (≤0.009 mg eq/kg).

Aqueous acetonitrile extraction of the composite muscle samples released a total of 88–100 percent TRR. Total identified residues accounted for 49–90 percent TRR. Tiafenacil was not detected. Several major metabolites each accounting for ≥10 percent TRR, yet concentrations were less than 0.01 mg eq/kg: M-01 (8–63 percent TRR; 0.002–0.006 mg eq/kg), TFA (10 percent TRR; 0.003 mg eq/kg), M-34 (22 percent TRR; 0.006 mg eq/kg), M-36 (12 percent TRR; 0.001 mg eq/kg) and M-88 (6–14 percent TRR; 0.001 mg eq/kg). M-31 accounted for 3 percent TRR (0.001 mg eq/kg).

Aqueous acetonitrile extraction of the composite fat samples released up to 99 percent of the TRRs. Total identified residues accounted for 87–94 percent TRR. Tiafenacil was not detected. M-88, was the only major metabolite identified, accounting for 70–87 percent TRR (0.008–0.02 mg eq/kg). Three minor identified metabolites were observed, M-01, M-36 and M-63, each accounting for 7–9 percent TRR (0.001 mg eq/kg).

Laying hen

The metabolism of [PY-^{14}C]-tiafenacil and [PH-^{14}C]-tiafenacil was investigated in laying hens. The nominal daily oral doses were equivalent to 12 mg/kg in the diet administered via gelatin capsule for 14 consecutive days. During the dosing period, excreta was collected once daily, while eggs were collected twice daily and separated into yolk and white. Liver, kidney, breast muscle, leg and thigh muscle, skin with fat, peritoneal fat, GI tract and contents, and bile were collected after animal sacrifice, approximately 6 hours after administration of the last dose.

Most of the radioactivity was recovered in the excreta and cage wash (86–87 percent AD). The radioactivity recovered in eggs and tissues was low, accounting for a total of ≤1 percent AD. Plateau levels of radioactive residues in egg whites and egg yolks were reached 120 hours (5 days) and 216 hours (9 days), respectively, following administration.

TRR in egg yolks and egg whites were 0.002–0.095 and 0.006–0.052 mg eq/kg, respectively. For tissues, TRR were highest in kidney (0.30–0.31 mg eq/kg), followed by liver (0.23–0.26 mg eq/kg), peritoneal fat (0.20–0.24 mg eq/kg), skin and fat (0.13–0.15 mg eq/kg), leg and thigh muscle (0.05 mg eq/kg) and breast muscle (0.03 mg eq/kg).

Tiafenacil was not observed in any of the tested poultry matrices.

All the radioactivity was released from egg whites using aqueous acetonitrile and 95–98 percent TRRs from egg yolks. Total identified residues accounted for 84–98 and 71–81 percent TRR, respectively. M-88 was a major metabolite in both matrices, accounting for 54–63 percent TRR (0.020–0.024 mg eq/kg) in egg whites and 50–71 percent TRR (0.036–0.050 mg eq/kg) in egg yolks. All other identified metabolites in egg white, M-01, M-12, M-36 and M-87, individually accounted for ≤20 percent TRR (≤0.008 mg eq/kg). In egg yolk, M-87 accounted for 6–17 percent TRR (0.004–0.012 mg eq/kg), and M-01 and M-12 for ≤2 percent TRR (≤0.002 mg eq/kg).

Ninety percent of the radioactivity in liver was extracted using acetonitrile:water with total identified residues accounting for 65–80 percent TRR. Three significant metabolites were identified, M-12 (28–32 percent TRR; 0.065–0.084 mg eq/kg), M-88 (18–20 percent TRR; 0.050 mg eq/kg) and M-01 (15–17 percent TRR; 0.040 mg eq/kg). Three minor metabolites, M-13, M-35 and M-36, accounted for 3–8 percent TRR (0.007–0.010 mg eq/kg).

Up to 94 percent TRR was extracted from kidney samples using aqueous acetonitrile, with total identified residues accounting for 74–77 percent TRR. Three major metabolites were identified, M-12 (36–45 percent TRR; 0.11–0.14 mg eq/kg), M-88 (11 percent TRR; 0.030 mg eq/kg) and M-13 (10 percent TRR; 0.030 mg eq/kg). Four metabolites were identified at <10 percent TRR, but accounted for ≥0.01 mg eq/kg; M-01 (0.022–0.024 mg eq/kg) and M-35/M-36/M-72 (each 0.01 mg eq/kg).

Solvent extraction of the composite muscle samples using acetonitrile:water released 93–96 percent TRR, and total identified residues accounting for 73–85 percent TRR. M-88 was a major identified metabolite (49–56 percent TRR; 0.023 mg eq/kg), followed by M-01 (9–10 percent TRR; 0.005 mg eq/kg). Five minor components were also observed, M-12, M-13, M-35, M-36 and M-87, each accounting for 1–9 percent TRR (0.001– 0.004 mg eq/kg).

Extraction with aqueous acetonitrile also released the majority (up to 99 percent TRR) of the radioactivity in composite fat samples and total identified residues accounted for 82–93 percent TRR. The major metabolites identified were M-88 (62–67 percent TRR; 0.11–0.13 mg eq/kg) followed by M-87 (12–30 percent TRR; 0.02–0.06 mg eq/kg). The four minor metabolites were also identified; M-01, M-12, M-36 and M-72, each representing ≤2 percent TRR (≤0.003 mg eq/kg).

Summary of animal metabolism

The majority of the administered dose in lactating goats and laying hens was excreted. Radioactivity remaining in tissues, milk and eggs was low (collectively accounting for <1 percent AD).

In goat milk, liver and kidney, tiafenacil was present at very low levels (≤5 percent TRR; ≤ 0.007 mg/kg) while tiafenacil was not observed in goat muscle and fat or any of the poultry matrices. Three predominant metabolites observed in both animals were M-01 (goat/hen: liver and muscle, goat: kidney), M-36 (goat: kidney and muscle and poultry: egg whites) and M-88 (goat: muscle and fat, poultry: all matrices). Metabolites M-12 and/or M-13 were observed as major metabolites in poultry liver and kidney only. Lastly, the remaining major species-specific metabolites observed were TFA (goat: milk, kidney, muscle), M-34 (goat: liver and muscle) and M-87 (poultry: egg whites, egg yolks and skin with fat).

Environmental fate

The meeting received information on the aerobic metabolism of tiafenacil in soil, aerobic degradation, field dissipation and soil photolysis studies. Studies were also received on the nature of [^{14}C]-tiafenacil in confined rotational crops and the magnitude of tiafenacil in field rotational crops.

Route and degradation in soil (laboratory studies)

The degradation of [PH-^{14}C]-tiafenacil and [PY-^{14}C]-tiafenacil was investigated in four soils under aerobic conditions for a duration of 180 days. In all soil types, tiafenacil degraded rapidly with DT_{50} values ranging from 0.7 to 2.7 hours and DT_{90} values ranging from 2.4 to 8.9 hours.

Several major metabolites were identified throughout the sampling period including M-01 (up to 66 percent of the applied radioactivity, AR), followed by M-36 (up to 58 percent AR), M-53 (up to 52 percent AR), M-12 (up to 51 percent AR), M-13 (up to 36 percent AR), M-69 (up to 27 percent AR), M-63 (up to 25 percent AR), TFA (up to 21 percent AR) and M-29 (up to 20 percent AR).

Field dissipation

The dissipation of tiafenacil under field conditions was studied in two sites in the United States on bare soil. TFA was not analysed. Residues of tiafenacil and its metabolites were detected only in the first 7.5 cm of the soils, and very limited residues above the LOQ were detected below 7.5 cm in any sample at any site. The DT_{50} values were estimated to be 4 and 67 days, depending on the site. The meeting concluded that tiafenacil and its metabolites show limited potential to accumulate in soil following application in consecutive years.

Hydrolysis

Tiafenacil was shown to be hydrolytically stable under acidic conditions (pH 4). At environmentally relevant pH (7–9) and temperatures ranging from 15 to 45 °C, tiafenacil degraded rapidly to several metabolites, M-01, M-06, M-07, M-33, M-39, M-40, M-49 and M-50. Therefore, hydrolysis is likely to be a significant route of degradation under environmental conditions.

Soil photolysis

Soil photolysis is not a major route of degradation for tiafenacil when exposed to artificial sunlight under laboratory conditions.

Confined rotational crops

[PH-^{14}C]-tiafenacil and [PY-^{14}C]-tiafenacil were applied at 145–146 g ai/ha to containers filled with sandy loam soil and maintained in greenhouses. At each plant-back interval (PBI) of 30, 120 and 365 days, representative wheat, lettuce and radish were sown. Crops were harvested at immature and mature growth stages and separated into food and feed items (wheat: forage, hay, straw, chaff and grain; lettuce: immature and mature foliage; radish: mature foliage and roots). Due to a failed crop, there was insufficient lettuce to harvest from the PH-experiment at 120-day PBI. Therefore, an additional sowing was carried out at 180-day PBI.

TRR decreased with increasing PBI, and were <0.01 mg eq/kg in immature lettuce leaves (180-day PBI), mature lettuce leaves (180- and 365-day PBIs) and radish roots (120–365-day PBIs). Therefore, these were not further subjected to identification/characterization.

In all tested matrices, aqueous acetonitrile extraction with 0.1 percent formic acid released the majority of the radioactivity (71–106 percent TRR). Tiafenacil was not observed in any of the matrices at any PBI.

In wheat forage, hay, straw, grain and chaff, M-36 was a significant metabolite accounting for 12–39 percent TRR (0.008–0.17 mg eq/kg), 17–33 percent TRR (0.01–0.12 mg eq/kg) and 13–26 percent TRR (0.005–0.05 mg eq/kg) at the 30-, 120- and 365-day PBIs, respectively. M-52 and M-53 were also identified as major metabolites in forage, hay, straw and chaff, representing 6–28 percent TRR (0.006–0.09 mg eq/kg), 10–18 percent TRR (0.004–0.08 mg eq/kg) and 6–27 percent TRR (0.003–0.07 mg eq/kg) at PBIs of 30, 120 and 365 days, respectively. Metabolites M-56, M-63, M-72 and M-73 were present in all wheat matrices at concentrations <10 percent TRR and <0.01 mg eq/kg, except straw where absolute concentrations reached 0.04 mg eq/kg at the 120-day PBI and decreased thereafter. In all tested wheat matrices, TFA was also observed as a major metabolite at all PBIs, following application of [PY-^{14}C]-tiafenacil only, ranging from 9 to 49 percent TRR (0.02–0.17 mg eq/kg).

In immature and mature lettuce sown 30-, 180- and 365-days and radish roots and foliage sown 30-. 120- and 365- days following application to bare soil, the metabolites M-36, M-52, M-53 and M-72 (radish roots and foliage) were present at ≥10 percent TRR, but did not exceed 0.01 mg eq/kg. The minor metabolites M-56, M-63, M-72 (immature and mature lettuce) and M-73 (radish foliage) were also identified. TFA was a significant component detected in these matrices, accounting for 35–58 percent TRR (0.005–0.06 mg eq/kg) at the 30-day PBI and increasing to 59–79 percent TRR (0.02–0.04 mg eq/kg) and 59–77 percent TRR (0.02–0.03 mg eq/kg) at the 120/180-day and 365-day PBIs, respectively, following application of [PY-^{14}C]-tiafenacil only.

In summary, when rotational crops (wheat, lettuce and radish) were cultivated on tiafenacil-treated soil, TFA was the most prominent metabolite, followed by the metabolites M-36, M-52, M-53 and M-72 (radish roots and foliage).

Field rotational crop study

Six trials were conducted in North America from the 2015 through 2017 growing seasons. At each site, three plots were established where bare soil received a spray application of a wettable granule (WG) formulation containing 70 percent tiafenacil at rates ranging from 145 to 152 g ai/ha/application. The treated soil was aged for 1 month, 3–4 months or 12 months prior to planting wheat.

The wheat was harvested at typical timing for forage, hay, grain and straw. Wheat forage was at the 6” to jointing stage (stem elongation). Wheat hay was cut at the boot to soft dough stage and allowed to dry to a moisture content of 10 to 20 percent. Wheat grain and straw were harvested at normal maturity. Residues of TFA were not reported in the study.

In wheat forage, residues of tiafenacil and all its associated metabolites were ≤0.01 mg/kg at all tested PBIs. Residues of tiafenacil and the metabolites (except M-36 and M-63) in wheat hay samples were all <0.01 mg/kg at 1-, 3- and 4-month PBIs. In the 30-day PBI samples, M-36 residues ranged from <0.01 to 0.0133 mg/kg and M-63 residues from <0.01 to 0.0171 mg/kg. At the 120-day PBI, residues of M-36 and M-63 were all <0.01 mg/kg.

Wheat grain samples were analysed from the 30-day PBI only. Residues of all analytes were <0.01 mg/kg. Residues of tiafenacil, M-01, M-10, M-52, M-56, and M-72 were <0.01 mg/kg for all wheat straw samples.

Summary of environmental fate

The data demonstrated that tiafenacil is non-persistent in soil with rapid degradation to various metabolites leading to the formation of TFA. Hydrolysis is an important route of degradation at environmentally relevant pHs while soil photolysis is not an important dissipation process. The metabolism in rotational crops was shown to be similar to that in primary crops following pre-plant soil application. Uptake of tiafenacil and its metabolites, except TFA, in food and feed commodities was very limited.

Methods of residue analysis

The meeting received the description and validation data for method IRA15016N for the determination of tiafenacil and metabolites M-01, M-10, M-36, M 52, M-53 and M-56 in apples, grapes, soya bean seeds and wheat forage, hay and straw. Samples were extracted twice with acetonitrile:water:0.1 percent acetic acid (80:20:1) and analysed using LC-MS/MS. The LOQ is 0.01 mg/kg per analyte.

A QuEChERS method was also provided for the analysis of tiafenacil and its metabolites in maize grain, soya bean seeds, wheat grain, cottonseeds and grapes, where samples were extracted with acetonitrile followed by a liquid-liquid partitioning using buffer-salt mixture and analysed by LC-MS/MS. The LOQ was reported to be 0.01 mg/kg per analyte, but recoveries of M-01, M36, M-52, M-53 and M-56 were unacceptable (≤50 percent). Therefore, the method was not utilized for any of the studies provided to the meeting.

The meeting also received descriptions and validation data for a method used to determine residues of tiafenacil and the metabolites M-01 and M-36 in bovine muscle, fat, liver, kidney, milk, and hen eggs. Animal matrices were extracted with acetonitrile:water:acetic acid (80:20:1) and analysed using LC-MS/MS. The LOQ was reported to be 0.01 mg/kg per analyte.

An LC-MS/MS method with the sample extraction using acetonitrile:water:acetic acid mixture (80:20:1) was also provided for the analysis of tiafenacil and its metabolites M-01, M-10, M-36, M-63 and M-88 in bovine milk, fat, muscle, kidney and liver. The LOQ was reported to be 0.01 mg/kg per analyte.

Stability of pesticides in stored analytical samples

Tiafenacil and the metabolites M-01, M-10, M-36, M-52, M-53 and M-56 were shown to be stable for at least 24 months in grapes (high water content commodity). In soya bean seeds (high oil content commodity), tiafenacil was shown to be stable for up to 6 months. The metabolites M-01, M-10, M-36 and M-53 were shown to be stable for at least 24 months, while the metabolites M-52 and M-56 were shown to be stable for up to 18 months.

Tiafenacil and the metabolites M-01, M-10, M-36, M-52, M-53 and M-56 were shown to be stable for at least 12 months in grape juice and raisins.

In wheat forage, straw and grain, tiafenacil and the metabolites M-01, M-10, M-36, M-52, M-53 and M-56 were shown to be stable for at least 24 months, while metabolites M-63, M-72 and M-73 were shown to be stable for at least 12 months.

All demonstrated storage stability intervals covered the storage durations of the crop field trials, processing studies and field rotational crop studies, with the exception of soya bean seeds, which were stored for 2–12 months prior to analysis.

Definition of the residues

Plant commodities

The nature of the tiafenacil residues was investigated in mandarin following ground application, potatoes following pre-plant and desiccation application, maize following pre-plant application, soya bean and cotton following desiccation application. The uses being assessed at the current meeting include direct burndown spray to weeds in grape vines, pre-plant application to soya beans, maize and wheat and desiccation application to cotton and coffee.

Following pre-plant application of tiafenacil to maize, potatoes and ground application to mandarin trees, parent tiafenacil was entirely metabolized. The most prominent metabolite identified in immature and mature mandarin foliage, mature potato foliage and immature maize foliage and mature maize stover was TFA (43–92 percent TRR; 0.013–0.107 mg eq/kg), a metabolite common to several other pesticides. Other major metabolites identified in the same tested matrices were M-36 (12–25 percent TRR; 0.001–0.03 mg eq/kg), followed by M-52 (12–16 percent TRR; 0.002–0.03 mg eq/kg), M-56 (6–19 percent TRR; 0.008–0.015 mg eq/kg) and M-53 (6–10 percent TRR; 0.001–0.015 mg eq/kg). In the supervised residue trials and processing studies reflecting pre-plant application, residues of tiafenacil, M-01, M-10, M36, M-52, M-53 and M-56 were each below the LOQ of 0.01 mg/kg. Residues of TFA were not reported in the supervised residue trial studies.

Following desiccation application to potatoes, soya bean and cotton, the parent tiafenacil accounted for the majority of the radioactivity (43–93 percent TRR; 0.02–1.70 mg/kg) in potato foliage, soya bean straw and seeds and cotton straw and gin trash. In the cotton supervised residue trials and processing studies, reflecting desiccation application, residues of tiafenacil were quantifiable in seed, gin-by-products, hulls and meal. Desiccation is the main source of tiafenacil residues.

As suitable analytical methods are available to analyse tiafenacil, the meeting considered that tiafenacil was a suitable marker for compliance with MRL.

In deciding which compounds should be included in the residue definition for dietary intake, the meeting considered the likely occurrence and toxicological properties of the metabolites potentially contributing to the dietary exposure.

The meeting concluded that the health based guidance value (HBGV) for tiafenacil applies to the metabolites M-01 and M-52, expressed as parent equivalents. In the mandarin, potato and maize metabolism studies, following ground and pre-plant application, neither tiafenacil or the metabolite M-01 were detected, while M-52 was a predominant metabolite in mature potato foliage and maize immature foliage and mature stover, accounting for up to 16 percent TRR. In the supervised residue trials, tiafenacil, M-01 and M-52 were not quantified in grapes following ground application or in soya bean, maize and wheat following pre-plant application.

In the potato, soya bean and cotton metabolism studies following desiccation application, tiafenacil was present at up to 93 percent of the TRR with M-01 accounting for up to 9 percent TRR (up to 21 percent of tiafenacil). M-52 was not observed in food commodities. In the cotton supervised residue trials, residues of tiafenacil and M-01 were quantified in seed, ranging from <0.01–0.30 mg/kg and <0.01–0.08 mg/kg, respectively. Therefore, M-01 may contribute to the overall dietary exposure.

For the major metabolites M-36 and M-53, the meeting concluded that they can be assessed against the Threshold of Toxicological Concern (TTC) for a Cramer class III compound for chronic exposure (1.5 µg/kg bw per day).

For the metabolites M-10, M-56 and M-63, the meeting concluded that they can be assessed against the TTC for a Cramer class III compound for chronic exposure (1.5 µg/kg bw per day) and TTC Cramer class III for acute exposure (5 µg/kg bw/day).

Therefore, metabolites, M-10, M-36, M-53, M-56 and M-63 are not included in the residue definition for dietary intake.

TFA was found at measurable levels in all tested plant matrices in the plant metabolism studies, at both timings of application. The 2024 JMPR established an ADI of 0–0.04 mg/kg bw and an ARfD of 0.5 mg/kg bw for women of child-bearing aged, while an ARfD for the general population was deemed unnecessary. However, the current meeting concluded that since this metabolite can arise from other sources, it should be assessed separately, and is not included in the residue definition for dietary intake for tiafenacil.

The meeting decided the residue definition for estimation of dietary intake for plant commodities should be the sum of tiafenacil and the metabolite M-01, expressed as tiafenacil.

Animal commodities

The metabolism of tiafenacil was qualitatively similar in lactating goats and laying hens. Tiafenacil was not observed in milk, muscle or fat of goats or any poultry matrices, but was present at very low concentrations in goat liver and kidney (3–5 percent TRR; 0.006–0.007 mg eq/kg). The metabolites M-01 and M-88 were observed in all lactating goat matrices, at 7–64 percent TRR (0.001–0.12 mg eq/kg) and 2–87 percent TRR (0.001–0.02 mg eq/kg), respectively. M-01 and M-88 were also detected across all poultry matrices at 1–17 percent TRR (0.001–0.039 mg eq/kg) and 11–71 percent TRR (0.02–0.13 mg eq/kg), respectively. Therefore, the metabolites M-01 and M-88 are considered suitable marker compounds.

Validated analytical methods are available for the determination of tiafenacil and M-01 in tissues and milk. The method for M-88 was not validated for eggs, however, the meeting considered that the method can likely analyse this matrix. Therefore, the meeting agreed that the residue for compliance with MRL animal coomodities should be the sum of tiafenacil and the metabolites M-01 and M-88, expressed as tiafenacil.

In deciding which compounds should be included in the residue definition for dietary intake, the meeting considered the likely occurrence and toxicological properties of the metabolites potentially contributing to the dietary exposure.

While the HBGVs for tiafenacil apply to metabolites M-01 and M-52. In metabolism studies, M-01 was observed in all livestock matrices but M-52 was not present in any matrix. Therefore, the metabolite M-01 is included in the residue definition for risk assessment.

A number of metabolites not covered by the HBGVs for tiafenacil were identified in the goat and hen metabolism studies. These included M-12 in egg whites and hen tissues (2–45 percent TRR; 0.002–0.14 mg eq/kg), M-13 in hen muscle, kidney and liver (2–10 percent TRR; 0.001–0.031 mg eq/kg), M-34 in milk, liver and muscle of goat (9–64 percent TRR; 0.002–0.327 mg eq/kg), M-36 in tissues of both animals and eggs (1–20 percent TRR; 0.001–0.019 mg eq/kg), M-63 in goat kidney, liver and fat (7–22 percent TRR; 0.001–0.042 mg eq/kg), M-87 in eggs, hen muscle and skin + fat (4–30 percent TRR; 0.001–0.063 mg eq/kg) and M-88 in milk, eggs and tissues of both animals (2–87 percent TRR; 0.001–0.132 mg eq/kg).

For the metabolite M-36, the meeting concluded that it can be assessed against the TTC for a Cramer class III compound for chronic exposure (1.5 µg/kg bw per day).

For the metabolites M-12, M-13, M-34, M-63, M-87, M-88, the meeting concluded that they can be assessed against the TTC for a Cramer class III compound for chronic exposure (1.5 µg/kg bw per day) and TTC Cramer class III for acute exposure (5 µg/kg bw/day).

Therefore, metabolites M-12, M-13, M-34, M-36, M-63, M-87, M-88 are not included in the residue definition for dietary intake.

While HBGVs have been established for TFA, the current meeting concluded that since this metabolite can arise from other sources, and should be assessed considering all sources

The meeting decided the residue definition for estimation of dietary intake for animal commodities should be the sum of tiafenacil and the metabolite M-01, expressed as tiafenacil.

Based on the derived residue definition for enforcement purposes, residues of tiafenacil, M-01 and M-88 in goat and hen fat were up to 4-fold higher than those in muscle. The residues of M-01 and M-88 in egg yolk were 2-fold higher than those in egg white. The meeting concluded that the residue is fat soluble.

Summary

Definition of the residue for compliance with MRL for plant commodities: tiafenacil.

Definition of the residue for for compliance with MRL for animal commodities: sum of tiafenacil, 3-(2-((2-chloro-4-fluoro-5-(3-methyl-2,6-dioxo-4-(trifluoromethyl)-3,6-dihydropyrimidin-1(2H)-yl)phenyl)thio)propanamido)propanoic acid (M-01) and 3-(4-chloro-2-fluoro-5-(methylsulfonyl)phenyl)-1-methyl-6-(trifluoromethyl)pyrimidine-2,4(1H,3H)-dione (M-88), expressed as tiafenacil.

Definition of the residue for estimation of dietary intake for plant and animal commodities: sum of tiafenacil and 3-(2-((2-chloro-4-fluoro-5-(3-methyl-2,6-dioxo-4-(trifluoromethyl)-3,6-dihydropyrimidin-1(2H)-yl)phenyl)thio)propanamido)propanoic acid (M-01), expressed as tiafenacil.

The residue is fat soluble.

Results of supervised residue trials

The meeting received information on use patterns and supervised residue trials for grapes, soya beans, wheat, maize and cotton from the United States and for coffee from Brazil.

Residues for estimation of dietary intake and dietary burden calculation are the sum of tiafenacil and M-01, expressed as tiafenacil.

Where residues were reported below the LOQ, the following conventions were adopted for summing residues (using an LOQ of 0.01 mg/kg as an example) (Table 5.37.6).

Table 5.37.6 Calculation of total tiafenacil residues

Tiafenacil (mg/kg)	M-01	Sum of tiafenacil and M-01, expressed as tiafenacil (mg/kg)
<0.01	<0.01	<0.02
0.02	0.02	0.04
0.02	<0.01	0.03

Grapes

The critical GAP for grapes is from the United States: 3 burndown applications to weeds at 75 g ai/ha/application, 14-day re-treatment interval (RTI) and 7-day PHI. The meeting received 15 supervised residue trials, however, none approximated the critical GAP. Therefore, the meeting could not estimate a maximum residue level for tiafenacil in grapes.

Soya beans

The critical GAP for soya beans is from the United States: 2 pre-plant applications at 75 g ai/ha, 14 days prior to sowing, 14-day RTI.

The meeting received a total of 20 trials conducted on soya bean approximating the critical GAP. In 11 trials, samples were stored for 10–12 months, exceeding the demonstrated storage stability interval of 6 months, while in the remaining 9 trials samples were analysed within 6 months of harvest.

Tiafenacil residues in soya beans (n = 9) were all <0.01 mg/kg.

Total residues of tiafenacil and M-01 (n = 9) were all <0.02 mg/kg.

The meeting estimated a maximum residue level of 0.01* mg/kg and an STMR of 0.02 mg/kg for tiafenacil in soya beans.

Wheat

The critical GAP for wheat is from the United States: 2 pre-plant and/or pre-emergence applications at 75 g ai/ha and 14-day RTI. The meeting received 33 trials conducted on wheat approximating the critical GAP.

Tiafenacil residues in wheat (n = 33) were all <0.01 mg/kg.

Total residues of tiafenacil and M-01 in wheat (n = 33) were all <0.02 mg/kg.

The meeting estimated a maximum residue level of 0.01* mg/kg and an STMR of 0.02 mg/kg for tiafenacil in wheat.

Maize

The critical GAP for maize is from the United States: 2 pre-plant applications at 75 g ai/ha and 14-day RTI. The meeting received a total of 19 trials conducted on maize approximating the critical GAP.

Tiafenacil residues in maize (n = 19) were all <0.01 mg/kg.

Total residues of tiafenacil and M-01 were all <0.02 mg/kg.

The meeting estimated a maximum residue level of 0.01* mg/kg and an STMR of 0.02 mg/kg for tiafenacil in soya beans.

Cottonseed

The critical GAP for cottonseed from the United States is 2 desiccation applications at 75 g ai/ha, 7-day RTI and a PHI of 10 days.

The supervised residue trials involved a single application at planting at the nominal rate of 150 g ai/ha followed by a desiccation application, 120–182 days RTI, at the nominal rate of 150 g ai/ha and a 10-day PHI.

The meeting could not estimate a maximum residue limit as trials did not reflect the critical GAP.

Coffee

The critical GAP for coffee from Brazil is a single directed spray application to weeds at 140 g ai/ha and a 7-day PHI.

In 8 trials approximating the critical GAP, tiafenacil residues in green coffee beans were all <0.01 mg/kg.

The meeting estimated a maximum residue level of 0.01* mg/kg and an STMR of 0.02 mg/kg for tiafenacil in green coffee beans.

Animal feeds

Soya bean forage

The critical GAP for soya beans is from the United States: pre-plant at 75 g ai/ha, 14 days prior to sowing, 14-day RTI and maximum seasonal application rate of 150 g ai/ha.

In the trials approximating the critical GAP, residues of tiafenacil and M-01 (n = 20) were all <0.02 mg/kg.

The meeting estimated a median and highest residue of 0.02 mg/kg for tiafenacil in soya bean forage.

Soya bean hay

The critical GAP for soya beans is from the United States: pre-plant at 75 g ai/ha, 14 days prior to sowing, 14-day RTI and maximum seasonal application rate of 150 g ai/ha.

In the trials approximating the critical GAP, residues of tiafenacil (n = 20) were all <0.01 mg/kg.

Total residues of tiafenacil and M-01 (n = 20) were all <0.02 mg/kg.

The meeting estimated a maximum residue level of 0.01* mg/kg and a median and highest residue of 0.02 mg/kg for tiafenacil in soya bean hay, as received.

Wheat forage

The critical GAP for wheat is from the United States: pre-plant or pre-emergence at 75 g ai/ha, 14-day RTI and maximum seasonal application rate of 150 g ai/ha.

In the trials approximating the critical GAP, residues of tiafenacil and M-01 (n = 33) were all <0.02 mg/kg.

The meeting estimated a median and highest residue of 0.02 mg/kg for tiafenacil in wheat forage.

Wheat hay

The critical GAP for wheat is from the United States: pre-plant or pre-emergence at 75 g ai/ha, 14-day RTI and maximum seasonal application rate of 150 g ai/ha.

In the trials approximating the critical GAP, residues of tiafenacil (n = 33) were all <0.01 mg/kg.

Total residues of tiafenacil and M-01 (n = 33) were all <0.02 mg/kg.

The meeting estimated a maximum residue level of 0.01 mg/kg* and median and highest residues of 0.02 mg/kg for tiafenacil in wheat hay, as received.

Wheat straw

The critical GAP for wheat is from the United States: pre-plant or pre-emergence at 75 g ai/ha, 14-day RTI and maximum seasonal application rate of 150 g ai/ha.

In the trials approximating the critical GAP, residues of tiafenacil (n = 33) were all <0.01 mg/kg.

Total residues of tiafenacil and M-01 (n = 33) were all <0.02 mg/kg.

The meeting estimated a maximum residue level of 0.01 mg/kg* and median and highest residues of 0.02 mg/kg for tiafenacil in wheat straw, as received.

Maize forage

The critical GAP for maize is from the United States: pre-plant at 75 g ai/ha, 14-day RTI and maximum seasonal application rate of 150 g ai/ha.

In the trials approximating the critical GAP, total residues of tiafenacil and M-01 (n = 19) were all <0.02 mg/kg.

The meeting estimated a median and highest residue of 0.02 mg/kg for maize forage.

Maize stover

The critical GAP for maize is from the United States: pre-plant at 75 g ai/ha, 14-day RTI and maximum seasonal application rate of 150 g ai/ha.

In the trials approximating the critical GAP, residues of tiafenacil (n = 19) were all <0.01 mg/kg.

Total residues of tiafenacil and M-01 (n = 19) were all <0.02 mg/kg.

The meeting estimated a maximum residue level of 0.01 mg/kg* and median and highest residues of 0.02 mg/kg for tiafenacil in maize stover.

Cotton gin by-products

The critical GAP for cottonseed from the United States is two desiccation applications at 75 g ai/ha, 7-day RTI, with a maximum seasonal application rate of 150 g ai/ha and a PHI of 10 days.

The meeting could not estimate a maximum residue limit as trials did not reflect the critical GAP.

Fate of residues in storage and processing

The meeting did not receive any study on the nature of the residue of tiafenacil under conditions representative of industrial and household processing procedures such as pasteurization (pH 4, 90 °C, 20 min), baking, boiling, brewing (pH 5, 100 °C, 60 min) and sterilization (pH 6, 120 °C, 20 min).

The fate of tiafenacil residues (tiafenacil, M-01, M-10, M-36, M-52, M-53, and M-56 individually) was examined in cottonseed simulating commercial processing techniques. However, as no estimations were made for cotton seed, the meeting could not make any estimation for cotton processed commodities

Residues in animal commodities

Farm animal feeding studies

The meeting received a feeding study on dairy cattle. No feeding studies on poultry were provided to the meeting.

Tiafenacil was administered orally once daily to three groups of 3 lactating Holstein dairy cows/group for the low and mid doses and 6 cows for the group administered the highest dose for 29 days. Based on the mean daily feed consumption, the dosing levels were equivalent to 5.15, 15.46, and 51.43 ppm in the feed.

Milk was collected twice prior to dosing and every 3–4 days throughout the 29 days of dosing. On day 13 and 28, milk was also separated into cream and skimmed milk. For the highest dose group, milk was also collected twice, three (3 cows), seven (2 cows), and fourteen days (1 cow) after the final dose to monitor residue decline during the depuration period.

Muscle (loin, flank), kidney, liver, and fat (perirenal, mesenteric, and subcutaneous) samples were collected at sacrifice 3–24 hours after the final dose, except for 3 of the 6 cows in the highest dose group which were sacrificed three, seven, and fourteen days after the final dose to monitor residue decline during the depuration period.

In whole milk, cream and skim milk analysed immediately prior to sacrifice, mean total residues of tiafenacil and metabolites M-01 and M-88 were <0.03 mg/kg from the low and mid dose groups and <0.037 from the highest dose group. Mean total residues of tiafenacil and the metabolite M-01 were <0.02 mg/kg from the low and mid dose groups and <0.027 from the highest dose group.

In fat, highest total residues of tiafenacil and the metabolites M-01 and M-88 were 0.098, 0.075 and 0.188 mg/kg for the 5.15, 15.46, and 51.43 ppm dose groups, respectively. Mean total residues of tiafenacil and M-01 were 0.043, 0.053 and 0.101 mg/kg from the low, mid and high dose groups, respectively.

In muscle, highest total residues of tiafenacil and the metabolites M-01 and M-88 were <0.03, 0.034 and 0.089 mg/kg for the 5.15, 15.46, and 51.43 ppm dose groups, respectively. Mean total residues of tiafenacil and the metabolite M-01 were 0.02, 0.022 and 0.072 mg/kg from the low, mid and high dose groups, respectively.

In kidney, highest total residues of tiafenacil and the metabolites M-01 and M-88 were 0.186, 0.401 and 1.11 mg/kg for the 5.15, 15.46, and 51.43 ppm dose groups, respectively. Mean total residues of tiafenacil and the metabolite M-01 were 0.146, 0.321and 0.889 mg/kg from the low, mid and high dose groups, respectively.

In liver, highest total residues of tiafenacil and the metabolites M-01 and M-88 were 0.254, 0.536 and 1.396 mg/kg for the 5.15, 15.46, and 51.43 ppm dose groups, respectively. Mean total residues of tiafenacil and M-01 were 0.229, 0.439 and 1.124 mg/kg from the low, mid and high dose groups, respectively.

Residues of M-10, M-36, M-63 and M-88 were each <0.01 mg/kg in milk, cream and tissues at all dosing levels.

Farm animal dietary burden

Dietary burdens were calculated for beef cattle, dairy cattle, broilers and laying poultry based on feed items evaluated by the present meeting. The dietary burdens, estimated using the OECD diets listed in Appendix IX of the 2016 edition of the FAO manual, are presented in Annex 5 and summarized in Table 5.37.7.

Table 5.37.7 Estimated maximum and mean dietary burdens of farm animals, sum of tiafenacil and M-01, expressed as tiafenacil, in ppm

	United States/Canada		European Union		Australia		Japan	
	Max	Mean	Max	Mean	Max	Mean	Max	Mean
Beef cattle	0.047	0.047	0.056	0.056	0.08[a]	0.08	0.03	0.03
Dairy cattle	0.057	0.057	0.053	0.053	0.075[b]	0.075	0.043	0.043
Poultry – broiler	0.023	0.023	0.026	0.026	0.023	0.023	0.022	0.022
Poultry – layer	0.023	0.023	0.036[c]	0.036	0.022	0.022	0.025	0.025

Notes:

[a] Highest maximum and mean beef cattle dietary burden suitable for maximum residue level and STMR estimates for mammalian tissues.

[b] Highest maximum and mean dairy cattle dietary burden suitable for maximum residue level and STMR estimates for milk.

[c] Highest maximum and mean poultry dietary burden suitable for maximum residue level and STMR estimates for poultry tissues and eggs.

Estimation of residues in animal commodities

The calculations used to estimate maximum residue levels and STMR values for ruminant commodities are shown in Table 5.37.8 and Table 5.37.9.

Table 5.37.8 Residues in mammalian matrices for estimation of maximum residue level, sum of residues of tiafenacil M-01 and M-88, expressed as tiafenacilbased on dairy cattle feeding study

Tiafenacil feeding study	Feed level (ppm) for milk residues	Residues (mg/kg) in milk and cream	Feed level (ppm) for tissue residues	Residues (mg/kg)			
				Muscle	Liver	Kidney	Fat
Highest residue for estimation of maximum residue level (beef or dairy cattle)							
Feeding study	0	0	0	0	0	0	0
	5.15	0.03	5.15	0.03	0.03	0.03	0.03
Dietary burden and high residue	0.075	0.0004	0.08	0.0005	0.0005	0.0005	0.0005

Table 5.37.9 Residues in mammalian matrices for estimation of STMR, sum of residues of tiafenacil and M-01, expressed as tiafenacil, based on dairy cattle feeding study

Tiafenacil feeding study	Feed level (ppm) for milk residues	Residues (mg/kg) in milk and cream	Feed level (ppm) for tissue residues	Residues (mg/kg)			
				Muscle	Liver	Kidney	Fat
Mean residue for estimation of STMR (beef or dairy cattle)							
Feeding study	0	0	0	0	0	0	0
	5.15	0.02	5.15	0.02	0.02	0.02	0.02
Dietary burden and residue estimate	0.075	0.0003	0.08	0.0003	0.0003	0.0003	0.0003

Considering the new Codex Classification for animal commodities (General consideration 2.4 in 2024 JMPR Report), the meeting estimated maximum residue levels of 0.03* mg/kg for tiafenacil in the Group of muscle (from mammals other than marine mammals), the group of mammalian fats (except milk fats), the group of edible offal (mammalian), group of milks and the group of milk fats (as no accumulation above the LOQ is expected in cream). The meeting estimated a STMR of 0.0003 mg/kg for all the groups.

A feeding study on poultry was not provided to the meeting, therefore, the laying hen metabolism study was relied upon to estimate the maximum residue levels and STMR for poultry tissues and eggs (Table 5.37.10 and Table 5.37.11).

Table 5.37.10 Residues in poultry matrices for estimation of maximum residue level: Sum of residues of tiafenacil M-01 and M-88, expressed as tiafenacil, based on laying hen metabolism study

Tiafenacil metabolism study	Feed level (ppm) for egg residues	Residues (mg/kg) in egg	Feed level (ppm) for tissue residues	Residues (mg/kg)			
				Muscle	Liver	Kidney	Fat
Highest residue for estimation of maximum residue level (broiler or layer poultry)							
Metabolism study	0	0	0	0	0	0	0
	12	0.051	12	0.027	0.087	0.056	0.135
Dietary burden and high residue	0.036	0.0001	0.036	0.0001	0.0001	0.0001	0.0001

Table 5.37.11 Residues in poultry matrices for estimation of STMR, sum of residues of tiafenacil and M-01, expressed as tiafenacil based on laying hen metabolism study

Tiafenacil metabolism study	Feed level (ppm) for egg residues	Residues (mg/kg) in egg	Feed level (ppm) for tissue residues	Sum of residues of tiafenacil and M-01, expressed as tiafenacil (mg/kg)			
				Muscle	Liver	Kidney	Fat
Mean residue for estimation of STMR (broiler or layer poultry)							
Metabolism study	0	0	0	0	0	0	0
	12	0.001	12	0.005	0.039	0.023	0.003
Dietary burden and residue estimate	0.036	0	0.036	0	0	0	0

The meeting estimated maximum residue levels of 0.03* mg/kg for tiafenacil in the group of eggs, the group of avian muscle, the group of avian fat and the group of avian, edible offal of. The meeting estimated STMRs of 0 for tiafenacil in all groups.

Desirable studies

- Validated analytical method capable of analysing residues of M-88 in poultry eggs.
- Poultry feeding study

Recommendations

On the basis of the data obtained from supervised trials, the meeting concluded that the residue levels listed in Table 5.37.12 and Annex 1 are suitable for establishing maximum residue limits and dietary exposure assessments. Table 5.37.13 shows the residues used to calculate the dietary burden and Table 5.37.14 the residues used in the intake calculation used in the TCC approach.

Definition of the residue for compliance of MRL for plant commodities: tiafenacil

Definition of the residue for for compliance of MRL for animal commodities: sum of tiafenacil, 3-(2-((2-chloro-4-fluoro-5-(3-methyl-2,6-dioxo-4-(trifluoromethyl)-3,6-dihydropyrimidin-1(2H)-yl)phenyl)thio)propanamido)propanoic acid (M-01) and 3-(4-chloro-2-fluoro-5-(methylsulfonyl)phenyl)-1-methyl-6-(trifluoromethyl)pyrimidine-2,4(1H,3H)-dione (M-88), expressed as tiafenacil.

Definition of the residue for estimation of dietary intake for plant and animal commodities: sum of tiafenacil and 3-(2-((2-chloro-4-fluoro-5-(3-methyl-2,6-dioxo-4-(trifluoromethyl)-3,6-dihydropyrimidin-1(2H)-yl)phenyl)thio)propanamido)propanoic acid (M-01), expressed as tiafenacil.

The residue is fat soluble.

Table 5.37.12 Residue levels suitable for establishing maximum residue limits and for estimation of dietary intake

CCN	Commodity	Recommended maximum residue level (mg/kg)	STMR or STMR-P, mg/kg
SB 0716	Coffee bean	0.01*	0.02
PO 0111	Group of avian. Edible offal of	0.03*	0
PF 0111	Group of avian fat	0.03*	0
PM 0110	Group of avian muscle	0.03*	0
PE 0112	Group of eggs	0.03*	0
MO 0105	Group of edible offal, mammalian	0.03*	Liver/kidney: 0.0003
MF 0100	Group of mammalian fats (except milk fats)	0.03*	0.0003
ML 0106	Group of milks	0.03*	0.0003
FM 0106	Group of milk fats[a]	0.03*	0.0003
MM 095	Group of muscle (from mammals other than marine mammals)	0.03*	0.0003
GC 0645	Maize	0.01*	0.02
AS 3558	Maize stover	0.01*(ar)	–
VD 0541	Soya bean (dry)	0.01*	0.02

CCN	Commodity	Recommended maximum residue level (mg/kg)	STMR or STMR-P, mg/kg
AL 0541	Soya bean hay	0.01* (ar)	–
GC 0654	Wheat	0.01*	0.02
AS 0654	Wheat hay	0.01*(ar)	–
AS 0654	Wheat straw	0.01*(ar)	–

Note: (ar) = as received.

[a] For monitoring and regulatory purposes, whole milk is to be analysed, and the result compared to the MRL for whole milk.

Table 5.37.13 Residues (as received) used to calculate the animal dietary burden

Codex group	Feed commodity	Median or STMR(-P) in mg/kg	Highest or HR(-P) in mg/kg	% DM assumed
CM/CF	Corn gluten, feed	0.02	–	40
CM/CF	Corn gluten, meal	0.02	–	40
CM/CF	Corn, field, asp gr fn	0.02	–	85
AF/AS	Corn, field, forage/silage	0.02	0.02	40
GC	Corn, field, grain	0.02	–	88
CM/CF	Corn, field, hominy meal	0.02	–	88
CM/CF	Corn, field, milled bypdts	0.02	–	85
AF/AS	Corn, field, stover	0.02	0.02	83
SM	Soybean, asp gr fn	0.02	–	85
AL	Soybean, forage	0.02	0.02	56
AL	Soybean, hay	0.02	0.02	85
SM	Soybean, hulls	0.02	–	90
SM	Soybean, meal	0.02	–	92
SM	Soybean, okara	0.02	–	92
VD	Soybean, seed	0.02	–	89
AL	Soybean, silage	0.02	0.02	30
CM/CF	Wheat gluten, meal	0.02	–	40
CM/CF	Wheat, asp gr fn	0.02	–	85
AF/AS	Wheat, forage	0.02	0.02	25
GC	Wheat, grain	0.02	–	89
AF/AS	Wheat, hay	0.02	0.02	88
CM/CF	Wheat, milled by products	0.02	–	88
AF/AS	Wheat, silage	0.02	0.02	30
AF/AS	Wheat, straw	0.02	0.02	88

Table 5.37.14 Residues of metabolites that are to be assessed against TTC

Compound	Commodity	STMR (mg/kg)	HR (mg/kg)	Source
M-36/M-53/M-56 for chronic assessment against the TTC for Cramer class III compounds for chronic exposure (1.5 µg/kg bw per day)				
M-36/M-53/M-56	Soya beans	0.01 per analyte	–	Supervised field trials
M-36/M-53/M-56	Wheat	0.01 per analyte	–	Supervised field trials
M-36/M-53/M-56	Maize	0.01 per analyte	–	Supervised field trials
M-36/M-53/M-56	Coffee	0.01 per analyte	–	Supervised field trials
M-36	Milk, milk fat and	0	–	Anticipated residues estimated

Compound	Commodity	STMR (mg/kg)	HR (mg/kg)	Source
	mammalian muscle, fat, liver and kidney			based on dietary burden and lowest feeding level
M-36	Eggs and avian muscle, fat, liver and kidney	0	–	Anticipated residues estimated based on dietary burden and dosing level from the metabolism study.
M-10/M-12/M-13/M-34/M-56/M-63/M-87/M-88 for chronic assessment against the TTC for Cramer class III compounds for chronic exposure (1.5 µg/kg bw per day) and TTC Cramer class III for acute exposure (5 µg/kg bw/day)				
M-10/M-56	Soya beans	0.01 per analyte	0.01	Supervised field trials
M-10/M-56	Wheat	0.01 per analyte	0.01	Supervised field trials
M-10/M-56	Maize	0.01 per analyte	0.01	Supervised field trials
M-10/M-56	Coffee	0.01 per analyte	0.01	Supervised field trials
M-10/M-34/M-63/ M-87/M-88	Milk, milk fat and mammalian muscle, fat, liver and kidney	0	0	Anticipated residues estimated based on dietary burden and feeding levels from the metabolism study or feeding study.
M-12/M-13/M-87/ M-88	Eggs and avian muscle, fat, liver and kidney	0	0	Anticipated residues estimated based on dietary burden and dosing level from the metabolism study.

Dietary risk assessment

Long-term dietary exposure

The ADI for tiafenacil is 0–0.004 mg/kg bw. The International Estimated Daily Intakes (IEDIs) for tiafenacil were estimated for the 17 GEMS/Food Consumption Cluster Diets using the STMR values estimated by the JMPR. The results are shown in Annex 3.

The IEDIs ranged from 1 to 5 percent of the maximum ADI. The meeting concluded that long-term dietary exposure to residues of tiafenacil from uses considered by the JMPR is unlikely to present a public health concern.

Acute dietary exposure

An ARfD for tiafenacil is unnecessary. The meeting therefore concluded that short-term dietary intake of tiafenacil residues is unlikely to present a risk to consumers.

Threshold of toxicological concern (TTC) consideration for metabolites

The meeting agreed that the metabolites M-10, M-12, M-13, M-34, M-36, M-53, M-56, M-63, M-87 and M-88 could each be assessed using the TTC approach for chronic exposure (Cramer class III threshold of 1.5 µg/kg bw per day). The current meeting estimated a maximum dietary exposure of 5.8 µg/person or 0.10 µg/kg bw for each of the metabolites M-10 (highest exposure among the metabolites M-10, M-12, M-13, M-34, M-63, M-87, M-88, addressing each of the individual chronic exposures) and M-36 (highest exposure among the metabolites M-36, M-53 and M-56, addressing each of the individual chronic exposures), which is well below the TTC of 1.5 µg/kg bw/day. The meeting concluded that the estimated long-term dietary exposures to residues of M-10, M-12, M-13, M-34, M-36, M-53, M-56, M-63, M-87 and M-88 from uses considered by the current JMPR were below the TTC for Cramer class III compounds. Therefore, the long-term dietary exposures to these

metabolites are unlikely to present a public health concern. Should further uses be considered in the future, these conclusions may need to be re-evaluated.

The meeting agreed that the metabolites M-10, M-12, M-13, M-34, M-56, M-63, M-87 and M-88 could each be assessed using the TTC Cramer class III for acute exposure (5 µg/kg bw/day). The current meeting estimated a maximum dietary exposure of 0.34 µg/kg bw per day for the metabolite M-10 (highest exposure among the metabolites M-10, M-12, M-13, M-34, M-56, M-63, M-87 and M-88, addressing each of the individual acute exposures), which is well below the TTC of 5 µg/kg bw/day. The meeting concluded that the estimated acute dietary exposures to residues of M-10, M-12, M-13, M-34, M-56, M-63, M-87 and M-88 from uses considered by the current JMPR were below the TTC Cramer class III for acute exposure. Therefore, acute dietary exposures to these metabolites are unlikely to present a public health concern. Should further uses be considered in the future, these conclusions may need to be re-evaluated.

5.38 Trifloxystrobin (213) (R)

Residue and analytical aspects

Trifloxystrobin is a strobilurin broad-spectrum contact fungicide that was first evaluated for toxicology and residues by the 2004 JMPR when an ADI of 0–0.04 mg/kg bw was established and an ARfD was considered unnecessary. Trifloxystrobin underwent subsequent residue evaluations by the JMPR in 2012, 2015, 2017 and 2021 Extra.

The residue definition for compliance with the MRL for plant commodities is trifloxystrobin.

The residue definition for compliance with the MRL for animal commodities and for estimation of dietary intake for both plant and animal commodities is trifloxystrobin and CGA 321113 ((E,E)-methoxyimino-{2-[1-(3-trifluoromethyl-phenyl) ethylidene-aminooxymethyl]-phenyl}acetic acid), expressed as trifloxystrobin.

The residue is fat soluble.

Trifloxystrobin was scheduled at the 55th Session of the CCPR for evaluation of additional uses by the 2025 JMPR. Residue data for analytical methods, use patterns, supervised residue trials for orange, lemon fruits and mango were submitted to the present meeting.

Methods of residues analysis

The meeting received additional validation information on analytical methods evaluated by the 2021 JMPR used for the determination of trifloxystrobin residues and its acid metabolite CGA 321113 in trials on orange, lemon and mango. The residues were determined by LC-MS/MS or GC-MS/MS with LOQs of 0.01–0.05 mg/kg.

The meeting concluded that the method is suitable for the analysis of residues of trifloxystrobin and CGA321113 in the plant commodities considered by the meeting.

Stability of pesticide residues in stored analytical samples

The stability of residues in samples on frozen storage was evaluated by the 2004 JMPR for a range of commodities. Residues of trifloxystrobin and CGA 321113 were stable under freezer storage conditions for at least 24 months for high acid (grapefruit), high water (apple, cucumber, wheat whole plant) and high starch (potato, wheat grain and straw) and for at least 18 months for high oil (peanut nutmeat, peanut oil), apple wet pomace and grape juice.

Samples in the trials considered by the current meeting were stored frozen for periods shorter than the period of stability demonstrated in studies supplied to the 2004 JMPR and are therefore considered unlikely to have been adversely affected by storage.

Results of supervised residue trials on crops

Data on the trifloxystrobin (molecular mass 408) and the trifloxystrobin acid CGA321113 (molecular mass 394) were reported, and the use of a conversion factor (1.036) is not necessary for the calculation of total residues. The sum of trifloxystrobin and CGA 321113 was calculated according to the procedure described in the 2004 JMPR. As CGA 321113 does not generally constitute a significant portion of the residues in crops, when the levels of trifloxystrobin or CGA 321113 were below the LOQ, their sum was calculated as in Table 5.38.1.

Table 5.38.1 Calculation of the total residue (trifloxystrobin plus CGA321113)

Trifloxystrobin (mg/kg)	CGA321113 (mg/kg)	Total residue, expressed as trifloxystrobin (mg/kg)
<0.02	<0.02	<0.02
<0.02	0.03	0.05
0.10	<0.02	0.10
0.92	0.16	1.1

Subgroup of oranges

The 2021 JMPR received a new critical GAP that was not supported by available field trials and no suitable GAP from another country was provided. It was agreed to withdraw its previous recommendation for citrus fruits, which was confirmed by the meeting.

A critical GAP on citrus fruit from the United States allowing for 4 applications of 0.135kg ai/ha/application, 7 days re-treatment interval (RTI) and 7 days preharvest interval (PHI) was resubmitted to the meeting.

Eight trials on oranges from United States approximating the GAP were submitted.

The residue levels of trifloxystrobin in orange fruits (whole fruit) were:(n = 8): 0.065 (2), 0.079, 0.097, 0.131, 0.150, 0.167 and 0.214 mg/kg.

The total residues of trifloxystrobin and CGA 3231113 were: (n = 8): 0.065, (2), 0.079, 0.097, 0.131, 0.150, 0.167 and 0.214 mg/kg.

The meeting estimated a maximum residue level of 0.4 mg/kg and an STMR value of 0.114 mg/kg for trifloxystrobin in the subgroup of Oranges, sweet and sour.

Subgroup of lemons and limes

A critical GAP on citrus fruit from the United States is 4 applications of 0.135kg ai/ha/application, 7 days RTI and 7 days PHI. Eight trials from the United States approximating the United States GAP were submitted.

Residue levels of trifloxystrobin in lemons were: (n = 8): 0.058, 0.071, 0.092, 0.165, 0.177, 0.230, 0.292 and 0.463 mg/kg.

The total residues of trifloxystrobin and CGA 3231113 in the whole lemon fruit were (n = 8): 0.058, 0.071, 0.092, 0.165, 0.177, 0.230, 0.292, 0.463 mg/kg

The meeting estimated a maximum residue level of 0.8 mg/kg, and an STMR value of 0.171 mg/kg for trifloxystrobin in the subgroup of lemons and limes.

Mango

The critical GAP for trifloxystrobin in mango in the Philippines is two foliar applications at 0.248 Kg ai/ha/ application with a RTI of 7 days and a PHI of 14 days. Five independent supervised field trials on mango fruit conducted in Thailand approximating the GAP were submitted.

Residues of trifloxystrobin in mango (whole fruit) were (n = 5): 0.011, 0.0377, 0.043, 0.063, 0.35 mg/Kg

Total residues of trifloxystrobin and CGA 3231113 in the edible portion (mango pulp) were <0.01(5) mg/kg.

The meeting estimated a maximum residue level of 0.7 mg/kg and a STMR value of 0.01 mg/kg for trifloxystrobin in mango.

Fate of residues during processing

The current meeting did not receive new processing studies. The effect of processing on the level of residues of trifloxystrobin and the metabolite CGA 321113 in oranges was evaluated by the 2004 JMPR. The processing factors (PF) were calculated from the total residue levels (sum of trifloxystrobin and CGA 321113). The best estimates of the processing factors are shown in Table 5.38.2.

Table 5.38.2 Processing factors and residue estimates for trifloxystrobin and CGA321113

RAC	Processed commodity	Best estimate processing factor	Highest residue-P (mg/kg)	STMR-P or median (mg/kg)
Orange Maximum residue level: 0.4 mg/kg STMR: 0.114 mg/kg	Juice	<0.19	–	0.0216
	oil	130	52	14.82
	Pulp (dry)	3.4	1.36	0.387 (median)

Based on a maximum residue level of 0.4 mg/kg, and an STMR of 0.114 mg/kg for the subgroup of oranges, the meeting estimated a maximum residue of 1.5 mg/kg and STMR-P of 0.387 mg/kg for citrus pulp, dry. Using a processing factor of 130, the meeting estimated a maximum residue level of 60 mg/kg and an STMR-P of 14.82 mg/kg for orange oil. The meeting also estimated a STMR-P of 0.0216 mg/kg for citrus juice.

Residues in animal commodities

Farm animal dietary burden

Dietary burdens were calculated for beef cattle, dairy cattle, broilers and laying poultry. The meeting has added feed items (citrus pulp dried) and their associated residues to the dietary burden calculations used by the 2021 JMPR. The dietary burdens, estimated using the 2018 OECD Feed diets listed in Appendix XIV Electronic attachments to the 2016 Edition of the FAO manual, are presented in Annex 5 and summarized in Table 5.38.3.

The Australian maximum beef and dairy dietary burdens exceeded the maximum dose in the feeding study. The meeting refined the dietary burden to exclude pea vines from the Australian livestock diets as trifloxystrobin is not registered for use on peas in Australia and forages are generally not traded internationally.

Table 5.38.3 Estimated maximum and mean dietary burdens for trifloxystrobin (sum of trifloxystrobin and metabolite CGA 3231113, in ppm) in cattle commodities

	United States/Canada		European Union		Australia		Japan	
	Maximum	Mean	Maximum	Mean	Maximum	Mean	Maximum	Mean
Beef cattle	2.46	1.23	16.34[a]	4.69	9.1	5.3[b]	5.02	0.93
Dairy cattle	7.09	2.15	16.13[c]	4.42	8.89	4.57[d]	2.33	0.47
Broiler poultry	0.106	0.106	0.07	0.07	0.154	0.154	0.032	0.032
Laying hen	0.106	0.106	5.44[e]	1.162[f]	0.154	0.154	0.079	0.079

Notes:

[a] Highest maximum beef/dairy cattle dietary burden suitable for maximum residue level estimates for mammalian tissues.

[b] Highest mean beef/dairy cattle dietary burden suitable for STMR estimates for mammalian tissues.

[c] Highest maximum dairy cattle dietary burden suitable for maximum residue level estimate for milk.

[d] Highest mean dairy cattle dietary burden suitable for STMR estimates for milk.

[e] Highest maximum poultry dietary burden suitable for maximum residue level estimates for poultry tissues and eggs

[f] Highest mean poultry dietary burden suitable for STMR estimates for poultry tissues and eggs

Estimation of residue levels in animal commodities

The residues of trifloxystrobin in cattle beef and dairy cattle were calculated based on animal dietary burdens and the result of farm animal feeding study evaluated by the 2004 JMPR. The results are shown in Table 5.38.4.

Table 5.38.4 Estimated maximum residues levels (trifloxystrobin) and STMR (total trifloxystrobin)

	Feed level (ppm) for milk residues	Residues (mg/kg) in milk	Feed level (ppm) for tissue residues	Residues[a] (mg/kg)			
				Muscle	Liver	Kidney	Fat
Maximum residue level, beef or dairy cattle							
Feeding study[b]	5.90	<0.02	5.90	<0.04	<0.04	<0.04	<0.04
	21.00	<0.02	21.00	<0.04	0.11	0.04	0.08
Dietary burden and high residue	16.13	<0.02	16.34	<0.04	0.088	0.04	0.068
STMR, beef or dairy cattle							
Feeding study[c]	2.00	<0.02	2.00	<0.04	<0.04	<0.04	<0.04
	5.90	<0.02	5.90	<0.04	<0.04	<0.04	<0.04
	21	<0.02	21	<0.04	0.07	0.04	0.06
Dietary burden and median residue	4.57	0.005[d]	5.3	<0.01[d]	<0.04	<0.04	<0.04

Notes:

[a] Total residues = trifloxystrobin and CGA321113.

[b] highest residues for tissues and mean residues for milk.

[c] mean residues for tissues and mean residues for milk.

[d] scaled from LOQ at 21 ppm feed level.

As trifloxystrobin is fat soluble, previous recommendations for residues in muscle were made based on residues in the fat. The current meeting used evaluations of residues in muscle made by previous meetings to make estimations in muscle and fat, separately.

Following the update of the Codex Classification (General consideration 2.4), the 2025 meeting confirmed its previous recommendation of a maximum residue level of 0.02* mg/kg for Group of milks. The meeting estimated a maximum residue level of 0.02* mg/kg for the Group of milk fats, taking into account that residues in whole milk remained unquantifiable at higher dosing levels in the feeding study on dairy cattle.

The meeting estimated a maximum residue level of 0.04* mg/kg for the Group of muscle (from mammals other than marine mammals), 0.07 mg/kg for the Group of mammalian fats (except milk fats) and 0.09 mg/kg for the Group of edible offals (mammalian).

The meeting estimated STMRs of 0.01 mg/kg for the Group of muscle, 0.04 mg/kg for the Group of mammalian fats, 0.04 mg/kg for the Group of edible offals (mammalian), and 0.005 mg/kg for the Group of milks.

The meeting withdraws the previous recommendations for meat, mammalian fats, edible offal (mammalian) and milks.

In the feeding study in laying hens, no trifloxystrobin or CGA321113 residues (total residue, <0.04 mg/kg) were detected in eggs, tissues or organs from hens at the highest feeding level of 15 ppm. As the maximum and mean dietary burdens of 5.3 mg/kg and 1.2 mg/kg, respectively, were much lower, the meeting estimated a maximum residue level of 0.04* mg/kg for the Group of avian fats, Group of eggs, Group of avian muscle and Group of avian edible offals and estimated that the STMR values should be 0 mg/kg in Group of eggs, Group of avian muscle, Group of avian edible offal and Group of avian fats.

The meeting withdraws the previous recommendations for eggs, poultry meat, poultry edible offals, and poultry fat.

Recommendations

On the basis of the data from supervised trials, the meeting concluded that the residue concentrations listed in Table 5.38.5 and Annex 1 are suitable for establishing maximum residue limits and for estimation of dietary intake. Table 5.38.6 shows the residues included in the dietary burden calculation.

The residue definition for compliance with the MRL for plant commodities: trifloxystrobin.

The residue definition for compliance with the MRL for animal commodities and for estimation of dietary intake for both plant and animal commodities: trifloxystrobin and CGA 321113 ((E,E)-methoxyimino-{2-[1-(3-trifluoromethyl-phenyl) ethylidene-aminooxymethyl]-phenyl}acetic acid) expressed as trifloxystrobin.

The residue is fat soluble.

Table 5.38.5 Residue levels suitable for establishing maximum residue limits and for estimation of dietary intake

CCN	Commodity	Recommended maximum residue levels (mg/kg)		STMR or STMR-P mg/kg
		New	Previous	
FC 0001	Citrus fruits	W	0.5	–
–	Citrus juice	–	–	0.0216
–	Citrus pulp, dried	1.5	–	
MO 0105	Edible offal (Mammalian)	W	0.09	–
PE 0112	Eggs	W	0.04*	–
PO 0111	Group of avian, edible offal of	0.04*	–	0
PF 0111	Group of avian fats	0.04*	–	0
PM 0110	Group of avian muscle	0.04*	–	0
MO 0105	Group of edible offal (Mammalian)	0.09	–	0.04
PE 0112	Group of eggs	0.04*	–	0
MF 0100	Group of mammalian fats (except milk fats)	0.07	–	0.04
FM 0106	Group of milk fats[a]	0.02*	–	0.005
ML 01O6	Group of milks	0.02*	–	0.005
MM 0095	Group of muscle (from mammals other than marine mammals)	0.04*	–	0.01

MF 0100	Mammalian fat (except milk fats)	W	0.07	–
FI 0345	Mango	0.7	–	0.043
MM 0095	Meat (from mammals other than marine mammals)	W	0.07	–
ML 0106	Milk	W	0.02*	–
OR 0004	Orange oil	60	–	14.82
PO 0111	Poultry edible offal	W	0.04*	–
PF 0111	Poultry fats	W	0.04*	–
PM 0110	Poultry meat	W	0.04*	–
FC 0002	Subgroup of Lemon and limes	0.8	–	0.171
FC 0004	Subgroup of 0ranges, sweet and sour	0.4	–	0.114
–	Citrus juice	–	–	–
AB 0001	Citrus pulp, dried	1.5	–	–

Note:

[a] For monitoring and regulatory purposes, whole milk is to be analysed, and the result compared to the MRL for whole milk.

Table 5.38.6 Animal feed values for livestock dietary burden calculations

Codex group	Feed commodity	Median or STMR(-P), mg/kg	Highest or HR (-P), mg/kg	% DM assumed
AM/AV	Almond, hulls	1.08	–	90
AB	Apple, pomace, wet	2.6	–	40
GC	Barley, grain	0.04	–	88
AF/AS	Barley, straw	0.9	4.9	89
VD	Bean, seed	0.021	–	88
AM/AV	Beet, mangel, fodder	2.3	10.9	100
AB	Beet, sugar, dried pulp	0.077	–	88
DM	Beet, sugar, molasses	0.04	–	75
AM/AV	Beet, sugar, tops	2.3	10.9	100
AM/AV	Cabbage, heads, leaves	0.17	0.39	15
AB	Citrus, dried pulp	0.387	–	91
GC	Corn, field, grain	0.02	–	88
AF/AS	Corn, field, stover	1.75	8.55	83
AM/AV	Cotton, gin by-products	0.71	0.93	90
SM	Cotton, hulls	0.0033	–	90
SM	Cotton, meal	0.00009	–	89
SO	Cotton, undelinted seed	0.03	–	88
SM	Flaxseed/linseed, meal	0.012	–	88
AL	Pea, hay	4.4	7	88
VD	Pea, seed	0.021	–	90
AL	Pea, vines	2.3	11	25
AL	Peanut, hay	0.85	4.94	85
AB	Potato, process waste	0.307	–	12
CM/CF	Rice, bran/pollard	0.25	–	90
GC	Rice, grain	0.16	–	88
CM/CF	Rice, hulls	0.57	–	90
AF/AS	Rice, straw	1.4	8.1	90
CM/CF	Sorghum, grain, asp gr	0.7	–	85

Codex group	Feed commodity	Median or STMR(-P), mg/kg	Highest or HR (-P), mg/kg	% DM assumed
	fn			
SM	Soybean, meal	0.0008	–	92
VD	Soybean, seed	0.023	–	89
CM/CF	Wheat, milled bypdts	0.062	–	88
AF/AS	Wheat, straw	0.48	3.07	88

Dietary risk assessment

Long-term dietary exposure

The ADI for trifloxystrobin is 0–0.04 mg/kg bw. The IEDIs for trifloxystrobin were estimated for the 17 GEMS/Food Consumption Cluster Diets using the STMR or STMR-P values estimated by the JMPR. The results are shown in Annex 3.

The IEDIs ranged from 1 to 9 percent of the maximum ADI. The meeting concluded that long-term dietary exposure to residues of trifloxystrobin from uses considered by the JMPR is unlikely to present a public health concern.

Acute dietary exposure

An ARfD for trifloxystrobin is unnecessary. Therefore, the meeting concluded that the acute dietary exposure to residues of trifloxystrobin from the uses considered is unlikely to present a public health concern.

Annex 1. Acceptable daily intakes, acute reference doses, recommended maximum residue levels, supervised trials median residue values and other values recorded by the 2025 JMPR

Table A1.1 Acceptable daily intakes, acute reference doses, recommended maximum residue levels, supervised trials median residue values and other values recorded by the 2025 JMPR

Compound	CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P (mg/kg)	HR or HR-P (mg/kg)
			New	Previous		
2-Phenylphenol and its sodium salts (056)** Evaluation could not be finalized due to lack of relevant toxicological data	No recommendations were made as definition of residues for estimation of dietary intake could not be concluded.					
	FP 230	Pear	W	20	–	–
Definition of the residue for compliance with the MRL for plant commodities: *sum of 2-phenylphenol and its salts and conjugates, expressed as 2-phenylphenol.* Definition of the residue for estimation of estimation of dietary intake for plant and animal commodities: not concluded: Definition of the residue for compliance with the MRL for animal commodities: not concluded.						
Acequinocyl (343)*** ADI: 0–0.02 mg/kg bw ARfD: 0.2 mg/kg bw (2025)	Due to stability issues of metabolite AKM-05, STMRs and HRs could not be estimated and no recommendations were made.					
Definition of the residue for compliance with the MRL for plant and animal commodities: acequinocyl. Definition of the residue for estimation of dietary intake for plant commodities: sum of acequinocyl and 2-dodecyl-3-hydroxy-1.4-naphtoquinone (AKM-05), expressed as acequinocyl. Definition of the residue for estimation of dietary intake for animal commodities: acequinocyl. The residue is not fat soluble.						
Acynonapyr (333) ADI: 0–0.1 mg/kg ARfD: unnecessary (2024) **AP and AP8** ARfD: 0.03 mg/kg bw (2024) **AP-2, AY and AY-glucuronide** ARfD: 0.1 mg/kg bw	FP 0226	Apple	3	–	0.905	–
	JF 0226	Apple, juice	–	–	0.11	–
	AB 0226	Apple pomace, dried	15 (dw)	–	–	–
	OR 0003	Mandarins, oil, edible	100	–	14	–
	FP 0230	Pear	0.9	–	0.255	–
	JF 0230	Pear, juice	–	–	0.306	–
	HS 3383	(Satsuma) mandarin, peel fresh	–	–	1.46	–
	VO 20460	Subgroup of	0.5	–	0.12	–

Compound	CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P (mg/kg)	HR or HR-P (mg/kg)
			New	Previous		
(each) (2024)		Eggplants				
	FC 0003	Subgroup of Mandarins	1.5	–	0.305 (whole fruit) 0.031 (pulp)	–
	–	Subgroup of mandarins, juice	–	–	0.072	–
Definition of the residue for compliance with the MRL for plant and animal commodities: sum of parent acynonapyr plus 5-(trifluoromethyl)-2-pyridinol (AY), expressed as acynonapyr. Definition of the residue for estimation of dietary intake for plant commodities: sum of parent plus 5-(trifluoromethyl)-2-pyridinol (AY) and 5-(trifluoromethyl)-2-pyridon-3-yl ß-D-glucopyranoside (AY-1-Glc), expressed as acynonapyr. Definition of the residue for estimation of dietary intake for animal commodities: sum of parent acynonapyr plus 5-(trifluoromethyl)-2-pyridinol (AY) and 5-(trifluoromethyl)-2-pyridyl ß-D-glucopyranosiduronic acid (AY-Glu), expressed as acynonapyr. Definition of the residue for acute estimation of dietary intake of AY for plant commodities: 5-(trifluoromethyl)-2-pyridinol (AY), expressed as acynonapyr. Definition of the residue for acute estimation of dietary intake of AY for animal commodities: sum of 5-(trifluoromethyl)-2-pyridinol (AY) and 5-(trifluoromethyl)-2-pyridyl ß-D-glucopyranosiduronic acid (AY-Glu), expressed as acynonapyr. The residue is not fat soluble.						
Azoxystrobin (229) ADI: 0–0.03 mg/kg bw ARfD: unnecessary (2024)	VL 0401	Broccoli, Chinese	1.5	–	0.18	–
Definition of residues for compliance with the MRL for plant and animal commodities: azoxystrobin. Definition of residues for estimation of dietary intake for plant and animal commodities: azoxystrobin. The residue is fat soluble.						
Bifenthrin (178) ADI: 0–0.01 mg/kg bw ARfD: 0.01 mg/kg bw (2009)	FC 0001	Citrus fruits	W	0.05	0.05	0.05
	AB 0001	Citrus pulp, dry	0.5	–	0.098	–
	OR 0001	Citrus oil, edible	20	–	3.12	–
	FB 0265	Cranberry	1.5	–	0.56	0.76
	MO 0105	Edible offal (Mammalian)	W	0.2	–	–
	MO 0105	Group of Edible offal (Mammalian)	0.2	–	0.07	0.165
	MF 0100	Group of Mammalian fats (except milk fats)	3	–	0.59	1.9
	FM 0106	Group of milk fats[a]	3	–	0.49	–
	ML 0106	Group of milks	0.2	–	0.053	–
	MM 0095	Group of muscle (from mammals other than marine mammals)	0.3	–	0.07	0.104
	MM 0095	Meat (from mammals other than marine mammals)	W	3 (fat)	–	–
	FM 018	Milk Fats[a]	W	3	–	–
	ML 0106	Milks	W	0.2	–	–

Compound	CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P (mg/kg)	HR or HR-P (mg/kg)
			New	Previous		
	JF 0004	Orange juice	–	10	0.0012	–
	FC 0002	Subgroup of Lemons and Limes	0.05	–	0.05	0.05
	FC 0003	Subgroup of Mandarins	0.05	–	0.05	0.05
	FC 0004	Subgroup of Oranges, Sweet, Sour	0.15	0.05	0.04	0.11
	FC 0005	Subgroup of Pummelos and Grapefruits	0.05	–	0.05	0.05
Definition of the residue for compliance with the MRL and estimation of dietary intake for plant and animal commodities: bifenthrin. The residue is fat soluble.						
Boscalid (221) ADI: 0–0.04 mg/kg bw ARfD: Unnecessary (2006/2019)	MO 0105	Edible offal (Mammalian)	W	0.2	–	–
	PE 0112	Eggs	W	0.02	–	–
	PF 0111	Group of avian fats	0.02	–	0.02	–
	PM 0110	Group of avian muscle	0.02	–	0.02	–
	PO 0111	Group of avian, Edible offal	0.02	–	0.02	–
	MO 0105	Group of edible offal (mammalian)	0.2	–	Liver: 0.12 Kidney: 0.16	–
	PE 0112	Group of eggs	0.02	–	0.02	–
	MF 0100	Group of Mammalian fats (except milk fats)	0.7	–	0.18	–
	FM 0106	Group of milk fats[a]	2	–	0.64	–
	ML 0106	Group of milks	0.1	–	0.066	–
	MM 0095	Group of Muscle (from mammals other than marine mammals)	0.07	–	0.035	–
	MF 0100	Mammalian fats (except milk fats)	W	0.7	–	–
	MM 0095	Meat (from mammals other than marine mammals)	W	0.7 (f)	–	–
	FM 0106	Milk fat	W	2	–	–
	ML 0106	Milks	W	0.1	–	–
	PF 0111	Poultry fats	W	0.02	–	–
	PM 0110	Poultry meat	W	0.02	–	–
	PO 0111	Poultry, edible offal of	W	0.02	–	–
Definition of residues for compliance with MRL for plant and animal commodities and for estimation of dietary intake in plants: boscalid.						

Compound	CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P (mg/kg)	HR or HR-P (mg/kg)
			New	Previous		
Definition of the residue for the estimation of the dietary intake in animal commodities: *sum of boscalid, 2-chloro-N-(_4_'-chloro-5-hydroxybiphenyl-2-yl)nicotinamide (M510F01) including its conjugate, expressed as boscalid.* The residue is fat soluble.						
Broflanilide (326) ADI: 0–0.02 mg/kg bw ARfD: Unnecessary (2022)	VB 0400	Broccoli	0.6	–	0.076	–
	VO 2700	Cherry tomato	0.15	–	0.0165	–
	VC 0424	Cucumber	0.2	–	0.01	–
	MO 0105	Edible offal (Mammalian)	W	0.03	–	–
	PE 0112	Eggs	W	0.03	–	–
	MO 0105	Group of edible offal (mammalian)	0.1	–	0.02	–
	MF 0100	Group of mammalian fats (except milk fats)	1	–	0.099	–
	ML 0106	Group of milks	0.05	–	0.005	–
	MM 0095	Group of muscle (from mammals other than marine mammals)	0.05	–	0.02 (muscle) 0.099 (fat)	–
	MF 0100	Mammalian fats	W	0.15	–	–
	MM 0095	Meat (from mammals other than marine mammals)	W	0.15 (fat)	–	–
	FM 0183	Group of milk fats[a]	1	–	0.143	–
	VL 0482	Lettuce, head	0.8	–	0.08	–
	VL 0483	Lettuce, leaf	1.5	–	0.32	–
	FM 0106	Milk fats	W	0.4	–	–
	ML 0106	Milks	W	0.015	–	–
	VD 0536	Mung bean (dry)	0.04	–	0.011	–
	VO 0444	Peppers, chili	0.3	–	0.055	–
	HS 0444	Peppers, chili, dried	3	–	0.385	–
	VO 0445	Peppers, Sweet	0.07	–	0.0145	–
	PO 0111	Poultry, Edible offal of	W	0.03	–	–
	PM 0110	Poultry meat	W	0.02	–	–
	PF 0111	Poultry fats	W	0.15	–	–
	VD 0541	Soya bean (dry)	0.06	–	0.0048	–
	DM 0541	Soya bean, flour	–	–	0.0001	–
	AL 1265	Soya bean, forage	–	–	–	–
	AL 0541	Soya bean, hay and/or straw	15 (dw)	–	–	–
	AL 3538	Soya bean, hulls	0.3	–	–	–
	–	Soya bean, miso	–	–	0.0007	–
	OR 0541	Soya bean oil, refined	–	–	0.0005	–
	–	Soya bean, pollard	–	–	0.0015	–
	–	Soya bean, tofu	–	–	0.0005	–

Compound	CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P (mg/kg)	HR or HR-P (mg/kg)
			New	Previous		
	–	Soya bean, soy sauce	–	–	0.0001	–
	VL 0502	Spinach	2	–	0.63	–
	VO 2046	Subgroup of Eggplants	0.15	–	0.019	–
	VL 0054	Subgroup of Leaves of Brassicaceae	2	–	0.39	–
	VS 2080	Subgroup of Stems and Petioles	0.8	–	0.14	–
	VO 0448	Tomato	0.15	–	0.0165	–
	–	Tomato, canned	–	–	0.002	–
	JF 0448	Tomato, juice	–	–	0.004	–
	–	Tomato ketchup	0.3	–	0.033	–
	DM 3525	Tomato, pomace	1.5	–	0.046	–
	DM 0448	Tomato, puree	0.4	–	0.036	–
	–	Tomato, sun-dried	1	–	0.11	–
Definition of the residue for compliance with the MRL and for estimation of dietary intake for plant commodities: broflanilide. Definition of the residue for compliance with the MRL and for estimation of dietary intake for animal commodities: sum of broflanilide plus 3-benzamido-N-[2-bromo-4-(perfluoropropan-2-yl)-6-(trifluoromethyl)phenyl]-2-fluorobenzamide (DM-8007), expressed as broflanilide. The residue is fat soluble.						
Clothianidin (238) ADI: 0–0.1 mg/kg bw ARfD: 0.6 mg/kg bw (2010)	MO 0105	Edible offal (Mammalian) (except liver)	W	0.02* (c, T)	–	–
	MO 0099	Liver of cattle, goats, pigs & sheep	W	0.4 (c, T)	–	–
	PE 0112	Eggs	W	0.01* (c, T)	–	–
	PF 0111	Group of avian fats	0.01* (c, T)	–	0.0033	0.0033
	PM 0110	Group of avian muscle	0.01* (c,T)	–	0.0014	0.0014
	PO 0111	Group of avian, Edible offal	0.4 (c, T)	–	0.37	0.37
	MO 0105	Group of Edible offal (mammalian)	0.4 (c, T)	–	0.26	0.37
	PE 0112	Group of eggs	0.01* (c,T)	–	0.0062	0.0062
	MF 0100	Group of Mammalian fats (except milk fats)	0.02* (c,T)	–	0.02	0.02
	ML 0106	Group of milks	0.05 (c, T)	–	0.041	
	MM 0095	Group of Muscle (from mammals other than marine mammals)	0.02* (c,T)	–	0.02	0.02
	MF 0100	Mammalian fats (except milk fats)	W	0.02* (c, T)	–	–

Compound	CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P (mg/kg)	HR or HR-P (mg/kg)
			New	Previous		
	MM 0095	Meat (from mammals other than marine mammals)	W	0.02* (c, T)	–	–
	ML 0106	Milks	W	0.05 (c, T)	–	–
	PF 0111	Poultry fats	W	0.01* (c, T)	–	–
	PM 0110	Poultry meat	W	0.01* (c, T)	–	–
	PO 0111	Poultry, edible offal of	W	0.4 (c, T)	–	–
(c,T) = clothianidin derived from both clothianidin and thiamethoxam use, residues from thiamethoxam use are higher.						
Definition of the residue for compliance with MRLs and for estimation of dietary intake for animal and plant commodities: clothianidin. The residue is not fat soluble.						
Cyantraniliprole (263) ADI: 0–0.03 mg/kg bw ARfD: Unnecessary (2013/2023)	MO 0105	Edible offal (mammalian)	W	1.5	–	–
	PE 0112	Eggs	W	0.3	–	–
	PO 0111	Group of avian, edible offal of	0.15	–	–	–
	PF 0111	Group of avian fats	0.04	–	0.0083	–
	PM 0110	Group of avian muscle	0.02	–	0.0039	–
	MO 0105	Group of edible offal (mammalian)	1.5	–	0.38	–
	PE 0112	Group of Eggs	0.3	–	0.048	–
	MF 0100	Group of mammalian fats (except milk fats)	0.5	–	0.1	–
	ML 0106	Group of Milks	0.6	–	0.21	–
	MM 0095	Group of Muscle (from mammals other than marine mammals)	0.2	–	0.041	–
	W 2095	Subgroup of Herbs (subgroup)	40	–	13	–
	DH 2095	Subgroup of Herbs, dried	150	–	16.65	–
	MU 1100	Hops, dried	70	–	17.2	–
	MF 0100	Mammalian fats (except milk fats)	W	0.5	–	–
	MM 0095	Meat (from mammals other than marine mammals)	W	0.2	–	–
	ML 0106	Milks	W	0.6	–	–
	DV 0387	Onion, Welsh, dried	60	–	10	–
	FI 0350	Papaya	1.5	–	0.016	–
	PF 0111	Poultry fats	W	0.04	–	–
	PM 0110	Poultry meat	W	0.02	–	–
	PO 0111	Poultry, edible	W	0.15	–	–

Compound	CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P (mg/kg)	HR or HR-P (mg/kg)
			New	Previous		
		offal for of				
	HS 0190	Subgroup of Spices, seeds	80	–	19	–
Definition of the residue for compliance with the MRL for both plant and animal commodities: cyantraniliprole. Definition of the residue for estimation of dietary intake for processed plant commodities: sum of cyantraniliprole and 2-[3-bromo-1-(3-chloro-2-pyridinyl)-1H-pyrazol-5-yl]-3,4-dihydro-3,8-dimethyl-4-oxo-6-quinazolinecarbonitrile [IN-J9Z38], expressed as cyantraniliprole. Definition of the residue for estimation of dietary intake for animal commodities: sum of cyantraniliprole, 2-[3-bromo-1-(3-chloro-2-pyridinyl)-1H-pyrazol-5-yl]-3,4-dihydro-3,8-dimethyl-4-oxo-6-quinazolinecarbonitrile [IN-J9Z38], 2-[3-Bromo-1-(3-chloro-2-pyridinyl)-1H-pyrazol-5-yl]-1,4-dihydro-8-methyl-4-oxo-6-quinazolinecarbonitrile [IN-MLA84], 3-Bromo-1-(3-chloro-2-pyridinyl)-N-[4-cyano-2-(hydroxymethyl)-6-[(methylamino)carbonyl]phenyl]-1H-pyrazole-5-carboxamide [IN-N7B69] and 3-Bromo-1-(3-chloro-2-pyridinyl)-N-[4-cyano-2[[(hydroxymethyl)amino]carbonyl]-6-methylphenyl]-1H-pyrazole-5-carboxamide [IN-MYX98], expressed as cyantraniliprole. The residue is not fat soluble.						
Cyfluthrin (157)/beta cyfluthrin (228) ADI: 0–0.04 mg/kg bw ARfD: 0.04 mg/kg bw (2006)	MO 0105	Edible offal (mammalian)	W	0.02	–	–
	PE 0269	Eggs	W	0.01*	0	0
	FB 0269	Grapes	0.4	–	0.12	0.22
	DF 0269	Grape, dried	1.5	–	0.43	0.81
	JF 0269	Grape, Juice	–	–	0.011	–
	–	Grape, must	–	–	0.15	–
	AB0269	Grape pomace dried	15	–	–	–
	PO 0111	Group of avian edible offal	0.01*	–	0	0
	PF 0111	Group of avian fats	0.01*	–	0	0
	PM 0110	Group of avian muscle	0.01*	–	–	–
	MO 0105	Group of edible offal (mammalian)	0.02	–	Liver: 0.006	Liver: 0.008
	PE 0269	Group of eggs	0.01*	–	0	0
	MF 0100	Group of mammalian fats (except milk fats)	0.2	–	0.11	0.19
	FM 0106	Group of milk fats[a]	0.3	–	0.18	–
	MM 0095	Group of muscle (from mammals other than marine mammals)	0.01*	–	0.01	0.01
	MM 0095	Mammalian meat (from mammals other than marine mammals)	W	0.2 (fat)	–	–
	ML 0106	Group of milks	0.01	–	0.007	–
	ML 0106	Milks	W	0.01	–	–
	PO 0111	Poultry edible offal	W	0.01*	–	–
	PM 0110	Poultry meat	W	0.01* (fat)	–	–
	GC 0654	Wheat	0.05	–	0.014	–

Compound	CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P (mg/kg)	HR or HR-P (mg/kg)
			New	Previous		
	CF 0654	Wheat, Bran	–	–	0.016	–
	CF 1211	Wheat, flour	–	–	0.0049	–
	CF 1210	Wheat, germ	–	–	0.011	–
	CF 3522	Wheat, gluten	0.08	–	0.023	–
	–	Wheat, starch	–	–	0.0029	–
	CF 1212	Wheat, wholemeal bread	–	–	0.0097	–
	–	Wheat, wholemeal flour	–	–	0.0106	–
	GC 0653	Triticale	0.05	–	0.014	–
Definition of the residue for compliance with the MRL and for estimation of dietary intake for plant and animal commodities: cyfluthrin (sum of isomers). The residue is fat soluble.						
Cyprodinil (207) ADI: 0–0.03 mg/kg bw ARfD: unnecessary (2003/2019)	MO 0105	Edible offal (Mammalian)	W	0.01*	–	–
	PE 0112	Eggs	W	0.01*	–	–
	PO 0111	Group of avian, edible offal of	0.01*	–	0	–
	PF 0111	Group of avian fats	0.01*	–	0	–
	PM 0110	Group of avian muscle	0.01*	–	0	–
	MO 0105	Group of edible offal (Mammalian)	0.02	–	0.011	–
	PE 0112	Group of eggs	0.01*	–	0	–
	MF 0100	Group of mammalian fats (except milk fats)	0.01*	–	0	–
	FM 0106	Group of milk fats[a]	0.01*	–	0	–
	ML 0106	Group of milks	0.02*	–	0	–
	MM 0095	Group of muscle (from mammals other than marine mammals)	0.01*	–	0	–
	FI 0345	Mango	0.6	–	0.01	–
	MM 0095	Meat (from mammals other than marine mammals)	W	0.01*	–	–
	ML 0106	Milk	W	0.0004*	–	–
	FI 0350	Papaya	0.5	–	0.02	–
	PO 0111	Poultry edible offal	W	0.01*	–	–
	PM 0110	Poultry meat	W	0.01*	–	–
Definition of the residue for compliance with the MRL and for estimation of dietary intake for animal and plant commodities: cyprodinil. The residue is fat soluble.						

Compound	CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P (mg/kg)	HR or HR-P (mg/kg)
			New	Previous		
Difenoconazole (224) ADI: 0–0.01 mg/kg bw ARfD: 0.3 mg/kg bw (2007)	HS 0780	Subgroup of spices, seeds	0.9	–	0.16	0.86
Definition of the residue for compliance with the MRL and for estimation of dietary intake for plant commodities: difenoconazole. Definition of the residue for compliance with the MRL and for estimation of dietary intake for animal commodities: sum of difenoconazole and 1-[2-chloro-4-(4-chloro-phenoxy)-phenyl]-2-(1,2,4-triazol)-1-yl-ethanol), expressed as difenoconazole. The residue is fat soluble.						
Dimethoate (027) ADI: 0–0.001 mg/kg bw ARfD: 0.02 mg/kg bw (2019)	No residue evaluation of residues was conducted by the present meeting.					
Dimpropyridaz (344)*** ADI: 0–0.2 mg/kg bw ARfD: 1 mg/kg bw (2025)	As the residue definition for estimation of dietary intake for plant commodities was not concluded, no recommendations were done by the meeting.					
Definition of the residue for compliance with the MRL for plants: sum of dimpropyridaz and methyl 5-methyl-1-(3-methylbutan-2-yl)-1H-pyrazole-4-carboxylate (Reg. No. 6065040), expressed as dimpropyridaz. Residue definition for dietary assessment for plant commodities: not concluded. Definition of the residue for compliance with the MRL for animals: sum of dimpropyridaz and 1-(3-hydroxy-3-methylbutan-2-yl)-5-methyl-N-(pyridazin-4-yl)-1H-pyrazole-4-carboxamide (M550I015), expressed as dimpropyridaz. Definition of the residue for estimation of dietary intake in animal commodities: Sum of dimpropyridaz, 1-(3-hydroxy-3-methylbutan-2-yl)-5-methyl-N-(pyridazin-4-yl)-1H-pyrazole-4-carboxamide (M550I015), 5-methyl-1- (3-methylbutan-2-yl)-N-(pyridazin-4-yl)-1H-pyrazole-4-carboxamide (M550I002) and N-ethyl-1-(3-hydroxy-3-methylbutan-2-yl)-5-methyl-N-(pyridazin-4-yl)-1H-pyrazole-4-carboxamide (M550I004) expressed as dimpropyridaz. The residue is not fat soluble.						
Dinotefuran (255) ADI: 0–0.2 mg/kg bw ARfD: 1 mg/kg bw (2012)	FI 0334	Durian	0.7	–	0.036	0.036
	MO 0105	Edible offal (mammalian)	W	0.1	–	–
	PE 0112	Eggs	W	0.02*	–	–
	PO 0111	Group of avian, edible offal of	0.02*	–	0 (liverand kidney	0 (liverand kidney
	PF 0111	Group of avian fats	0.02*	–	0	0
	PM 0110	Group of avian muscle	0.02*	–	00	00
	MO 0105	Group of edible offal (mammalian)	0.1	–	0.029 (liver) 0.030 (kidney)	0.0680 (liver) 0.080' (kidney)
	PE 0112	Group of eggs	0.02*	–	0	0
	MF 0100	Group of mammalian fats (except milk fats)	0.1	–	0.023	0.067
	ML 0106	Group of milk	0.1	–	0.039	–
	MM 0095	Group of muscle (from mammals other than marine mammals)	0.1	–	0.030	0.065

Compound	CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P (mg/kg)	HR or HR-P (mg/kg)
			New	Previous		
	FI 0345	Mango	0.6	–	0.12 (flesh) 0.22 (RAC)	0.16 (flesh) 0.30 (RAC)
	MM 0095	Meat (from mammals other than marine mammals)	W	0.1	–	–
	ML 0106	Milk	W	0.1	–	–
	PO 0111	Poultry, edible offal of	W	0.02*	–	–
	PM 0110	Poultry meat	W	0.02*	–	–
Definition of residue for compliance with the MRL in plant commodities: dinotefuran. Definition of residue for estimation of dietary intake in plant commodities: sum of dinotefuran, 1-methyl-3-(tetrahydro-3-furylmethyl) urea (UF) and 1-methyl-3-tetrahydro-3-furylmethyl)guanidium dihydrogen (DN), expressed as dinotefuran. Definition of residue for compliance with the MRL and estimation of dietary intake for animal commodities: sum of dinotefuran and 1-methyl-3-(tetrahydro-3-furylmethyl) urea (UF), expressed as dinotefuran. The residue is not fat soluble.						
Etoxazole (241) ADI: 0–0.05 mg/kg ARfD: Unnecessary (2010)	FI 0326	Avocado	0.15	–	0.033	0.076
	MO 0105	Edible offal (mammalian)	W	0.01*	–	–
	PO 0111	Group of avian, edible offal of	0.01*	–	0	0
	PF 0111	Group of avian fats	0.01*	–	0	0
	PM 0110	Group of avian muscle	0.01*	–	0	0
	MO 0105	Group of edible offal (mammalian)	0.01*	–	0.01	0.01
	PE 0112	Group of eggs	0.01*	–	0	0
	MF 0100	Group of mammalian fats (except milk fats)	0.03	–	0.01	0.03
	FM 0106	Group of milk fats[a]	0.02	–	0.02	0.02
	ML 0106	Group of milks	0.01*	–	0.01	–
	MM 0095	Group of muscle (from mammals other than marine mammals)	0.01*	–	0.01	0.01
	MM 0095	Meat (from mammals other than marine mammals)	W	0.01*	–	–
	ML 0106	Milks	W	0.01*	–	–
	GC 0447	Sweet corn (corn-on-the-cob) (kernels plus cob with husk removed)	0.01*	–	0.01	0.01
	AS 3563	Sweet corn, stover	6 (dw)	–	–	–

Compound	CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P (mg/kg)	HR or HR-P (mg/kg)
			New	Previous		
Definition of residue for compliance with the MRL and estimation of dietary intake for plant and animal commodities: etoxazole. The residue is fat soluble.						
Flubendiamide (242) ADI: 0–0.02 mg/kg bw ARfD: 0.2 mg/kg bw (2010)	MO 0105	Group of edible offal (Mammalian)	0.6	1	0.41 (kidney) 0.39 (liver)	0.59 (kidney) 0.58 (liver)
	MF 0100	Group of mammalian fats (except milk fats)	1.5	2	0.73	1.4
	ML 0106	Group of milks	0.15	0.1	0.082	–
	FM 0106	Group of milk fats	4	5	1.8	–
	MM 0095	Group of muscle (from mammals other than marine mammals)	0.15	0.2	0.08	0.153
	DV 0387	Onion, Welsh, dried	7	–	1.595	3.59
Definition of the residue for compliance with the MRL and estimation of dietary intake for plant commodities: flubendiamide. Definition of the residue for compliance with the MRL for animal commodities: flubendiamide. Definition of the residue for estimation of dietary intake for animal commodities: flubendiamide and flubendiamide-iodophthalimide. The residue is fat soluble.						
Fludioxonil (211) ADI: 0–0.4 mg/kg ARfD: Unnecessary (2004/2022)	MO 0105	Edible offal (mammalian)	W	0.15	–	–
	PE 0112	Eggs	W	0.02	–	–
	PO 0111	Group of avian, edible offal of	0.1	–	0.028	0.095
	PF 0111	Group of avian fats	0.01*	–	0	0
	PM 0110	Group of avian muscle	0.01*	–	0	0
	MO 0105	Group of edible offal (mammalian)	0.15	–	0.037	0.14
	PE 0112	Group of eggs	0.02	–	0.01	0.011
	MF 0100	Group of mammalian fats (except milk fats)	0.02	–	0.006	0.016
	FM 0106	Group of milk fats[a]	2	–	0.4	–
	ML 0106	Group of milks	0.07	–	0.016	–
	MM 0095	Group of muscle (from mammals other than marine mammals)	0.02	–	0.006	0.011
	MF 0100	Mammalian fats (except milk fats)	W	0.02	–	–
	MM 0095	Meat (from mammals other	W	0.02	–	–

Compound	CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P (mg/kg)	HR or HR-P (mg/kg)
			New	Previous		
		than marine mammals)				
	VC 0046	Melons, except Watermelon	7 (Po)	–	0.02	0.11
	ML 0106	Milks	W	0.07	–	–
	PF 0111	Poultry fats	W	0.01*	–	–
	PM 0110	Poultry meat	W	0.01*	–	–
	PO 0111	Poultry, edible offal of	W	0.1	–	–
	VO 2046	Subgroup of Eggplants	1	0.3	0.13	0.28
	VC 0432	Watermelon	7 (Po)	–	0.015	0.11
Definition of the residue for compliance with MRLs and estimation of dietary intake in plant commodities: fludioxonil. Definition of the residue for compliance with MRLs and estimation of dietary intake in animal commodities: sum of fludioxonil and metabolites determined as 2,2-difluorobenzo[1,1]dioxole-4-carboxylic acid, expressed as fludioxonil. The residue is fat soluble.						
Fluopyram (243) ADI: 0–0.01 mg/kg bw ARfD: 0.5 mg/kg bw (2010)	MO 0105	Edible offal (mammalian)	W	8	–	–
	PE 0112	Eggs	W	2	–	–
	PO 0111	Group of avian, Edible offal	5	–	0.88	3.1
	PF 0111	Group of avian fats	1	–	0.28	0.90
	PM 0110	Group of avian muscle	1.5	–	0.19	0.97
	MO 0105	Group of edible offal (mammalian)	8	–	3.8	7.4
	PE 0112	Group of eggs	2	–	0.46	1.5
	MF 0100	Group of mammalian fats (except milk fats)	1.5	–	0.67	1.5
	ML 0106	Group of milks	0.80	–	0.48	–
	MM 0095	Group of muscle (from mammals other than marine mammals)	1.5	–	0.51	1.0
	MF 0100	Mammalian fats (except milk fats)	W	1.5	–	–
	MM 0095	Meat (from mammals other than marine mammals)	W	1.5	–	–
	ML 0106	Milks	W	0.8	–	–
	W 0738	Mint	0.6	–	0.087	–
	–	Mint oil	–	–	0.046	
	VA 0385	Onion, Bulb	0.4	0.07	0.12	0.22
	FI 0353	Pineapple	0.01*	–	0.01	0.01
	PO 0111	Poultry, edible offal	W	5	–	–
	PF 0111	Poultry, fats	W	1	–	–
	PM 0110	Poultry, meat	W	1.5	–	–

Compound	CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P (mg/kg)	HR or HR-P (mg/kg)
			New	Previous		
	VC 0431	Squash, summer	0.3	–	0.084	0.18
	VC 2040	Subgroup of Fruiting vegetables, Cucurbits – Melons, Pumpkins and Winter Squashes	0.6	–	0.14	0.53
Definition of the residue for compliance with the MRL and estimation of dietary intake for plant commodities: fluopyram. Definition of the residue for compliance with the MRL for animal commodities: sum of fluopyram and 2-(trifluoromethyl) benzamide, expressed as fluopyram. Definition of the residue for estimation of dietary intake for animal commodities: sum of fluopyram, 2-(trifluoromethyl)benzamide and the combined residues of N-(E)-2-[3-chloro-5-(trifluoromethyl)pyridine-2-yl]ethenyl)-2-trifluoromethyl)benzamide and N-(Z)-2-[3-chloro-5-(trifluoromethyl)pyridine-2-yl]ethenyl)-2-trifluoromethyl)benzamide, all expressed as fluopyram. The residue is not fat soluble.						
Guazatine (114)** ADI: 0–0.008 mg/kg bw ARfD: Unnecessary (2025)	No recommendations were made due to insufficient storage stability of residues in analytical samples information. Furthermore, no residue definitions for animal commodities could be concluded.					
Definition of the residue for estimating MRLs and for estimation of dietary intake in fruit commodities: sum of guazatine acetates (guazatine). Definition of the residue for estimating MRLs and for the estimation of dietary intake in animal commodities: not concluded.						
Indoxacarb (216) ADI: 0–0.01 mg/kg bw ARfD: 0.1 mg/kg bw (2005)	MO 0105	Edible offal (Mammalian)	W	0.05	–	–
	PE 0112	Eggs	W	0.02	–	–
	PO 0111	Group of avian, Edible offal	0.01*	–	0	0
	PF 0111	Group of avian fats	0.05	–	0.025	0.05
	PM 0110	Group of avian muscle	0.01*	–	0	0
	MO 0105	Group of Edible offal (mammalian)	0.06	–	Liver: 0.01 Kidney: 0.03	Liver: 0.028 Kidney: 0.057
	PE 0112	Group of eggs	0.02	–	0.01	0.02
	FM 0106	Group of milk fats[a]	6	–	1.7	–
	MF 0100	Group of mammalian fats (except milk fats)	2	–	0.66	1.9
	ML 0106	Group of milks	0.2	–	0.07	
	MM 0095	Group of muscle (from mammals other than marine mammals)	0.1	–	0.026	0.099
	MF 0100	Mammalian fats (except milk fats)	W	2	–	–
	MM 0095	Meat (from	W	2 (fat)	–	–

Compound	CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P (mg/kg)	HR or HR-P (mg/kg)
			New	Previous		
		mammals other than marine mammals)				
	FM 0106	Milk fat	W	6	–	–
	ML 0106	Milks	W	0.2	–	–
	PO 0111	Poultry, edible offal of	W	0.01*	–	–
	PM 0110	Poultry meat	W	0.01* (fat)	–	–
Definition of residue for compliance with the MRL for plant and animal commodities and estimation of dietary intake for plant commodities: sum of indoxacarb and its *R* enantiomer. Definition of residue for estimation of dietary intake for plant commodities: sum of indoxacarb and its *R* enantiomer. Definition of residue for estimation of dietary intake for animal commodities: sum of indoxacarb, its *R* enantiomer, and IN-JT333, expressed as indoxacarb. The residue is fat soluble.						
Ipflufenoquin (345)* ** ADI: 0–0.07 mg/kg bw ARfD: 1 mg/kg bw (2025)	No recommendations were made as the definition of residue for estimation of dietary intake for animal commodities was not concluded					
Definition of the residue for compliance with the MRL for plant commodities and for estimation of dietary intake for plant commodities: *ipflufenoquin*. Definition of the residue for compliance with the MRL for animal commodities: *ipflufenoquin and the metabolite* 2-[2-(7,8-difluoro-2-methylquinolin-3-yloxy)-6-fluorophenyl]-2-hydroxypropyl β-d-glucopyranosiduronic acid *(QP-1-11) (expressed as ipflufenoquin)*. Definition of the residue for dietary intake assessment for animal commodities: not concluded. The residue is fat soluble.						
Malathion (049)** ADI: 0–0.3 mg/kg bw ARfD: 2 mg/kg bw (2025)	No recommendations were made as the residue definition for estimation of dietary intake for plant and animal commodities were not concluded.					
	FP 0226	Apple	W	0.5	–	–
	VS 0621	Asparagus	W	1	–	–
	VD 0071	Bean (dry)	W	2	–	–
	VP 0061	Beans with pods (Phaseolus spp.) (immature pods and succulent seeds)	W	1	–	–
	FB 0020	Blueberries	W	10	–	–
	FC 0001	Citrus fruits (group)	W	7	–	–
	OC 0691	Cotton seed oil, crude	W	13	–	–
	OR 0691	Cotton seed oil, edible	W	13	–	–
	VC 0424	Cucumber	W	0.2	–	–
	FB 0269	Grapes	W	5	–	–
	VL 0485	Mustard greens	W	2	–	–
	VA 0385	Onion, bulb	W	1	–	–
	VO 0051	Peppers (subgroup)	W	0.1	–	–
	HS 0444	Peppers chili, dried	W	1	–	–

Compound	CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P (mg/kg)	HR or HR-P (mg/kg)
			New	Previous		
	HS 0191	Spices, fruits and berries	W	1	–	–
	HS 0193	Spices, roots and rhizomes	W	0.5	–	–
	HS 0190	Spices, seeds	W	2	–	–
	VL 0502	Spinach	W	3	–	–
	VA 0389	Spring onion	W	5	–	–
	FB 0275	Strawberry	W	1	–	–
	VO 0447	Sweet corn (corn-on-the-cob)	W	0.02	–	–
	VO 0448	Tomato	W	0.5	–	–
	JF 0448	Tomato juice	W	0.01	–	–
	VL 0506	Turnip greens	W	5	–	–
	VR 0506	Turnip, Garden	W	0.2	–	–
	CM 0654	Wheat bran, unprocessed	W	25	–	–
	CF 1211	Wheat flour	W	0.2	–	–
Definition of the residue for compliance with the MRL for plant commodities: malathion. Definition of the residue for compliance with the MRL for animal commodities: sum of malathion, butanedioic acid, 2-[(dimethoxyphosphinothioyl)thio]-, monoethyl ester (malathion monocarboxylic acid isomers) and butanedioic acid, [(dimethoxyphosphinothioyl)thio] (malathion dicarboxylic acid) (expressed as malathion). Definition of residues for estimation of dietary intake for plants and animal commodities: not concluded. The residue is not fat soluble.						
Mefentrifluconazole (320) ADI: 0–0.04 mg/kg bw ARfD: 0.3 mg/kg bw (2021)	VB 0400	Broccoli	0.15	–	0.024	0.078
	VB 0404	Cauliflower	0.01*	–	0.01	0.01
	MO 0105	Edible offal (mammalian)	W	2.0	–	–
	PE 0112	Eggs	W	0.04	–	–
	FB 0269	Grapes	3	–	0.26	1.7
	DF 0269	Grape, dried (= Currants, Raisins and Sultanas)	15	–	0.97	6.3
	AB 0269	Grape pomace, dried	15	9	–	–
	PO 0111	Group of avian, edible offal	0.7	–	0.12	0.844
	PF 0111	Group of avian fats	0.2	–	0.124	0.503
	PM 0110	Group of avian muscle	0.03	–	0.012	0.053
	MO 0105	Group of edible offal (mammalian)	2.0	–	0.61	1.91
	PE 0112	Group of eggs	0.04	–	0.032	0.094
	MF 0100	Group of mammalian fats (except milk fats)	1.5	–	0.39	–
	ML 0106	Group of milks	0.1	–	0.07	–
	FM 0106	Group of milk fats[a]	3	–	0.99	–
	MM 0095	Group of muscle (from mammals	0.15	–	0.04	0.14

Compound	CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P (mg/kg)	HR or HR-P (mg/kg)
			New	Previous		
		other than marine mammals)				
	MF 0100	Mammalian fats (except milk fats)	W	1.5	–	–
	MM 0095	Meat (from mammals other than marine mammals)	W	0.15 (fat)	–	–
	ML 0106	Milks	W	0.10	–	–
	FI 0353	Pineapple	0.5	–	0.0028 (pulp)	0.0056 (pulp)
	DF 0353	Pineapple, dried	–	–	0.018	–
	JF 0341	Pineapple, juice	–	–	0.036	–
	AM 3591	Pineapple, process residue	–	–	0.140	–
	PO 0111	Poultry, edible offal	W	0.7	–	–
	PF 0111	Poultry, fats	W	0.2	–	–
	PM 0110	Poultry, meat	W	0.03 (fat)	–	–
	VR 0596	Sugar beet	0.3	–	0.063	0.28
	AB 0596	Sugar beat pulp, dry	1.5	–	–	–
		Sugar, refined	–	–	0.004	–
	VO 2045	Tomatoes, Subgroup of	1.5	0.7	0.295	0.97
	DV 0448	Tomato, dried	15	7	2.73	8.89
		Tomato, canned	–	–	0.02	0.06
	JF 0448	Tomato, juice	–	–	0.02	–
	VW 0448	Tomato, paste	–	–	0.15	–
	DM 3525	Tomato, pomace	–	–	0.87	–
	DM 0448	Tomato puree	–	–	0.08	–
Definition of the residue for compliance with the MRL and estimation of dietary intake for plant commodities: *mefentrifluconazole*. Definition of the residue for compliance with the MRL for animal commodities: *mefentrifluconazole (free and conjugated).* Definition of the residue for estimation of dietary intake for animal commodities: sum of *mefentrifluconazole (free and conjugated) +* 2-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]propane-1,2-diol *(*M750F022*), free and conjugated, expressed as mefentrifluconazole equivalents.* The molecular weight conversion factor to express M750F022 in mefentrifluconazole equivalents = 1.15. The residue is fat soluble.						
Mepiquat-chloride (336) ADI: 0–0.3 mg/kg bw ARfD: 0.6 mg/kg bw (2023)	SO0691	Cotton seed	30	4	10	–
	AM3589	Cotton seed meal	60	8	–	–
	OC0691	Cotton seed oil, crude	–	–	0.43	–
	OR0691	Cotton seed oil, edible	–	–	0.4	–
	MO 0105	Edible offal (Mammalian)	W	0.04	–	–
	PE 0112	Eggs	W	0.008*	–	–
	PF 0111	Group of avian fats	0.008*	–	0.01	0.01
	PM 0110	Group of avian muscle	0.008*	–	0.01	0.01
	PO 0111	Group of avian,	0.008*	–	0.01	0.01

Compound	CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P (mg/kg)	HR or HR-P (mg/kg)
			New	Previous		
		Edible offal				
	MO 0105	Group of Edible offal (mammalian)	0.2	–	Liver: 0.12 Kidney: 0.12	Liver: 0.15 Kidney: 0.17
	PE 0112	Group of eggs	0.05	–	0.039	0.041
	MF 0100	Group of Mammalian fats (except milk fats)	0.04	–	0.038	0.038
	ML 0106	Group of milks	0.03	–	0.025	–
	MM 0095	Group of muscle (from mammals other than marine mammals)	0.04	–	0.039	0.039
	MF 0100	Mammalian fats (except milk fats)	W	0.01	–	–
	MM 0095	Meat (from mammals other than marine mammals)	W	0.01	–	–
	ML 0106	Milks	W	0.008*	–	–
	PO 0111	Poultry, edible offal of	W	0.008*	–	–
	PF 0111	Poultry fats	W	0.008*	–	–
	PM 0110	Poultry meat	W	0.008*	–	–
Definition of the residue for compliance with the MRL in plant and animal commodities and for the estimation of the dietary intake in plant commodities: *mepiquat cation*. Definition of the residue for the estimation of the dietary intake in animal commodities: *sum of mepiquat cation and 4-hydroxy-1,1-dimethylpiperidinium cation (4-hydroxymepiquat cation, free and conjugated), expressed as mepiquat cation.* The residue is not fat soluble.						
Metaflumizone (236) ADI: 0–0.1 mg/kg bw ARfD: Unnecessary (2009/2019)	MO 0105	Edible offal (mammalian)	W	0.02*	–	–
	VO0440	Eggplant	W	0.6	–	–
	PE 0112	Eggs	W	0.02	–	–
	PO 0111	Group of avian, Edible offal	0.02*	–	0.010	–
	PF 0111	Group of avian fats	0.2	–	0.104	–
	PM 0110	Group of avian muscle	0.02* (fat)	–	0.003	–
	MO 0105	Group of edible offal (mammalian)	0.02*	–	Liver and kidney: 0.02	–
	PE 0112	Group of eggs	0.02	–	0.012	–
	MF 0100	Group of mammalian fats (except milk fats)	0.15	–	0.092	–
	ML 0106	Group of milks	0.02	–	0.01	–
	FM 0106	Group of milk fats [a]	0.3	–	0.166	–
	MM 0095	Group of muscle (from mammals other than marine	0.02* (fat)	–	0.02	–

Compound	CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P (mg/kg)	HR or HR-P (mg/kg)
			New	Previous		
		mammals)				
	MF 0100	Mammalian fats (except milk fats)	W	0.15	–	–
	MM 0095	Meat (from mammals other than marine mammals)	W	0.02* (fat)	–	–
	ML 0106	Milks	W	0.02	–	–
	FM 0106	Milk fats	W	0.6	–	–
	DV 0387	Onion, Welsh, dried	3	–	0.905	–
	PO 0111	Poultry, edible offal of	W	0.02*	–	–
	PF 0111	Poultry fats	W	0.08	–	–
	PM 0110	Poultry meat	W	0.02* (fat)	–	–
	VO2046	Subgroup of Eggplants	0.6	–	0.18	–
Definition of residue for compliance with MRLs and estimation of dietary intake for plants and animal commodities: metaflumizone, sum of E-isomer and Z-isomer. The residue is fat soluble.						
Metarylpicoxamid (346)*** ADI: 0–0.2 mg/kg bw ARfD: Unnecessary (2025)	PO 0111	Group of avian, Edible offal	0.01*	–	0	–
	PF 0111	Group of avian fats	0.01*	–	0	–
	PM 0110	Group of avian muscle	0.01*	–	0	–
	MO 0105	Group of edible offal (mammalian)	0.01*	–	0	–
	PE 0112	Group of eggs	0.01*	–	0	–
	MF 0100	Group of mammalian fats (except milk fats)	0.01*	–	0	–
	ML 0106	Group of milks	0.01*	–	0	–
	MM 0095	Group of muscle (from mammals other than marine mammals)	0.01*	–	0	–
	VD 0541	Soya bean (dry)	0.01*	–	0.02	–
Definition of the residue for compliance with the MRL for plant and animal commodities, and for estimation of dietary intake for animal commodities: metarylpicoxamid. Definition of the residue for estimation of dietary intake for plant commodities: Sum of metarylpicoxamid and (2S,3S)-3-(2-methylphenyl)butan-2-yl N- {[3-hydroxy)-4-methoxypyridin-2-yl}-L-alaninate (X12644507), expressed as metarylpicoxamid. The residue is not fat soluble.						

Compound	CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P (mg/kg)	HR or HR-P (mg/kg)
			New	Previous		
Metconazole (313) ADI: 0–0.04 mg/kg bw ARfD: 0.04 mg/kg bw (2019)	MO 0105	Edible offal (mammalian)	W	0.04*	–	–
	PE 0112	Eggs	W	0.04*	–	–
	PM 0110	Group of avian muscle	0.04*	–	0	0
	PO 0111	Group of avian edible offal	0.04*	–	0	0
	PF 0111	Group of avian fats	0.04*	–	0	0
	MO 0105	Group of edible offal (mammalian)	0.04*	–	0	0
	PE 0112	Group of eggs	0.04*	–	0	0
	MF 0100	Group of mammalian fats (except milk fats)	0.04*	–	0	0
	ML 0106	Group of milks	0.04*	–	0	0
	MM 0095	Group of muscle (from mammals other than marine mammals)	0.04*	–	0	0
	MF 0100	Mammalian fats (except milk fats)	W	0.04*	–	–
	MM 0095	Meat (from mammals other than marine mammals)	W	0.04*	–	–
	ML 0106	Milks	W	0.04*	–	–
	DV 0387	Onion, Welsh, dried	1.5	–	0.33	0.58
	PO 0111	Poultry, Edible offal of	W	0.04*	–	–
	PF 0111	Poultry fats	W	0.04*	–	–
	PM 0110	Poultry meat	W	0.04*	–	–
Definition of residue for compliance with the MRL for plant and animal commodities and for estimation of dietary intake for plant commodities: *metconazole (sum of cis and trans isomer)*. Definition of residue for estimation of dietary intake for animal commodities: *sum of metconazole (sum of cis and trans isomer) and metabolites (1SR,2SR,5RS)-5-(4-chlorobenzyl)-2-(hydroxymethyl)-2-methyl-1-(1H-1,2,4-triazol-1-ylmethyl)cyclopentanol (M1) and (1RS,2SR,3RS)-3-(4-chlorobenzyl)-2-hydroxy-1-methyl-2-(1H-1,2,4-triazol-1-ylmethyl)cyclopentanecarboxylic acid (M12), expressed as metconazole.* The residue is not fat soluble.						
Permethrin (120)** ADI: 0–0.05 mg/kg bw ARfD: 0.05 mg/kg bw (2025)	No evaluation of residues was conducted by the present meeting.					

Compound	CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P (mg/kg)	HR or HR-P (mg/kg)
			New	Previous		
Proquinazid (347)* ** ADI: 0–0.01 mg/kg bw ARfD: 0.3 mg/kg bw (2025)	FP 0226	Apple	0.3	–	0.795	0.17
	–	Apple juice	–	–	0.014	–
	AB 0226	Apple pomace, dried	5.0	–	–	–
	GC 0640	Barley	0.03	–	0.04	–
	AS 0640	Barley, hay and/or straw	0.3 (DM)	–	–	–
	FB 0269	Grapes	0.4	–	0.055	0.34
	DF 0269	Grape, dried	1.5	–	0.15	0.95
	–	Grape juice		–	0.018	–
	AB 0269	Grape pomace, dried	8.0	–	–	–
	MO 0105	Group of Edible offal (mammalian)	0.4	–	Liver: 0.049 Kidney: 0.092	Liver: 0.104 Kidney: 0.312
	MF 0100	Group of Mammalian fats (except milk fats)	0.07	–	0.024	0.065
	ML 0106	Group of milks	0.03	–	0.023	–
	MM 0095	Group of Muscle (from mammals other than marine mammals)	0.03	–	0.020	0.023
	–	Must (wine by-product)		–	0.014	–
	GC 0647	Oats	0.03	–	0.04	–
	AS 3559	Oat, hay and/or straw	0.3 (DM)	–	–	–
	FP 0230	Pear	0.3	–	0.795	0.17
	GC 0650	Rye	0.01*	–	0.02	–
	AS 3560	Rye, hay and/or straw	0.15 (DM)	–	–	–
	GC 0653	Triticale	0.01*	–	0.02	–
	AS 0653	Triticale, hay and/or straw	0.9 (DM)	–	–	–
	GC 0654	Wheat	0.01*	–	0.02	–
	AS 0654	Wheat, hay and/or straw	0.9 (DM)	–	–	–
	–	Wine	–	–	0.018	–
Definition of the residue for compliance with the MRL for plant commodities: proquinazid. Definition of the residue for estimation of dietary intake for plant commodities: sum of proquinazid and 2-(2-hydroxypropoxy)-6-iodo-3-propyl-quinazolin-4-one and 2-(2-hydroxy-1-methyl-ethoxy)-6-iodo-3-propyl- quinazolin-4-one (IN-MW977 (isomers)), expressed as proquinazid. Definition of the residue for compliance with the MRL and for estimation of dietary intake for animal commodities: sum of proquinazid and 3-(6-iodo-4-oxo-3-propyl-quinazolin-2-yl)oxypropanoic acid (IN-MU210), expressed as proquinazid. The residue is fat soluble.						
Pyraclostrobin (210) ADI: 0–0.03 mg/kg bw ARfD: 0.7 mg/kg bw (2003, 2018)	PE 0112	Eggs	W	0.05*	–	–
	VO 0440	Eggplant	W	0.3	–	–
	MO 0105	Edible offal (Mammalian)	W	0.05	–	–
	PF 0111	Group of avian fats	0.05*	–	0	0

Compound	CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P (mg/kg)	HR or HR-P (mg/kg)
			New	Previous		
	PM 0110	Group of avian muscle	0.05*	–	0	0
	PO 0111	Group of avian, Edible offal	0.05*	–	0	0
	MO 0105	Group of Edible offal (mammalian)	0.05	–	0.015	0.044
	PE 0112	Group of eggs	0.05*	–	0	0
	MF 0100	Group of Mammalian fats (except milk fats)	0.5	–	0.166	0.48
	ML 0106	Group of milks	0.03	–	0.0095	–
	MM 0095	Group of Muscle (from mammals other than marine mammals)	0.06	–	0.0181	0.052
	MF 0100	Mammalian fats (except milk fats)	W	0.5	–	–
	MM 0095	Meat (from mammals other than marine mammals)	W	0.5 (f)	–	–
	ML 0106	Milks	W	0.03	–	–
	PF 0111	Poultry fats	W	0.05*	–	–
	PM 0110	Poultry meat	W	0.05*	–	–
	PO 0111	Poultry, edible offal of	W	0.05*	–	–
	VO 2046	Subgroup of eggplants	0.3	–	0.12	0.21
	HS 0190	Subgroup of spices, seeds	0.8	–	0.18	0.7
Definition of the residue for compliance with MRL and for dietary intake for plant and animal commodities: pyraclostrobin. The residue is fat soluble.						
Pyriofenone (310) ADI: 0–0.09 mg/kg bw ARfD: Unnecessary (2018)	MO 0105	Edible offal (mammalian)	W	0.01*	–	–
	PE 0112	Eggs	W	0.01*	–	–
	PF 0111	Group of avian fats	0.01*	–	0	–
	PM 0110	Group of avian muscle	0.01*	–	0	–
	PO 0111	Group of avian, edible offal of	0.01*	–	0	–
	MO 0105	Group of edible offal (mammalian)	0.01*	–	0	–
	PE 0112	Group of eggs	0.01*	–	0	–
	MF 0100	Group of mammalian fats (except milk fats)	0.01*	–	0	–
	ML 0106	Group of milks	0.01*	–	0	–
	FM 0106	Group of milk fats[a]	0.01*	–	0	–

Compound	CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P (mg/kg)	HR or HR-P (mg/kg)
			New	Previous		
	MM 0095	Group of muscle (from mammalians other than marine mammals)	0.01*	–	0	–
	MR 0100	Mammalian fats (except milk fats)	W	0.01*	–	–
	MM 0095	Meat (from mammalians other than marine mammals)	W	0.01*	–	–
	ML 0106	Milks	W	0.01*	–	–
	HS 0444	Peppers, chili, dried	15	–	3.6	–
	PF 0111	Poultry fats	W	0.01*	–	–
	PM 0110	Poultry meat	W	0.01*	–	–
	PO 0111	Poultry, edible offal of	W	0.01*	–	–
	VO 2046	Subgroup of Eggplants	1.5	–	0.36	–
	FB 2009	Subgroup of low growing berries	W	0.5	–	–
	FB 2009	Subgroup of low growing berries, except strawberry	0.5	–	0.17	–
	VO 0051	Subgroup of Peppers	1.5	–	0.36	–
	VO 2045	Subgroup of Tomatoes	0.2	–	0.056	–
	FB 0275	Strawberry	2	–	0.61	–
	JF 0448	Tomato, juice	–	–	0.0056	–
	–	Tomato, paste	–	–	0.032	–
	–	Tomato pomace, dried	7	–	–	–
	DM 0448	Tomato, puree	–	–	0.018	–
Definition of the residue for compliance with the MRL and estimation of dietary intake for plant and animal commodities: pyriofenone. Fat solubility: not determined due to insufficient information.						
Pyriproxyfen (200) ADI: 0–0.1 mg/kg bw ARfD: Unnecessary (1999)	VB 0041	Cabbage, head	0.6	–	0.02	–
	MO 0812	Cattle, edible offal of	W	0.01*	0	–
	MM 0812	Cattle meat	W	0.01* (fat)	0	–
	VB 0404	Cauliflower	0.3	–	0.02	–
	VO 0440	Eggplant	W	0.6	0.17	–
	MO 0814	Goat, edible offal of	W	0.01*	0	–
	MM 0814	Goat meat	W	0.01* (fat)	0	–
	FB 0269	Grapes	3	–	0.145	–
	DF 0269	Grape, dried	4	–	0.188	–
	JF 0269	Grapes, juice	–	–	0.0058	–
	PO 0111	Group of avian, edible offal of	0.01*	–	0.00046 (kidney)	–

Compound	CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P (mg/kg)	HR or HR-P (mg/kg)
			New	Previous		
					0.00012 (liver)	
	PF 0111	Group of avian fats	0.15	–	0.01	–
	PM 0110	Group of avian muscle	0.01*	–	0.00052	–
	MO 0105	Group of edible offal (Mammalian)	0.01*	–	0	–
	MF 0100	Group of mammalian fats (except milk fats)	0.015	–	0.0076	–
	MM 0095	Group of muscle (from mammals other than marine mammals)	0.01*	–	0	–
	VL 0485	Mustard greens	4	–	0.345	–
	DF 0014	Prune, dried	0.5	–	0.13	–
	FB 0275	Strawberry	0.7	–	0.14	–
	VP 2060	Subgroup of beans with pods	0.1	–	0.02	–
	FB 2006	Subgroup of bush berries	1.5	–	0.365	–
	FS 0013	Subgroup of cherries	1.5	–	0.26	–
	VO 2046	Subgroup of eggplants	0.6	–	0.17	–
	FS 2001	Subgroup of peaches	0.5	–	0.16	–
	FS 0014	Subgroup of plums	0.15	–	0.045	–
Definition of the residue for compliance with the MRL and for estimation of dietary intake for plant and animal commodities: pyriproxyfen. The residue is fat soluble.						
Spidoxamat (348)* ** ADI: 0–0.7 mg/kg bw ARfD: Unnecessary (2025)	No recommendations were made as residue definitions for estimation of dietary intakefor plant and animal commodities could not be concluded.					
Residue definition for compliance with the MRL for plant and animal commodities: spidoxamat. Residue definitions for estimation of dietary intake for plant and animal commodities: not concluded. The residue is not fat soluble.						
Spinetoram (233) ADI: 0–0.05 mg/kg bw ARfD: unnecessary (2008)	VS 0621	Asparagus, raw	0.3	–	0.16	–
	VL 0401	Broccoli, Chinese	10	–	2.65	–
	SB 0716	Coffee bean, raw (i.e. green coffee)	0.02*	–	0.03	–
	MO 0105	Edible offal (mammalian)	W	0.1	–	–
	PE 0112	Eggs	W	0.01*	–	–
	VO 2046	Subgroup of Eggplants	0.4	–	0.026	-
	PO 0111	Group of avian, edible offal of	0.01*	–	0.00049	–

Compound	CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P (mg/kg)	HR or HR-P (mg/kg)
			New	Previous		
	PF 0111	Group of avian fats	0.01*	–	0.0053	–
	PM 0110	Group of avian muscle	0.01*	–	0.00022	–
	MO 0105	Group of edible offal (mammalian)	0.07	–	0.009	–
	PE 0112	Group of eggs	0.01*	–	0.00047	–
	MF 0100	Group of mammalian fats (except milk fats)	1	–	0.045	–
	FM 0106	Group of milk fats [a]	0.5	–	0.05 cream	–
	ML 0106	Group of milks	0.03	–	0.0087	–
	MM 0095	Group of muscle (from mammals other than marine mammals)	0.05	–	0.009	–
	MM 0095	Meat (from mammals other than marine mammals)	W	1 (fat)	–	–
	FM 0183	Milk fats	W	0.15	–	–
	ML 0106	Milks	W	0.02	–	–
	PO 0111	Poultry, edible offal of	W	0.01*	–	–
	PM 0110	Poultry meat	W	0.01* (fat)	–	–
	GS 0659	Sugar cane	0.02*	–	0.03	–
	DM 0659	Sugar cane molasses	–	–	0.03	–
	DM 3524	Sugar cane refined sugar	–	–	0.03	–
Definition of the residue for compliance with the MRL for plant and animal commodities: spinetoram (sum of spinetoram-J and spinetoram-L). Definition of the residue for estimation of dietary intake for plant and animal commodities: spinetoram (sum of spinetoram-J and spinetoram-L) and N-demethyl and N-formyl metabolites of the major spinetoram component (spinetoram-J). The residue is fat soluble.						
Thiamethoxam (245) ADI: 0–0.08 mg/kg bw ARfD: 1 mg/kg bw (2010)	MO 0105	Edible offal (mammalian)	W	0.05	0.025	0.041
	PE 0112	Eggs	W	0.01*	0.028	0.028
	PF 0111	Group of avian fats	0.01*	–	0.033	0.033
	PM 0110	Group of avian muscle	0.03	–	0.064	0.064
	PO 0111	Group of avian, Edible offal	0.01*	–	0.36	0.36
	MO 0105	Group of Edible offal (mammalian)	0.05	–	0.025	0.041
	PE 0112	Group of eggs	0.01*	–	0.028	0.028
	MF 0100	Group of	0.01*	–	0.01	0.01

Compound	CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P (mg/kg)	HR or HR-P (mg/kg)
			New	Previous		
		Mammalian fats (except milk fats)				
	ML 0106	Group of milks	0.15	–	0.096	–
	MM 0095	Group of Muscle (from mammals other than marine mammals)	0.07	–	0.033	0.062
	MF 0100	Mammalian fats (except milk fats)	W	0.01*	0.01	0.01
	MM 0095	Meat (from mammals other than marine mammals)	W	0.07	0.033	0.062
	ML 0106	Milks	W	0.15	0.096	–
	PF 0111	Poultry fats	W	0.01*	0.033	0.033
	PM 0110	Poultry meat	W	0.03	0.064	0.064
	PO 0111	Poultry, edible offal of	W	0.01*	0.36	0.36
Definition of the residue for compliance with MRLs for plant and animal commodities: thiamethoxam. Definition of the residue for estimation of dietary intake for plant and animal commodities (except poultry): thiamethoxam and clothianidin, assessed separately. Definition of the residue for estimation of dietary intake for poultry: sum of thiamethoxam, CGA 265307 (N-(2-chlorothiazol-5-ylmethyl)-N'- nitroguanidine), and MU3 (amino-([(2-chlorothiazol-5-ylmethyl)-amino]-methylene)-hydrazide), expressed as thiamethoxam, along with clothianidin (assessed separately). The residue is not fat soluble.						
Tiafenacil (349)*** ADI: 0–0.004 mg/kg bw ARfD: Unnecessary (2025)	SB 0716	Coffee bean	0.01*	–	0.02	–
	PO 0111	Group of avian. Edible offal of	0.03*	–	0	–
	PF 0111	Group of avian fat	0.03*	–	0	–
	PM 0110	Group of avian muscle	0.03*	–	0	–
	PE 0112	Group of eggs	0.03*	–	0	–
	MO 0105	Group of edible offal, mammalian	0.03*	–	Liver/kidney: 0.0003	–
	MF 0100	Group of mammalian fats (except milk fats)	0.03*	–	0.0003	–
	ML 0106	Group of milks	0.03*	–	0.0003	–
	FM 0106	Group of milk fats[a]	0.03*	–	0.0003	–
	MM 095	Group of muscle (from mammals other than marine mammals)	0.03*	–	0.0003	–
	GC 0645	Maize	0.01*	–	0.02	–
	AS 3558	Maize stover	0.01* (ar)	–	–	–
	VD 0541	Soya bean (dry)	0.01*	–	0.02	–
	AL 0541	Soya bean hay	0.01* (ar)	–	0.02	–
	GC 0654	Wheat	0.01*	–	0.02	–
	AS 0654	Wheat hay	0.01* (ar)	–	–	–
	AS 0654	Wheat straw	0.01* (ar)	–	–	–
Definition of the residue for the setting of maximum residue levels for plant commodities: tiafenacil.						

Compound	CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P (mg/kg)	HR or HR-P (mg/kg)
			New	Previous		
Definition of the residue for the setting of maximum residue levels for animal commodities: sum of tiafenacil, 3-(2-((2-chloro-4-fluoro-5-(3-methyl-2,6-dioxo-4-(trifluoromethyl)-3,6-dihydropyrimidin-1(2H)-yl)phenyl)thio)propanamido)propanoic acid (M-01) and 3-(4-chloro-2-fluoro-5-(methylsulfonyl)phenyl)-1-methyl-6-(trifluoromethyl)pyrimidine-2,4(1H,3H)-dione (M-88), expressed as tiafenacil. Definition of the residue for estimation of dietary intake for plant and animal commodities: sum of tiafenacil and 3-(2-((2-chloro-4-fluoro-5-(3-methyl-2,6-dioxo-4-(trifluoromethyl)-3,6-dihydropyrimidin-1(2H)-yl)phenyl)thio)propanamido)propanoic acid (M-01), expressed as tiafenacil. The residue is fat soluble.						
Trifloxystrobin (213) ADI: 0–0.04 mg/kg bw ARfD: Unnecessary (2004)	FC 0001	Citrus fruits	W	0.5	–	–
	–	Citrus juice	–	–	0.0216	–
	AB 0001	Citrus pulp dried	1.5	–	–	–
	MO 0105	Edible offal (Mammalian)	W	0.09	–	–
	PE 0112	Eggs	W	0.04*	–	–
	PO 0111	Group of avian, edible offal of	0.04*	–	0	–
	PF 0111	Group of avian fats	0.04*	–	0	–
	PM 0110	Group of avian muscle	0.04*	–	0	–
	MO 0105	Group of edible offal (Mammalian)	0.09	–	0.04	–
	PE 0112	Group of eggs	0.04*	–	0	–
	MF 0100	Group of mammalian fats (except milk fats)	0.07	–	0.04	–
	FM 0106	Group of milk fats[a]	0.02*	–	0.005	–
	ML 01O6	Group of milks	0.02*	–	0.005	–
	MM 0095	Group of muscle (from mammals other than marine mammals)	0.04*	–	0.01	–
	FC0204	Lemon	0.8	–	0.171	–
	MF 0100	Mammalian fat (except milk fats)	W	0.07	–	–
	FI 0345	Mango	0.7	–	0.043	–
	MM 0095	Meat (from mammals other than marine mammals)	W	0.07	–	–
	ML 0106	Milk	W	0.02*	–	–
	OR 0004	Orange oil	60	–	14.82	–
	PO 0111	Poultry edible offal	W	0.04*	–	–
	PF 0111	Poultry fats	W	0.04*	–	–
	PM 0110	Poultry meat	W	0.04*	–	–
	FC 0002	Subgroup of Lemons and limes	0.8	–	0.171	–
	FC 0004	Subgroup of	0.4	–	0.114	–

Compound	CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P (mg/kg)	HR or HR-P (mg/kg)
			New	Previous		
		Oranges, sweet and sour				

Definition of residues for compliance with MRL for plant commodities: trifloxystrobin.

Definition of residues for compliance with MRL animal commodities: trifloxystrobin and CGA 321113 ((E,E)-methoxyimino-{2-[1-(3-trifluoromethyl-phenyl) ethylidene-aminooxymethyl]-phenyl}acetic acid), expressed as trifloxystrobin.

Definition of residues for estimation of dietary intake for both plant and animal commodities: trifloxystrobin and CGA 321113 ((E,E)-methoxyimino-{2-[1-(3-trifluoromethyl-phenyl) ethylidene-aminooxymethyl]-phenyl}acetic acid) expressed as trifloxystrobin.

The residue is fat soluble.

Notes:

* At or about the limit of quantification.

** Compound evaluated under the periodic review programme.

*** New compound.

[a] For monitoring and regulatory purposes, whole milk is to be analysed, and the result compared to the MRL for whole milk.

[w] Withdraw.

Annex 2. Index of reports and evaluations of pesticides by the JMPR

Numbers in parentheses after the names of pesticides are Codex classification numbers.

The abbreviations used are:

- T: evaluation of toxicology
- R: evaluation of residue and analytical aspects
- E: evaluation of effects on the environment

Abamectin (177)	1992 (T, R), 1994 (T, R), 1995 (T), 1997 (T, R), 2000 (R), 2015 (R), 2017 (T), 2018 (R)
Acephate (095)	1976 (T, R), 1979 (R), 1981 (R), 1982 (T), 1984 (T, R), 1987 (T), 1988 (T), 1990 (T, R), 1991 (corr. to 1990 R evaluation), 1994 (R), 1996 (R), 2002 (T), 2003 (R), 2004 (corr. to 2003 report), 2005 (T), 2006 (R), 2011 (R)
Acetamiprid (246)	2011 (T, R), 2012 (R), 2015 (R), 2017 (R), 2021 (R), 2023 (R), 2024 (R)
Acetochlor (280)	2015 (T, R), 2019 (T, R)
Acequinocyl (343)	2025 (T, R)
Acibenzolar-S-methyl (288)	2016 (T, R), 2024 (R)
Acrylonitrile	1965 (T, R)
Acynonapyr (333)	2024 (T, R), 2025 (R)
Afidopyropen (312)	2019 (T, R), 2021 (R), 2022 (R)
Aldicarb (117)	1979 (T, R), 1982 (T, R), 1985 (R), 1988 (R), 1990 (R), 1991 (corr. to 1990 evaluation), 1992 (T), 1993 (R), 1994 (R), 1996 (R), 2001 (R), 2002 (R), 2006 (R)
Aldrin (001)	1965 (T), 1966 (T, R), 1967 (R), 1974 (R), 1975 (R), 1977 (T), 1990 (R), 1992 (R)
Allethrin	1965 (T, R)

Ametoctradin (253)	2012 (T, R)
Aminocarb (134)	1978 (T, R), 1979 (T, R)
Aminocyclopyrachlor (272)	2014 (T, R)
Aminomethylphosphonic acid (AMPA, 198)	1997 (T, R)
Aminopyralid (220)	2006 (T, R), 2007 (T, R)
Amitraz (122)	1980 (T, R), 1983 (R), 1984 (T, R), 1985 (R), 1986 (R), 1989 (R), 1990 (T, R), 1991 (R & corr. to 1990 R evaluation), 1998 (T)
Amitrole (079)	1974 (T, R), 1977 (T), 1993 (T, R), 1997 (T), 1998 (R)
Anilazine (163)	1989 (T, R), 1992 (R)
Atrazine	2007 (T)
Azinphos-ethyl (068)	1973 (T, R), 1983 (R)
Azinphos-methyl (002)	1965 (T), 1968 (T, R), 1972 (R), 1973 (T), 1974 (R), 1991 (T, R), 1992 (corr. to 1991 report), 1993 (R), 1995 (R), 2007 (T)
Azocyclotin (129)	1979 (R), 1981 (T), 1982 (R), 1983 (R), 1985 (R), 1989 (T, R), 1991 (R), 1994 (T), 2005 (T, R)
Azoxystrobin (229)	2008 (T, R), 2011 (R), 2012 (R), 2013 (R), 2017 (R), 2019 (R), 2022 (R), 2024 (T, R), 2025 (R)
Benalaxyl (155)	1986 (R), 1987 (T), 1988 (R), 1992 (R), 1993 (R), 2005 (T), 2009 (R)
Bendiocarb (137)	1982 (T, R), 1984 (T, R), 1989 (R), 1990 (R)
Benomyl (069)	1973 (T, R), 1975 (T, R), 1978 (T, R), 1983 (T, R), 1988 (R), 1990 (R), 1994 (R), 1995 (T,E), 1998 (R)
Bentazone (172)	1991 (T, R), 1992 (corr. to 1991 report, Annex I), 1994 (R), 1995 (R), 1998 (T, R), 1999 (corr. to 1998 report), 2004 (T), 2012 (T), 2013 (R), 2016 (T), 2018 (R)
Benzovindiflupyr (261)	2013 (T), 2014 (R), 2016 (R), 2019 (R), 2022 (T, R)
Benzpyrimoxan (325)	2022 (T, R)
BHC (technical-grade)	1965 (T), 1968 (T, R), 1973 (T, R) (see also Lindane)

Bicyclopyrone (295)	2017 (T, R)
Bifenazate (219)	2006 (T, R), 2008 (R), 2010 (R)
Bifenthrin (178)	1992 (T, R), 1995 (R), 1996 (R), 1997 (R), 2009 (T), 2010 (R), 2015 (R), 2019 (R), 2022 (R), 2025 (T, R)
Binapacryl (003)	1969 (T, R), 1974 (R), 1982 (T), 1984 (R), 1985 (T, R)
Bioresmethrin (093)	1975 (R), 1976 (T, R), 1991 (T, R)
Biphenyl	See Diphenyl
Bitertanol (144)	1983 (T), 1984 (R), 1986 (R), 1987 (T), 1988 (R), 1989 (R), 1991 (R), 1998 (T), 1999 (R), 2002 (R)
Bixafen (262)	2013 (T, R), 2016 (R), 2021 (R)
Boscalid (221)	2006 (T, R), 2008 (R), 2010 (R), 2019 (T, R), 2023 (R), 2025 (R)
Broflanilide (326)	2022 (T, R), 2025 (R)
Bromide ion (047)	1968 (R), 1969 (T, R), 1971 (R), 1979 (R), 1981 (R), 1983 (R), 1988 (T, R), 1989 (R), 1992 (R)
Bromomethane (052)	1965 (T, R), 1966 (T, R), 1967 (R), 1968 (T, R), 1971 (R), 1979 (R), 1985 (R), 1992 (R)
Bromophos (004)	1972 (T, R), 1975 (R), 1977 (T, R), 1982 (R), 1984 (R), 1985 (R)
Bromophos-ethyl (005)	1972 (T, R), 1975 (T, R), 1977 (R)
Bromopropylate (070)	1973 (T, R), 1993 (T, R)
Butocarboxim (139)	1983 (R), 1984 (T), 1985 (T), 1986 (R)
Buprofezin (173)	1991 (T, R), 1995 (R), 1996 (corr. to 1995 report.), 1999 (R), 2008 (T, R), 2009 (R), 2012 (R), 2014 (R), 2016 (R), 2019 (T, R), 2024 (R)
sec-Butylamine (089)	1975 (T, R), 1977 (R), 1978 (T, R), 1979 (R), 1980 (R), 1981 (T), 1984 (T,R: withdrawal of temporary ADI, but no evaluation)
Cadusafos (174)	1991 (T, R), 1992 (R), 1992 (R), 2009 (R), 2010 (R)
Campheclor (071)	1968 (T, R), 1973 (T, R)

Captafol (006)	1969 (T, R), 1973 (T, R), 1974 (R), 1976 (R), 1977 (T, R), 1982 (T), 1985 (T, R), 1986 (corr. to 1985 report), 1990 (R), 1999 (ARfD)
Captan (007)	1965 (T), 1969 (T, R), 1973 (T), 1974 (R), 1977 (T, R), 1978 (T, R), 1980 (R), 1982 (T), 1984 (T, R), 1986 (R), 1987 (R and corr. to 1986 R evaluation), 1990 (T, R), 1991 (corr. to 1990 R evaluation), 1994 (R), 1995 (T), 1997 (R), 2000 (R), 2004 (T), 2007 (T), 2017 (R)
Carbaryl (008)	1965 (T), 1966 (T, R), 1967 (T, R), 1968 (R), 1969 (T, R), 1970 (R), 1973 (T, R), 1975 (R), 1976 (R), 1977 (R), 1979 (R), 1984 (R), 1996 (T), 2001 (T), 2002 (R), 2007 (R)
Carbendazim (072)	1973 (T, R), 1976 (R), 1977 (T), 1978 (R), 1983 (T, R), 1985 (T, R), 1987 (R), 1988 (R), 1990 (R), 1994 (R), 1995 (T,E), 1998 (T, R), 2003 (R), 2005 (T), 2012 (R), 2023 (T, R)
Carbofuran (096)	1976 (T, R), 1979 (T, R), 1980 (T), 1982 (T), 1991 (R), 1993 (R), 1996 (T), 1997 (R), 1999 (corr. to 1997 report), 2002 (T, R), 2003 (R) (See also carbosulfan), 2004 (R), 2008 (T), 2009 (R), 2023 (T, R)
Carbon disulfide (009)	1965 (T, R), 1967 (R), 1968 (R), 1971 (R), 1985 (R)
Carbon tetrachloride (010)	1965 (T, R), 1967 (R), 1968 (T, R), 1971 (R), 1979 (R), 1985 (R)
Carbophenothion (011)	1972 (T, R), 1976 (T, R), 1977 (T, R), 1979 (T, R), 1980 (T, R), 1983 (R)
Carbosulfan (145)	1984 (T, R), 1986 (T), 1991 (R), 1992 (corr. to 1991 report), 1993 (R), 1997 (R), 1999 (R), 2002 (R), 2003 (T, R), 2004 (R, corr. to 2003 report), 2023 (T, R)
Cartap (097)	1976 (T, R), 1978 (T, R), 1995 (T, R)
Carfentrazone-ethyl (338)	2024 (T, R)
Chinomethionat (080)	1968 (T, R) (as oxythioquinox), 1974 (T, R), 1977 (T, R), 1981 (T, R), 1983 (R), 1984 (T, R), 1987 (T)
Chlorantraniliprole (230)	2008 (T, R), 2010 (R), 2013 (R), 2014 (R), 2016 (R), 2019 (R), 2022 (R)

Chlorbenside	1965 (T)
Chlordane (012)	1965 (T), 1967 (T, R), 1969 (R), 1970 (T, R), 1972 (R), 1974 (R), 1977 (T, R), 1982 (T), 1984 (T, R), 1986 (T)
Chlordimeform (013)	1971 (T, R), 1975 (T, R), 1977 (T), 1978 (T, R), 1979 (T), 1980 (T), 1985 (T), 1986 (R), 1987 (T)
Chlorfenapyr (254)	2013 (T), 2018 (T, R)
Chlorfenson	1965 (T)
Chlorfenvinphos (014)	1971 (T, R), 1984 (R), 1994 (T), 1996 (R)
Chlormequat (015)	1970 (T, R), 1972 (T, R), 1976 (R), 1985 (R), 1994 (T, R), 1997 (T), 1999 (ARfD), 2000 (R), 2017 (T, R), 2022 (R), 2024 (R)
Chlorobenzilate (016)	1965 (T), 1968 (T, R), 1972 (R), 1975 (R), 1977 (R), 1980 (T)
Chloropicrin	1965 (T, R)
Chloropropylate	1968 (T, R), 1972 (R)
Chlorothalonil (081)	1974 (T, R), 1977 (T, R), 1978 (R), 1979 (T, R), 1981 (T, R), 1983 (T, R), 1984 (corr. to 1983 report and T evaluation), 1985 (T, R), 1987 (T), 1988 (R), 1990 (T, R), 1991 (corr. to 1990 evaluation), 1992 (T), 1993 (R), 1997 (R), 2009 (T), 2010 (R), 2012 (R), 2015 (R), 2019 (T, R)
Chlorpropham (201)	1965 (T), 2000 (T), 2001 (R), 2005 (T), 2008 (R)
Chlorpyrifos (017)	1972 (T, R), 1974 (R), 1975 (R), 1977 (T, R), 1981 (R), 1982 (T, R), 1983 (R), 1989 (R), 1995 (R), 1999 (T), 2000 (R), 2004 (R), 2006 (R), 2021 (R), 2024 (T, R)
Chlorpyrifos-methyl (090)	1975 (T, R), 1976 (R, Annex I only), 1979 (R), 1990 (R), 1991 (T, R), 1992 (T and corr. to 1991 report), 1993 (R), 1994 (R), 2001 (T), 2009 (R)
Chlorthion	1965 (T)
Clethodim (187)	1994 (T, R), 1997 (R), 1999 (R), 2002 (R), 2019 (T, R)
Clofentezine (156)	1986 (T, R), 1987 (R), 1989 (R), 1990 (R), 1992 (R), 2005 (T), 2007 (R), 2021 (R)

Clothianidin (238)	2010 (T, R), 2011 (R), 2014 (R), 2021 (R), 2023 (R), 2025 (R)
Coumaphos (018)	1968 (T, R), 1972 (R), 1975 (R), 1978 (R), 1980 (T, R), 1983 (R), 1987 (T), 1990 (T, R)
Crufomate (019)	1968 (T, R), 1972 (R)
Cyanophenfos (091)	1975 (T, R), 1978 (T: ADI extended, but no evaluation), 1980 (T), 1982 (R), 1983 (T)
Cyantraniliprole (263)	2013 (T, R), 2015 (R), 2018 (R), 2023 (R), 2025 (R)
Cyazofamid (281)	2015 (T, R), 2018 (R)
Cyclaniliprole (296)	2017 (T, R), 2019 (R)
Cyclobutrifluram (339)	2024 (T, R)
Cycloxydim (179)	1992 (T, R), 1993 (R), 2009 (T), 2012 (R)
Cyflumetofen (273)	2014 (T, R), 2023 (R)
Cyfluthrin (157)	1986 (R), 1987 (T and corr. to 1986 report), 1989 (R), 1990 (R), 1992 (R)
Cyfluthrin (157)/beta cyflythrin (228)	2006 (T), 2007 (R), 2012 (R), 2025 (R)
Lambda-cyhalothrin (146)	1984 (T, R), 1986 (R), 1988 (R), 2007 (T), 2008 (R), 2015 (R), 2018 (T), 2019 (R), 2024 (T)
Cyhexatin (067)	1970 (T, R), 1973 (T, R), 1974 (R), 1975 (R), 1977 (T), 1978 (T, R), 1980 (T), 1981 (T), 1982 (R), 1983 (R), 1985 (R), 1988 (T), 1989 (T), 1991 (T, R), 1992 (R), 1994 (T), 2005 (T, R)
Cypermethrin (118)	1979 (T, R), 1981 (T, R), 1982 (R), 1983 (R), 1984 (R), 1985 (R), 1986 (R), 1987 (corr. to 1986 evaluation), 1988 (R), 1990 (R), 2006 (T), 2008 (R), 2009 (R), 2011 (R), 2019 (R), 2021 (R)
Cyproconazole (239)	2010 (T, R), 2013 (R), 2024 (T, R)
Cyprodinil (207)	2003 (T, R), 2004 (corr. to 2003 report), 2013 (R), 2015 (R), 2017 (R), 2018 (R), 2019 (T, R), 2021 (R), 2025 (T, R)

Cyromazine (169)	1990 (T, R), 1991 (corr. to 1990 R evaluation), 1992 (R), 2006 (T), 2007 (R), 2012 (R)
2,4-D (020)	1970 (T, R), 1971 (T, R), 1974 (T, R), 1975 (T, R), 1980 (R), 1985 (R), 1986 (R), 1987 (corr. to 1986 report, Annex I), 1996 (T), 1997 (E), 1998 (R), 2001 (R), 2017 (R)
Daminozide (104)	1977 (T, R), 1983 (T), 1989 (T, R), 1991 (T)
DDT (021)	1965 (T), 1966 (T, R), 1967 (T, R), 1968 (T, R), 1969 (T, R), 1978 (R), 1979 (T), 1980 (T), 1983 (T), 1984 (T), 1993 (R), 1994 (R), 1996 (R)
Deltamethrin (135)	1980 (T, R), 1981 (T, R), 1982 (T, R), 1984 (R), 1985 (R), 1986 (R), 1987 (R), 1988 (R), 1990 (R), 1992 (R), 2000 (T), 2002 (R), 2016 (R), 2023 (R)
Demeton (092)	1965 (T), 1967 (R), 1975 (R), 1982 (T)
Demeton-S-methyl (073)	1973 (T, R), 1979 (R), 1982 (T), 1984 (T, R), 1989 (T, R), 1992 (R), 1998 (R)
Demeton-S-methylsulfon (164)	1973 (T, R), 1982 (T), 1984 (T, R), 1989 (T, R), 1992 (R)
Dialifos (098)	1976 (T, R), 1982 (T), 1985 (R)
Diazinon (022)	1965 (T), 1966 (T), 1967 (R), 1968 (T, R), 1970 (T, R), 1975 (R), 1979 (R), 1993 (T, R), 1994 (R), 1996 (R), 1999 (R), 2001 (T), 2006 (T, R), 2016 (T), 2022 (R)
1,2-Dibromoethane (023)	1965 (T, R), 1966 (T, R), 1967 (R), 1968 (R), 1971 (R), 1979 (R), 1985 (R)
Dicamba (240)	2010 (T, R), 2011 (R), 2012 (R), 2013 (R), 2019 (T, R)
Dichlobenil (274)	2014 (T, R)
Dicloran (083)	2003 (R)
Dichlorfluanid (082)	1969 (T, R), 1974 (T, R), 1977 (T, R), 1979 (T, R), 1981 (R), 1982 (R), 1983 (T, R), 1985 (R)
1,2-Dichloroethane (024)	1965 (T, R), 1967 (R), 1971 (R), 1979 (R), 1985 (R)
Dichlorvos (025)	1965 (T, R), 1966 (T, R), 1967 (T, R), 1969 (R), 1970 (T, R), 1974 (R), 1977 (T), 1993 (T, R), 2011 (T), 2012 (R)

Dicloran (083)	1974 (T, R), 1977 (T, R), 1998 (T, R)
Dicofol (026)	1968 (T, R), 1970 (R), 1974 (R), 1992 (T, R), 1994 (R), 2011 (T), 2012 (R)
Dieldrin (001)	1965 (T), 1966 (T, R), 1967 (T, R), 1968 (R), 1969 (R), 1970 (T, R), 1974 (R), 1975 (R), 1977 (T), 1990 (R), 1992 (R)
Difenoconazole (224)	2007 (T, R), 2010 (R), 2013 (R), 2015 (R), 2017 (R), 2021 (R), 2022 (R), 2023 (R), 2025 (R)
Diflubenzuron (130)	1981 (T, R), 1983 (R), 1984 (T, R), 1985 (T, R), 1988 (R), 2001 (T), 2002 (R), 2011 (R), 2023 (R)
Dimethenamid-P (214)	2005 (T, R)
Dimethipin (151)	1985 (T, R), 1987 (T, R), 1988 (T, R), 1999 (T), 2001 (R), 2004 (T)
Dimethoate (027)	1965 (T), 1966 (T), 1967 (T, R), 1970 (R), 1973 (R in evaluation of formothion), 1977 (R), 1978 (R), 1983 (R) 1984 (T, R), 1986 (R), 1987 (T, R), 1988 (R), 1990 (R), 1991 (corr. to 1990 evaluation), 1994 (R), 1996 (T), 1998 (R), 2003 (T, R), 2004 (corr. to 2003 report), 2006 (R), 2008 (R), 2019 (T, R), 2022 (T, R), 2025 (T)
Dimethomorph (225)	2007 (T, R), 2014 (R), 2016 (R)
Dimpropyridaz (344)	2025 (T, R)
Dimethrin	1965 (T)
1,4- Dimethylnaphthalene (331)	2023 (R)
Dinocap (087)	1969 (T, R), 1974 (T, R), 1989 (T, R), 1992 (R), 1998 (R), 1999 (R), 2000 (T), 2001 (R)
Dinotefuran (255)	2012 (T, R), 2023 (R), 2025 (R)
Dioxathion (028)	1968 (T, R), 1972 (R)
Diphenyl (029)	1966 (T, R), 1967 (T)
Diphenylamine (030)	1969 (T, R), 1976 (T, R), 1979 (R), 1982 (T), 1984 (T, R), 1998 (T), 2001 (R), 2003 (R), 2008 (R)

Diquat (031)	1970 (T, R), 1972 (T, R), 1976 (R), 1977 (T, R), 1978 (R), 1994 (R), 2013 (T, R), 2018 (R)
Disulfoton (074)	1973 (T, R), 1975 (T, R), 1979 (R), 1981 (R), 1984 (R), 1991 (T, R), 1992 (corr. to 1991 report, Annex I), 1994 (R), 1996 (T), 1998 (R), 2006 (R)
Dithianon (180)	1992 (T, R), 1995 (R), 1996 (corr. to 1995 report), 2010 (T), 2013 (T, R)
Dithiocarbamates (105)	1965 (T), 1967 (T, R), 1970 (T, R), 1983 (R propineb, thiram), 1984 (R propineb), 1985 (R), 1987 (T thiram), 1988 (R thiram), 1990 (R), 1991 (corr. to 1990 evaluation), 1992 (T thiram), 1993 (T, R), 1995 (R), 1996 (T,R ferbam, ziram; R thiram), 2004 (R), 2012 (R), 2014 (R)
4,6-Dinitro-ortho-cresol (DNOC)	1965 (T)
Dodine (084)	1974 (T, R), 1976 (T, R), 1977 (R), 2000 (T), 2003 (R), 2004 (corr. to 2003 report)
Edifenphos (099)	1976 (T, R), 1979 (T, R), 1981 (T, R)
Emamectin benzoate (247)	2011 (T, R), 2014 (R), 2022 (R), 2023 (R)
Endosulfan (032)	1965 (T), 1967 (T, R), 1968 (T, R), 1971 (R), 1974 (R), 1975 (R), 1982 (T), 1985 (T, R), 1989 (T, R), 1993 (R), 1998 (T), 2006 (R), 2010 (R)
Endrin (033)	1965 (T), 1970 (T, R), 1974 (R), 1975 (R), 1990 (R), 1992 (R)
Esfenvalerate (204)	2002 (T, R)
Ethephon (106)	1977 (T, R), 1978 (T, R), 1983 (R), 1985 (R), 1993 (T), 1994 (R), 1995 (T), 1997 (T), 2002 (T), 2015 (T, R)
Ethiofencarb (107)	1977 (T, R), 1978 (R), 1981 (R), 1982 (T, R), 1983 (R)
Ethion (034)	1968 (T, R), 1969 (R), 1970 (R), 1972 (T, R), 1975 (R), 1982 (T), 1983 (R), 1985 (T), 1986 (T), 1989 (T), 1990 (T), 1994 (R), 2021 (T, R)
Ethiprole (304)	2018 (T, R), 2021 (R)
Ethoprophos (149)	1983 (T), 1984 (R), 1987 (T), 1999 (T), 2004 (R)

Ethoxyquin (035)	1969 (T, R), 1998 (T), 1999 (R), 2005 (T), 2008 (R), 2024 (T, R)
Ethylene dibromide	See 1,2-Dibromoethane
Ethylene dichloride	See 1,2-Dichloroethane
Ethylene oxide	1965 (T, R), 1968 (T, R), 1971 (R)
Ethylenethiourea (ETU) (108)	1974 (R), 1977 (T, R), 1986 (T, R), 1987 (R), 1988 (T, R), 1990 (R), 1993 (T, R)
Etofenprox (184)	1993 (T, R), 2011 (T, R), 2024 (R)
Etoxazole (241)	2010 (T, R), 2011 (R), 2025 (R)
Etrimfos (123)	1980 (T, R), 1982 (T, R), 1986 (T, R), 1987 (R), 1988 (R), 1989 (R), 1990 (R)
Famoxadone (208)	2003 (T, R), 2022 (R)
Fenamidone (264)	2013 (T), 2014 (T, R)
Fenamiphos (085)	1974 (T, R), 1977 (R), 1978 (R), 1980 (R), 1985 (T), 1987 (T), 1997 (T), 1999 (R), 2002 (T), 2006 (R)
Fenarimol (192)	1995 (T,R,E), 1996 (R and corr. to 1995 report)
Fenazaquin (297)	2017 (T, R), 2019 (R), 2022 (R)
Fenbuconazole (197)	1997 (T, R), 2009 (R), 2012 (T), 2013 (R), 2021 (R)
Fenbutatin oxide (109)	1977 (T, R), 1979 (R), 1992 (T), 1993 (R)
Fenchlorfos (036)	1968 (T, R), 1972 (R), 1983 (R)
Fenhexamid (215)	2005 (T, R), 2021 (R)
Fenitrothion (037)	1969 (T, R), 1974 (T, R), 1976 (R), 1977 (T, R), 1979 (R), 1982 (T), 1983 (R), 1984 (T, R), 1986 (T, R), 1987 (R and corr. to 1986 R evaluation), 1988 (T), 1989 (R), 2000 (T), 2003 (R), 2004 (R, corr. to 2003 report), 2007 (T, R)
Fenpicoxamid (305)	2018 (T, R), 2021 (T, R)
Fenpropathrin (185)	1993 (T, R), 2006 (R), 2012 (T), 2014 (R)
Fenpropidin (340)	2024 (T, R)

Fenpropimorph (188)	1994 (T), 1995 (R), 1999 (R), 2001 (T), 2004 (T), 2016 (T), 2017 (T, R)
Fenpyrazamine (298)	2017 (R, T)
Fenpyroximate (193)	1995 (T, R), 1996 (corr. to 1995 report), 1999 (R), 2004 (T), 2007 (T), 2010 (R), 2013 (R), 2017 (T, R), 2018 (R), 2021 (T, R), 2024 (R)
Fensulfothion (038)	1972 (T, R), 1982 (T), 1983 (R)
Fenthion (039)	1971 (T, R), 1975 (T, R), 1977 (R), 1978 (T, R), 1979 (T), 1980 (T), 1983 (R), 1989 (R), 1995 (T,R,E), 1996 (corr. to 1995 report), 1997 (T), 2000 (R)
Fentin compounds (040)	1965 (T), 1970 (T, R), 1972 (R), 1986 (R), 1991 (T, R), 1993 (R), 1994 (R)
Fenvalerate (119)	1979 (T, R), 1981 (T, R), 1982 (T), 1984 (T, R), 1985 (R), 1986 (T, R), 1987 (R and corr. to 1986 report), 1988 (R), 1990 (R), 1991 (corr. to 1990 R evaluation), 2012 (T, R)
Ferbam	See Dithiocarbamates, 1965 (T), 1967 (T, R), 1996 (T, R)
Fipronil (202)	1997 (T), 2000 (T), 2001 (R), 2016 (R), 2021 (T, R), 2024 (R)
Fipronil-desulfinyl	1997 (T), 2021 (T, R)
Flonicamid (282)	2015 (T, R), 2016 (R), 2017 (R), 2019 (R)
Florpyrauxifen-benzyl (341)	2024 (T, R)
Florylpicoxamid (332)	2023 (T, R)
Fluazaindolizine (327)	2022 (T, R)
Fluazifop-P-butyl	2016 (T, R), 2019 (R)
Fluazinam (306)	2018 (T, R), 2023 (T, R), 2024 (T)
Flubendiamide (242)	2010 (T, R), 2024 (R), 2025 (R)
Flucythrinate (152)	1985 (T, R), 1987 (R), 1988 (R), 1989 (R), 1990 (R), 1993 (R)
Fludioxonil (211)	2004 (T, R), 2006 (R), 2010 (R), 2012 (R), 2013 (R), 2018 (R), 2022 (T, R), 2025 (T, R)

Fluensulfone (265)	2013 (T), 2014 (T, R), 2016 (T, R), 2017 (R), 2019 (R), 2021 (R)
Flufenoxuron (275)	2014 (T, R)
Fluindapyr (328)	2022 (T, R)
Flumethrin (195)	1996 (T, R)
Fluopicolide (235)	2009 (T, R), 2014 (R)
Fluopyram (243)	2010 (T, R), 2012 (R), 2014 (R), 2015 (R), 2017 (R), 2021 (R), 2023 (R), 2025 (R)
Fluoxapiprolin (342)	2024 (T, R)
Flupyradifurone (285)	2015 (T), 2016 (R), 2017 (R), 2019 (R), 2022 (R), 2024 (R)
Flusilazole (165)	1989 (T, R), 1990 (R), 1991 (R), 1993 (R), 1995 (T), 2007 (T, R)
Flutianil (319)	2021 (T, R)
Flutolanil (205)	2002 (T, R), 2013 (R)
Flutriafol (248)	2011 (T, R), 2015 (R), 2022 (R)
Fluxapyroxad (256)	2012 (T, R), 2015 (R), 2018 (T, R)
Folpet (041)	1969 (T, R), 1973 (T), 1974 (R), 1982 (T), 1984 (T, R), 1986 (T), 1987 (R), 1990 (T, R), 1991 (corr. to 1990 R evaluation), 1993 (T, R), 1994 (R), 1995 (T), 1997 (R), 1998 (R), 1999 (R), 2002 (T), 2004 (T), 2007 (T), 2024 (T, R)
Formothion (042)	1969 (T, R), 1972 (R), 1973 (T, R), 1978 (R), 1998 (R)
Fosetyl aluminium (302)	2017 (T, R), 2019 (R), 2024 (R)
Glufosinate-ammonium (175)	1991 (T, R), 1992 (corr. to 1991 report, Annex I), 1994 (R), 1998 (R), 1999 (T, R), 2012 (T, R), 2014 (R)
Glyphosate (158)	1986 (T, R), 1987 (R and corr. to 1986 report), 1988 (R), 1994 (R), 1997 (T, R), 2004 (T), 2005 (R), 2011 (T, R), 2013 (R), 2016 (T), 2019 (R)
Guazatine (114)	1978 (T, R), 1980 (R), 1997 (T, R), 2025 (R)

Haloxyfop (194)	1995 (T, R), 1996 (R and corr. to 1995 report), 2001 (R), 2006 (T), 2009 (R)
Heptachlor (043)	1965 (T), 1966 (T, R), 1967 (R), 1968 (R), 1969 (R), 1970 (T, R), 1974 (R), 1975 (R), 1977 (R), 1987 (R), 1991 (T, R), 1992 (corr. to 1991 report, Annex I), 1993 (R), 1994 (R)
Hexachlorobenzene (044)	1969 (T, R), 1973 (T, R), 1974 (T, R), 1978 (T), 1985 (R)
Hexaconazole (170)	1990 (T, R), 1991 (R and corr. to 1990 R evaluation), 1993 (R)
Hexythiazox (176)	1991 (T, R), 1994 (R), 1998 (R), 2008 (T), 2009 (R), 2024 (R)
Hydrogen cyanide (045)	1965 (T, R)
Hydrogen phosphide (046)	1965 (T, R), 1966 (T, R), 1967 (R), 1969 (R), 1971 (R)
Imazalil (110)	1977 (T, R), 1980 (T, R), 1984 (T, R), 1985 (T, R), 1986 (T), 1988 (R), 1989 (R), 1991 (T), 1994 (R), 2000 (T), 2001 (T), 2005 (T), 2018 (T, R), 2021 (R)
Imazamox (276)	2014 (T, R), 2017 (R)
Imazapic (266)	2013 (T, R), 2015 (R)
Imazapyr (267)	2013 (T, R), 2015 (R), 2017 (R), 2023 (R)
Imazethapyr (289)	2016 (T, R)
Imidacloprid (206)	2001 (T), 2002 (R), 2006 (R), 2008 (R), 2012 (R), 2015 (R), 2017 (R)
Indoxacarb (216)	2005 (T, R), 2007 (R), 2009 (R), 2012 (R), 2013 (R), 2022 (R), 2025 (R)
Inpyrfluxam(329)	2022 (T, R)
Isocycloseram (334)	2023 (T, R)
Isoflucypram (330)	2022 (T, R), 2023 (T, R)
Ipflufenoquim (245)	2025 (T, R)
Iprodione (111)	1977 (T, R), 1980 (R), 1992 (T), 1994 (R), 1995 (T), 2001 (R), 2023 (T, R)

Isofenphos (131)	1981 (T, R), 1982 (T, R), 1984 (R), 1985 (R), 1986 (T, R), 1988 (R), 1992 (R)
Isofetamid (290)	2016 (T, R), 2018 (R)
Isoprothiolane (299)	2017 (T, R), 2021 (R), 2021 (T)
Isopyrazam (249)	2011 (T, R), 2017 (R)
Isotianil (335)	2023 (T, R)
Isoxaflutole (268)	2013 (T, R), 2021 (R)
Kresoxim-methyl (199)	1998 (T, R), 2001 (R), 2018 (T, R), 2019 (R)
Lead arsenate	1965 (T), 1968 (T, R)
Leptophos (088)	1974 (T, R), 1975 (T, R), 1978 (T, R)
Lindane (048)	1965 (T), 1966 (T, R), 1967 (R), 1968 (R), 1969 (R), 1970 (T,R, published as Annex VI to 1971 evaluations), 1973 (T, R), 1974 (R), 1975 (R), 1977 (T, R), 1978 (R), 1979 (R), 1989 (T, R), 1997 (T), 2002 (T), 2003 (R), 2004 (corr. to 2003 report), 2015 (R)
Lufenuron (286)	2015 (T, R), 2018 (R)
Malathion (049)	1965 (T), 1966 (T, R), 1967 (corr. to 1966 R evaluation), 1968 (R), 1969 (R), 1970 (R), 1973 (R), 1975 (R), 1977 (R), 1984 (R), 1997 (T), 1999 (R), 2000 (R), 2003 (T), 2004 (R), 2005 (R), 2008 (R), 2013 (R), 2016 (T), 2025 (T, R)
Maleic hydrazide (102)	1976 (T, R), 1977 (T, R), 1980 (T), 1984 (T, R), 1996 (T), 1998 (R), 2024 (T, R)
Mancozeb (050)	1967 (T, R), 1970 (T, R), 1974 (R), 1977 (R), 1980 (T, R), 1993 (T, R), 2022 (T, R)
Mandestrobin (307)	2018 (T, R), 2019 (R)
Mandipropamid (231)	2008 (T, R), 2013 (R), 2018 (R), 2021 (R), 2022 (T, R)
Maneb	See Dithiocarbamates, 1965 (T), 1967 (T, R), 1987 (T), 1993 (T, R)
MCPA (257)	2012 (T, R)

Mecarbam (124)	1980 (T, R), 1983 (T, R), 1985 (T, R), 1986 (T, R), 1987 (R)
Mefentrifluconazole (320)	2021 (T), 2022 (R), 2025 (320)
Mepiquat-chloride (336)	2023 (T, R), 2025 (R)
Meptyldinocap (244)	2010 (T, R)
Mesotrione (277)	2014 (T, R), 2019 (T, R)
Metaflumizone (236)	2009 (T, R), 2025 (R)
Metalaxyl (138)	1982 (T, R), 1984 (R), 1985 (R), 1986 (R), 1987 (R), 1989 (R), 1990 (R), 1992 (R), 1995 (R), 2021 (T, R), 2022 (R)
Metalaxyl –M (212)	2002 (T), 2004 (R), 2021 (R)
Metaylpicoxamid (346)	2025 (T, R)
Metconazole (313)	2019 (T, R), 2021(R), 2025 (R)
Methacrifos (125)	1980 (T, R), 1982 (T), 1986 (T), 1988 (T), 1990 (T, R), 1992 (R)
Methamidophos (100)	1976 (T, R), 1979 (R), 1981 (R), 1982 (T, R), 1984 (R), 1985 (T), 1989 (R), 1990 (T, R), 1994 (R), 1996 (R), 1997 (R), 2002 (T), 2003 (R), 2004 (R, corr. to 2003 report)
Methidathion (051)	1972 (T, R), 1975 (T, R), 1979 (R), 1992 (T, R), 1994 (R), 1997 (T), 2022 (T, R)
Methiocarb (132)	1981 (T, R), 1983 (T, R), 1984 (T), 1985 (T), 1986 (R), 1987 (T, R), 1988 (R), 1998 (T), 1999 (R), 2005 (R)
Methomyl (094)	1975 (R), 1976 (R), 1977 (R), 1978 (R), 1986 (T, R), 1987 (R), 1988 (R), 1989 (T, R), 1990 (R), 1991 (R), 2001 (T, R), 2004 (R), 2008 (R)
Methoprene (147)	1984 (T, R), 1986 (R), 1987 (T and corr. to 1986 report), 1988 (R), 1989 (R), 2001 (T), 2005 (R), 2016 (R), 2019 (R), 2021 (R), 2024 (R)
Methoxychlor	1965 (T), 1977 (T)

Methoxyfenozide (209)	2003 (T, R), 2004 (corr. to 2003 report), 2006 (R), 2009 (R), 2012 (R), 2021 (R)
Methyl bromide (052)	See Bromomethane
Metrafenone (278)	2014 (T, R), 2016 (R)
Metiram (186)	1993 (T), 1995 (R)
Mevinphos (053)	1965 (T), 1972 (T, R), 1996 (T), 1997 (E,R), 2000 (R)
MGK (264)	1967 (T, R)
Monocrotophos (054)	1972 (T, R), 1975 (T, R), 1991 (T, R), 1993 (T), 1994 (R)
Myclobutanil (181)	1992 (T, R), 1997 (R), 1998 (R), (2001 (R)), 2014 (T, R)
Nabam	See Dithiocarbamates, 1965 (T), 1976 (T, R)
Natamycin (300)	2017 (T, R)
Nitrofen (140)	1983 (T, R)
Norflurazon (308)	2018 (T, R)
Novaluron (217)	2005 (T, R), 2010 (R), 2024 (R)
Omethoate (055)	1971 (T, R), 1975 (T, R), 1978 (T, R), 1979 (T), 1981 (T, R), 1984 (R), 1985 (T), 1986 (R), 1987 (R), 1988 (R), 1990 (R), 1998 (R)
Organomercury compounds	1965 (T), 1966 (T, R), 1967 (T, R)
Oxamyl (126)	1980 (T, R), 1983 (R), 1984 (T), 1985 (T, R), 1986 (R), 2002 (T, R), 2017 (T, R)
Oxathiapiprolin (291)	2016 (T, R), 2018 (R), 2023 (R)
Oxydemeton-methyl (166)	1965 (T, as demeton-S-methyl sulfoxide), 1967 (T), 1968 (R), 1973 (T, R), 1982 (T), 1984 (T, R), 1989 (T, R), 1992 (R), 1998 (R), 1999 (corr. to 1992 report), 2002 (T), 2004 (R)
Oxythioquinox	See Chinomethionat
Paclobutrazol (161)	1988 (T, R), 1989 (R)

Paraquat (057)	1970 (T, R), 1972 (T, R), 1976 (T, R), 1978 (R), 1981 (R), 1982 (T), 1985 (T), 1986 (T), 2003 (T), 2004 (R), 2009 (R)
Parathion (058)	1965 (T), 1967 (T, R), 1969 (R), 1970 (R), 1984 (R), 1991 (R), 1995 (T, R), 1997 (R), 2000 (R)
Parathion-methyl (059)	1965 (T), 1968 (T, R), 1972 (R), 1975 (T, R), 1978 (T, R), 1979 (T), 1980 (T), 1982 (T), 1984 (T, R), 1991 (R), 1992 (R), 1994 (R), 1995 (T), 2000 (R), 2003 (R)
Penconazole (182)	1992 (T, R), 1995 (R), 2015 (T), 2016 (R)
Pendimethalin (292)	2016 (T, R), 2019 (R), 2021 (R)
Penthiopyrad (253)	2011 (T), 2012 (R), 2013 (R), 2019 (R)
Permethrin (120)	1979 (T, R), 1980 (R), 1981 (T, R), 1982 (R), 1983 (R), 1984 (R), 1985 (R), 1986 (T, R), 1987 (T), 1988 (R), 1989 (R), 1991 (R), 1992 (corr. to 1991 report), 1999 (T), 2023 (T, R), 2024 (T), 2025 (T)
2-Phenylphenol (056)	1969 (T, R), 1975 (R), 1983 (T), 1985 (T, R), 1989 (T), 1990 (T, R), 1999 (T, R), 2002 (R), 2025 (T, R)
Phenothrin (127)	1979 (R), 1980 (T, R), 1982 (T), 1984 (T), 1987 (R), 1988 (T, R)
Phenthoate (128)	1980 (T, R), 1981 (R), 1984 (T)
Phorate (112)	1977 (T, R), 1982 (T), 1983 (T), 1984 (R), 1985 (T), 1990 (R), 1991 (R), 1992 (R), 1993 (T), 1994 (T), 1996 (T), 2004 (T), 2005 (R), 2012 (R), 2014 (R)
Phosalone (060)	1972 (T, R), 1975 (R), 1976 (R), 1993 (T), 1994 (R), 1997 (T), 1999 (R), 2001 (T)
Phosmet (103)	1976 (R), 1977 (corr. to 1976 R evaluation), 1978 (T, R), 1979 (T, R), 1981 (R), 1984 (R), 1985 (R), 1986 (R), 1987 (R and corr. to 1986 R evaluation), 1988 (R), 1994 (T), 1997 (R), 1998 (T), 2002 (R), 2003 (R), 2007 (R), 2024 (T, R)
Phosphine	See Hydrogen phosphide
Phosphamidon (061)	1965 (T), 1966 (T), 1968 (T, R), 1969 (R), 1972 (R), 1974 (R), 1982 (T), 1985 (T), 1986 (T)

Phosphonic acid (301)	2017 (T, R), 2024 (R)
Phoxim (141)	1982 (T), 1983 (R), 1984 (T, R), 1986 (R), 1987 (R), 1988 (R)
Picoxystrobin (258)	2012 (T, R), 2013 (R), 2016 (R), 2017 (R), 2019 (R)
Pinoxaden (293)	2016 (T, R)
Piperonyl butoxide (062)	1965 (T, R), 1966 (T, R), 1967 (R), 1969 (R), 1972 (T, R), 1992 (T, R), 1995 (T), 2001 (R), 2002 (R), 2023 (R)
Pirimicarb (101)	1976 (T, R), 1978 (T, R), 1979 (R), 1981 (T, R), 1982 (T), 1985 (R), 2004 (T), 2006 (R)
Pirimiphos-methyl (086)	1974 (T, R), 1976 (T, R), 1977 (R), 1979 (R), 1983 (R), 1985 (R), 1992 (T), 1994 (R), 2003 (R), 2004 (R, corr. to 2003 report), 2006 (T)
Prochloraz (142)	1983 (T, R), 1985 (R), 1987 (R), 1988 (R), 1989 (R), 1990 (R), 1991 (corr. to 1990 report, Annex I, and R evaluation), 1992 (R), 2001 (T), 2004 (R), 2009 (R), 2024 (R)
Procymidone(136)	1981 (R), 1982 (T), 1989 (T, R), 1990 (R), 1991 (corr. to 1990 Annex I), 1993 (R), 1998 (R), 2007 (T)
Profenofos (171)	1990 (T, R), 1992 (R), 1994 (R), 1995 (R), 2007 (T), 2008 (R), 2011 (R), 2018 (R)
Propamocarb (148)	1984 (T, R), 1986 (T, R), 1987 (R), 2005 (T), 2006 (R), 2014 (R), 2018 (R)
Propargite (113)	1977 (T, R), 1978 (R), 1979 (R), 1980 (T, R), 1982 (T, R), 1999 (T), 2002 (R), 2006 (R)
Propham (183)	1965 (T), 1992 (T, R)
Propiconazole (160)	1987 (T, R), 1991 (R), 1994 (R), 2004 (T), 2006 (R), 2007 (R), 2013 (R), 2014 (R), 2015 (R), 2017 (R), 2018 (R), 2023 (R), 2024 (R)
Propineb	1977 (T, R), 1980 (T), 1983 (T), 1984 (R), 1985 (T, R), 1993 (T, R), 2004 (R)
Propoxur (075)	1973 (T, R), 1977 (R), 1981 (R), 1983 (R), 1989 (T), 1991 (R), 1996 (R)

Propylene oxide (250)	2011 (T, R), 2017 (T, R)
Propylenethiourea (PTU, 150)	1993 (T, R), 1994 (R), 1999 (T)
Prothioconazole (232)	2008 (T, R), 2009 (R), 2014 (R), 2017 (R), 2021 (R)
Proquinazid (347)	2025 (T, R)
Pydiflumetofen (309)	2018 (T, R), 2019 (R), 2021 (R), 2024 (T, R)
Pyflubumide (314)	2019 (T, R)
Pymetrozine (279)	2014 (T, R)
Pyraclostrobin (210)	2003 (T), 2004 (R), 2006 (R), 2011 (R), 2012 (R), 2014 (R), 2018 (T, R), 2025 (R)
Pyrasulfotole (321)	2021 (T, R)
Pyraziflumid (322)	2021 (T, R)
Pyrazophos (153)	1985 (T, R), 1987 (R), 1992 (T, R), 1993 (R)
Pyrethrins (063)	1965 (T), 1966 (T, R), 1967 (R), 1968 (R), 1969 (R), 1970 (T), 1972 (T, R), 1974 (R), 1999 (T), 2000 (R), 2003 (T, R), 2005 (R), 2023 (-)
Pyridate (315)	2019 (T), 2022 (R)
Pyrifluquinazon (316)	2019 (T, R)
Pyrimethanil (226)	2007 (T, R), 2013 (R)
Pyriofenone (310)	2018 (T, R), 2019 (R), 2025 (R)
Pyriproxyfen (200)	1999 (R, T), 2000 (R), 2001 (T), 2018 (R), 2019 (R), 2025 (R)
Quinclorac (287)	2015 (T, R), 2017 (R), 2022 (R)
Quinoxyfen (223)	2006 (T, R), 2021 (R)
Quintozene (064)	1969 (T, R), 1973 (T, R), 1974 (R), 1975 (T, R), 1976 (Annex I, corr. to 1975 R evaluation), 1977 (T, R), 1995 (T, R), 1998 (R), 2022 (T, R)
Saflufenacil (251)	2011 (T, R), 2016 (R), 2017 (R)
Sedaxane (259)	2012 (T, R), 2014 (R)

Spices	2004 (R), 2005 (R), 2007 (R), 2010 (R), 2015 (R), 2019 (R)
Spidoxamat (348)	2025 (T, R)
Spinetoram (233)	2008 (T, R), 2012 (R), 2017 (R), 2021 (R), 2025 (R)
Spinosad (203)	2001 (T, R), 2004 (R), 2008 (R), 2011 (R), 2024 (R)
Spirodiclofen (237)	2009 (T, R)
Spiromesifen (294)	2016 (T, R), 2021 (R), 2022 (R)
Spiropidion (323)	2021 (T, R)
Spirotetramat (234)	2008 (T, R), 2011 (R), 2012 (R), 2013 (R), 2015 (R), 2019 (R)
Sulfoxaflor (252)	2011 (T, R), 2013 (R), 2014 (R), 2016 (R), 2018 (R), 2021 (R)
Sulfuryl fluoride (218)	2005 (T, R)
2,4,5-T (121)	1970 (T, R), 1979 (T, R), 1981 (T)
Tebuconazole (189)	1994 (T, R), 1996 (corr. to Annex II of 1995 report), 1997 (R), 2008 (R), 2010 (T), 2011 (R), 2015 (R), 2017 (R), 2019 (R), 2021 (R), 2024 (R)
Tebufenozide (196)	1996 (T, R), 1997 (R), 1999 (R), 2001 (T, R), 2003 (T), 2024 (R)
Tecnazine (115)	1974 (T, R), 1978 (T, R), 1981 (R), 1983 (T), 1987 (R), 1989 (R), 1994 (T, R)
Teflubenzuron (190)	1994 (T), 1996 (R), 2016 (T, R)
Temephos	2006 (T)
Terbufos (167)	1989 (T, R), 1990 (T, R), 2003 (T), 2005 (R)
Tetraniliprole (324)	2021 (T), 2022 (T, R), 2023 (R), 2024 (R)
Thiabendazole (065)	1970 (T, R), 1971 (R), 1972 (R), 1975 (R), 1977 (T, R), 1979 (R), 1981 (R), 1997 (R), 2000 (R), 2006 (T, R), 2019 (T, R)
Thiacloprid (223)	2006 (T, R)

Thiamethoxam (245)	2010 (T, R), 2011 (R), 2012 (R), 2014 (R), 2021 (R), 2023 (R), 2025 (R)
Thiodicarb (154)	1985 (T, R), 1986 (T), 1987 (R), 1988 (R), 2000 (T), 2001 (R)
Thiometon (076)	1969 (T, R), 1973 (T, R), 1976 (R), 1979 (T, R), 1988 (R)
Thiophanate-methyl (077)	1973 (T, R), 1975 (T, R), 1977 (T), 1978 (R), 1988 (R), 2002 (R), 1990 (R), 1994 (R), 1995 (T,E), 1998 (T, R), 2006 (T), 2017 (T), 2023 (T, R)
Thiram (105)	See Dithiocarbamates, 1965 (T), 1967 (T, R), 1970 (T, R), 1974 (T), 1977 (T), 1983 (R), 1984 (R), 1985 (T, R), 1987 (T), 1988 (R), 1989 (R), 1992 (T), 1996 (R)
Tiafenacil (349)	2025 (T, R)
Tioxazafen (211)	2018 (T, R)
Tolclofos-methyl (191)	1994 (T, R), 1996 (corr. to Annex II of 1995 report), 2019 (T, R)
Tolfenpyrad (269)	2013 (T), 2016 (R)
Tolylfluanid (162)	1988 (T, R), 1990 (R), 1991 (corr. to 1990 report), 2002 (T, R), 2003 (R)
Toxaphene	See Camphechlor
Triadimefon (133)	1979 (R), 1981 (T, R), 1983 (T, R), 1984 (R), 1985 (T, R), 1986 (R), 1987 (R and corr. to 1986 R evaluation), 1988 (R), 1989 (R), 1992 (R), 1995 (R), 2004 (T), 2007 (R)
Triadimenol (168)	1989 (T, R), 1992 (R), 1995 (R), 2004 (T), 2007 (R), 2014 (R)
Triazolylalanine	1989 (T, R)
Triazophos (143)	1982 (T), 1983 (R), 1984 (corr. to 1983 report, Annex I), 1986 (T, R), 1990 (R), 1991 (T and corr. to 1990 R evaluation), 1992 (R), 1993 (T, R), 2002 (T), 2007 (R), 2010 (R), 2013 (R)
Trichlorfon (066)	1971 (T, R), 1975 (T, R), 1978 (T, R), 1987 (R)
Trichloronat	1971 (T, R)

Trichloroethylene	1968 (R)
Tricyclazole (337) 2023 (T, R)	
Tricyclohexyltin hydroxide	See Cyhexatin
Trifloxystrobin (213)	2004 (T, R), 2012 (R), 2015 (R), 2017 (R), 2021 (R), 2025 (R)
Triflumezopyrim (303)	2017 (T, R)
Triflumuron (317)	2022 (T, R)
Triflumizole (270)	2013 (T, R)
Triforine (116)	1977 (T), 1978 (T, R), 1997 (T), 2004 (R), 2014 (T, R)
Trinexapac-ethyl (271)	2013 (T, R), 2021(T, R)
Triphenyltin compounds	See Fentin compounds
Vamidothion (078)	1973 (T, R), 1982 (T), 1985 (T, R), 1987 (R), 1988 (T), 1990 (R), 1992 (R)
Vinclozolin (159)	1986 (T, R), 1987 (R and corr. to 1986 report and R evaluation), 1988 (T, R), 1989 (R), 1990 (R), 1992 (R), 1995 (T)
Zeta-cypermethrin (118)	2023 (R)
Zineb (105)	See Dithiocarbamates, 1965 (T), 1967 (T, R), 1993 (T)
Ziram (105)	See Dithiocarbamates, 1965 (T), 1967 (T, R), 1996 (T, R)
Zoxamide (227)	2007 (T, R), 2009 (R)

Annex 3. International Estimated Daily Intakes (IEDIs) of pesticide residues

Table A3.1 International Estimated Daily Intakes (IEDIs) of pesticide residues

ACYNONAPYR (333) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.1 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
FC 0003	Subgroup of mandarins, raw	RAC	0.031	6.18	0.19	3.66	0.11	0.25	0.01	6.82	0.21	3.49	0.11	19.38	0.60
–	Subgroup of mandarins, juice	PP	0.072	NC	–	NC	–	NC	–	NC	–	NC	–	NC	–
FP 0226	Apple, raw (incl. cider, excl. juice)	RAC	0.905	13.49	12.21	26.63	24.10	15.05	13.62	16.28	14.73	6.47	5.86	47.88	43.33
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.11	0.32	0.04	3.07	0.34	0.07	0.01	5.00	0.55	0.29	0.03	5.57	0.61
FP 0230	Pear, raw	RAC	0.255	2.16	0.55	6.24	1.59	0.05	0.01	4.07	1.04	1.16	0.30	5.34	1.36
VO 0440	Eggplant, raw (i.e. aubergine)	RAC	0.12	5.58	0.67	4.31	0.52	0.89	0.11	9.31	1.12	13.64	1.64	20.12	2.41
	Total intake (µg/person) =				13.7		26.7		13.8		17.6		7.9		48.3
	Bodyweight per region (kg bw)				60		60		60		60		60		60
	ADI (µg/person) =				6000		6000		6000		6000		6000		6000
	%ADI =				0.228%		0.444%		0.229%		0.294%		0.132%		0.805%
	Rounded %ADI =				0%		0%		0%		0%		0%		1%

ACYNONAPYR (333) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.1 mg/kg bw**

			STMR	Diets as g/person/day					Intake as µg/person/day						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
FC 0003	Subgroup of mandarins, raw	RAC	0.031	12.34	0.38	14.99	0.46	16.08	0.50	10.76	0.33	9.94	0.31	NC	–
–	Subgroup of mandarins, juice	PP	0.072	0.04	0.00	NC	–	0.01	0.00	0.01	0.00	NC	–	NC	–
FP 0226	Apple, raw (incl. cider, excl. juice)	RAC	0.905	41.14	37.23	56.49	51.12	26.64	24.11	31.58	28.58	51.94	47.01	3.05	2.76
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.11	14.88	1.64	11.98	1.32	0.15	0.02	9.98	1.10	30.32	3.34	3.47	0.38
FP 0230	Pear, raw	RAC	0.255	8.79	2.24	8.44	2.15	12.37	3.15	9.60	2.45	10.27	2.62	0.23	0.06
VO 0440	Eggplant, raw (i.e. aubergine)	RAC	0.12	1.01	0.12	1.69	0.20	21.37	2.56	3.00	0.36	1.40	0.17	NC	–
	Total intake (µg/person) =				41.6		55.3		30.3		32.8		53.4		3.2
	Bodyweight per region (kg bw)				60		60		55		60		60		60
	ADI (µg/person) =				6000		6000		5500		6000		6000		6000
	%ADI =				0.694%		0.921%		0.552%		0.547%		0.891%		0.053%
	Rounded %ADI =				1%		1%		1%		1%		1%		0%

ACYNONAPYR (333) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.1 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
FC 0003	Subgroup of mandarins, raw	RAC	0.031	0.16	0.00	0.27	0.01	9.06	0.28	0.01	0.00	0.02	0.00
–	Subgroup of mandarins, juice	PP	0.072	0.01	0.00	NC	–	NC	–	NC	–	NC	–
FP 0226	Apple, raw (incl. cider, excl. juice)	RAC	0.905	66.67	60.34	2.06	1.86	55.83	50.53	188.29	170.40	1.38	1.25
JF 0226	Apple juice, single strength (incl. oncentrated)	PP	0.11	0.03	0.00	0.10	0.01	7.19	0.79	0.03	0.00	NC	–
FP 0230	Pear, raw	RAC	0.255	0.07	0.02	0.14	0.04	9.45	2.41	0.01	0.00	0.14	0.04
VO 0440	Eggplant, raw (i.e. aubergine)	RAC	0.12	1.31	0.16	8.26	0.99	3.95	0.47	0.01	0.00	NC	–
	Total intake (µg/person) =				60.5		2.9		54.5		170.4		1.3
	Bodyweight per region (kg bw)				60		60		60		60		60
	ADI (µg/person) =				6000		6000		6000		6000		6000
	%ADI =				1.009%		0.048%		0.908%		2.840%		0.021%
	Rounded %ADI =				1%		0%		1%		3%		0%

AZOXYSTROBIN (229) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
FC 0001	Group of Citrus fruit, raw (incl. kumquat commodities)	RAC	0.4802	32.25	15.49	11.67	5.60	16.70	8.02	76.01	36.50	33.90	16.28	92.97	44.64
JF 0001	Group of Citrus fruit, juice	PP	0.015	1.30	0.02	2.37	0.04	0.22	0.00	13.88	0.21	0.75	0.01	2.63	0.04
FC 0303	Kumquats, raw (incl. juice)	RAC	4.9	2.36	11.56	0.27	1.32	3.19	15.63	14.44	70.76	1.66	8.13	1.71	8.38
FS 0013	Subgroup of Cherries, raw	RAC	0.74	0.92	0.68	9.15	6.77	0.01	0.01	0.61	0.45	0.06	0.04	6.64	4.91
FS 0014	Subgroup of Plums, raw	RAC	0.74	2.40	1.78	8.60	6.36	0.06	0.04	2.52	1.86	0.58	0.43	4.16	3.08
DF 0014	Plums, dried (prunes)	PP	0.14	0.09	0.01	0.06	0.01	0.01	0.00	0.18	0.03	0.04	0.01	0.06	0.01
FS 2001	Subgroup of peaches, raw (incl. dried apricots)	RAC	0.74	8.01	5.93	5.87	4.34	0.18	0.13	8.19	6.06	1.64	1.21	22.46	16.62
FB 2005	Subgroup of Caneberries, raw	RAC	1	0.42	0.42	1.05	1.05	0.01	0.01	0.02	0.02	0.02	0.02	1.24	1.24
FB 2006	Subgroup of Bush berries, raw (including processed)	RAC	1	0.53	0.53	1.31	1.31	0.40	0.40	1.66	1.66	0.01	0.01	0.99	0.99
FB 2007	Subgroup of Large shrub/tree berries, raw (including processed)	RAC	1	0.62	0.62	0.33	0.33	0.34	0.34	1.42	1.42	0.01	0.01	1.51	1.51
FB	Grapes, raw (i.e. table grapes)	RAC	0.53	12.68	6.72	9.12	4.83	0.03	0.02	16.88	8.95	3.70	1.96	54.42	28.84

AZOXYSTROBIN (229) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
0269															
DF 0269	Grapes, dried (= currants. raisins and sultanas) (from table grapes)	PP	0.24	0.51	0.12	0.51	0.12	0.01	0.00	1.27	0.30	0.12	0.03	2.07	0.50
JF 0269	Grape juice (from wine grapes)	PP	0.19	0.14	0.03	0.29	0.06	0.05	0.01	0.30	0.06	0.24	0.05	0.05	0.01
–	Graps must (from wine grapes)	PP	0.28	0.33	0.09	0.13	0.04	0.01	0.00	0.02	0.01	0.01	0.00	0.02	0.01
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.36	0.67	0.24	12.53	4.51	2.01	0.72	1.21	0.44	3.53	1.27	4.01	1.44
FB 0265	Cranberry, raw	RAC	0.23	0.02	0.00	0.01	0.00	NC	–	0.03	0.01	0.01	0.00	0.01	0.00
FB 0275	Strawberry, raw	RAC	1.3	0.70	0.91	2.01	2.61	0.04	0.05	1.36	1.77	0.37	0.48	2.53	3.29
FT 0289	Carambola, raw	RAC	0.023	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	NC	–	0.01	0.00
FT 0336	Guava, raw	RAC	0.055	0.47	0.03	0.01	0.00	0.48	0.03	0.49	0.03	4.42	0.24	0.06	0.00
FI 0326	Avocado, raw	RAC	0.06	0.13	0.01	0.03	0.00	2.05	0.12	2.54	0.15	2.34	0.14	0.12	0.01
FI 0327	Banana, raw (incl. plantains) (incl. dried)	RAC	0.03	5.23	0.16	6.94	0.21	99.45	2.98	32.47	0.97	48.30	1.45	24.70	0.74
FI 0345	Mango, raw (incl. canned Mango, incl. mango juice)	RAC	0.035	10.48	0.37	0.01	0.00	7.24	0.25	6.87	0.24	19.98	0.70	6.25	0.22
FI 0350	Papaya, raw	RAC	0.1	0.35	0.04	0.01	0.00	3.05	0.31	0.80	0.08	7.28	0.73	1.00	0.10
FI 0353	Pineapple, raw (incl. canned Pineapple, incl. dried Pineapple, excl. pineapple juice)	RAC	0.01	0.54	0.01	0.58	0.01	7.69	0.08	6.02	0.06	8.26	0.08	0.82	0.01
JF 0341	Pineapple juice (single strength, incl. concentrated)	PP	0.022	0.04	0.00	0.57	0.01	0.12	0.00	1.96	0.04	0.29	0.01	0.28	0.01
FI 2540	Pitaya, raw (i.e dragon fruit or pitahaya)	RAC	0.041	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	NC	–	0.01	0.00
VA 0035	Group of Bulb vegetables, raw	RAC	2.2	34.29	75.44	46.37	102.01	4.73	10.41	41.36	90.99	21.08	46.38	52.54	115.59
VB 0040	Group of Brassica vegetables (excl. Brassica leafy vegetables), raw	RAC	1.2	6.43	7.72	40.26	48.31	0.80	0.96	9.94	11.93	12.07	14.48	17.73	21.28
VC 2039	Subgroup of Cucumbers and Squashes, raw	RAC	0.17	10.52	1.79	39.36	6.69	2.07	0.35	25.74	4.38	2.80	0.48	44.83	7.62
VC 2040	Subgroup of Melons, Pumpkins and Winter squashes	RAC	0.02	42.62	0.85	46.85	0.94	4.21	0.08	67.02	1.34	12.84	0.26	110.47	2.21
VO 0448	Tomato, raw	RAC	0.35	41.73	14.61	75.65	26.48	10.66	3.73	82.87	29.00	24.75	8.66	200.93	70.33
–	Tomato, canned (& peeled)	PP	0.05	0.20	0.01	0.31	0.02	0.02	0.00	1.11	0.06	0.11	0.01	1.50	0.08
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	1.1	2.34	2.57	1.33	1.46	1.57	1.73	4.24	4.66	0.34	0.37	2.83	3.11
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.16	0.29	0.05	0.29	0.05	0.01	0.00	0.38	0.06	0.05	0.01	0.14	0.02
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), incl. okra	RAC	0.35	10.45	3.66	13.74	4.81	13.81	4.83	14.53	5.09	15.25	5.34	27.93	9.78

AZOXYSTROBIN (229) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets as g/person/day						Intake as µg/person/day					
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
VO 2046	Subgroup of eggplants	RAC	0.35	5.58	1.95	4.31	1.51	0.89	0.31	9.31	3.26	13.64	4.77	20.12	7.04
VL 0483	Lettuce, leaf, raw	RAC	0.28	0.53	0.15	0.36	0.10	0.16	0.04	6.21	1.74	1.90	0.53	6.05	1.69
VL 0401	Broccoli, Chinese, raw (i.e. kailan)	RAC	0.18	0.42	0.08	0.08	0.01	0.01	0.00	0.60	0.11	NC	–	0.52	0.09
VL 2832	Witloof chicory (sprouts)	RAC	0.05	0.03	0.00	0.02	0.00	0.01	0.00	0.36	0.02	0.06	0.00	0.35	0.02
VP 0060	Group of Legume vegetables, raw	RAC	1	7.73	7.73	1.53	1.53	0.51	0.51	2.95	2.95	5.08	5.08	12.86	12.86
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.01	2.39	0.02	1.61	0.02	10.47	0.10	1.84	0.02	12.90	0.13	7.44	0.07
VD 0523	Broad Bean, dry, raw (incl. horse–Bean, field bean) (Vicia faba)	RAC	0.01	1.27	0.01	0.01	0.00	0.12	0.00	2.49	0.02	0.23	0.00	5.54	0.06
VD 0527	Cowpea,dry, raw (Vigna sinensis. Dolichos sinensis)	RAC	0.01	0.05	0.00	NC	–	1.74	0.02	0.01	0.00	0.01	0.00	0.07	0.00
VD 0541	Soya Bean, dry, raw (incl. flour, incl. paste, incl. curd, incl. sauce, excl. oil)	RAC	0.06	0.63	0.04	1.09	0.07	0.40	0.02	1.40	0.08	1.68	0.10	0.48	0.03
OR 0541	Soya oil, refined	PP	0.05	12.99	0.65	10.43	0.52	3.63	0.18	13.10	0.66	10.70	0.54	13.10	0.66
–	Beans (dry) NES: including inter alia lablab or hyacinth bean (Dolichos spp.); jack or sword bean (Canavalia spp.); winged bean (Psophocarpus tetragonolobus); guar bean (Cyamopsis tetragonoloba); velvet bean (Stizolobium spp.); yam bean (Pachyrrhizus erosus)	RAC	0.01	1.70	0.02	0.01	0.00	3.00	0.03	1.80	0.02	1.64	0.02	1.33	0.01
VD 2066	Subgroup of dry peas, raw	RAC	0.01	9.09	0.09	3.35	0.03	1.06	0.01	9.48	0.09	15.11	0.15	10.58	0.11
VD 2067	Subgroup of dry underground pulses, raw	RAC	0.01	NC	–	NC	–	0.20	0.00	NC	–	NC	–	NC	–
VR 0574	Beetroot, raw	RAC	0.23	3.42	0.79	6.06	1.39	3.75	0.86	9.11	2.10	NC	–	4.39	1.01
VR 0575	Burdock. greater or edible, raw	RAC	0.23	0.03	0.01	0.06	0.01	0.04	0.01	0.09	0.02	NC	–	0.04	0.01
VR 0577	Carrots, raw	RAC	0.23	9.51	2.19	30.78	7.08	0.37	0.09	8.75	2.01	2.80	0.64	6.10	1.40
VR 0578	Celeriac, raw	RAC	0.23	1.70	0.39	3.01	0.69	1.87	0.43	4.53	1.04	NC	–	2.19	0.50

AZOXYSTROBIN (229) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets as g/person/day						Intake as µg/person/day					
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
VR 0469	Chicory, roots, raw	RAC	0.23	0.01	0.00	0.20	0.05	0.01	0.00	0.01	0.00	0.02	0.00	0.01	0.00
VR 0583	Horseradish, raw	RAC	0.23	0.51	0.12	0.91	0.21	0.56	0.13	1.37	0.32	NC	–	0.66	0.15
VR 0587	Parsley turnip–rooted, raw	RAC	0.23	0.32	0.07	0.57	0.13	0.35	0.08	0.85	0.20	NC	–	0.41	0.09
VR 0588	Parsnip, raw	RAC	0.23	0.59	0.14	1.05	0.24	0.65	0.15	1.58	0.36	NC	–	0.76	0.17
VR 0494	Radish roots, raw	RAC	0.23	2.31	0.53	4.09	0.94	2.53	0.58	6.15	1.41	5.88	1.35	2.97	0.68
VR 0591	Japanese radish, raw (i.e. Chinese radish. Daikon)	RAC	0.23	1.90	0.44	3.36	0.77	2.08	0.48	5.06	1.16	NC	–	2.44	0.56
VR 0498	Salsify, raw (i.e. Oysterplant)	RAC	0.23	0.21	0.05	0.37	0.09	0.23	0.05	0.55	0.13	NC	–	0.27	0.06
VR 0596	Sugar beet, raw	RAC	1.35	NC	–	NC	–	NC	–	NC	–	0.01	0.01	NC	–
–	Sugar beet. sugar	PP	0.023	0.02	0.00	NC	–	0.01	0.00	0.09	0.00	0.07	0.00	12.63	0.29
VR 0573	Arrowroot, raw	RAC	0.23	1.53	0.35	0.01	0.00	0.93	0.21	1.33	0.31	0.47	0.11	0.02	0.00
VR 0463	Cassava, raw (incl. starch, incl. tapioca, incl. flour) (i.e. Manioc)	RAC	0.23	0.08	0.02	0.01	0.00	482.56	110.99	0.99	0.23	25.75	5.92	3.29	0.76
VR 0585	Jerusalem artichoke, raw (i.e. Topinambur)	RAC	0.23	1.57	0.36	0.01	0.00	0.96	0.22	1.36	0.31	0.48	0.11	0.02	0.00
VR 0589	Potato, raw (incl. flour, incl. frozen, incl. starch, incl. tapioca)	RAC	2.3	59.74	137.40	316.14	727.12	9.78	22.49	60.26	138.60	54.12	124.48	119.82	275.59
VR 0508	Sweet potato, raw (incl. dried)	RAC	0.23	0.18	0.04	0.18	0.04	42.16	9.70	1.61	0.37	3.06	0.70	6.67	1.53
VR 0504	Tannia, raw (i.e. Tanier. Yautia)	RAC	0.23	NC	–	NC	–	NC	–	0.01	0.00	0.26	0.06	1.27	0.29
VR 0505	Taro, raw (i.e. Dasheen. Eddoe)	RAC	0.23	0.01	0.00	NC	–	25.12	5.78	0.04	0.01	0.01	0.00	0.97	0.22
VR 0600	Yams, raw (incl. dried)	RAC	0.23	0.02	0.00	NC	–	90.40	20.79	6.45	1.48	0.74	0.17	0.65	0.15
VR 3001	Chinese water chestnut, raw	RAC	0.23	NC	–	NC	–	NC	–	NC	–	NC	–	NC	–
VS 0624	Celery	RAC	0.43	2.14	0.92	3.79	1.63	2.35	1.01	5.69	2.45	0.02	0.01	2.75	1.18

AZOXYSTROBIN (229) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets as g/person/day						Intake as µg/person/day					
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
VS 0621	Asparagus, raw	RAC	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.03	0.00	0.07	0.00	0.21	0.00
VS 0620	Artichoke globe, raw	RAC	1.8	0.69	1.24	0.01	0.02	0.01	0.02	0.32	0.58	0.26	0.47	1.21	2.18
GC 0650	Rye, raw (incl. flour)	RAC	0.01	0.13	0.00	19.38	0.19	0.10	0.00	0.12	0.00	0.03	0.00	2.15	0.02
GC 0653	Triticale, raw (incl. flour)	RAC	0.01	NC	–	NC	–	NC	–	0.01	0.00	0.39	0.00	NC	–
GC 0654	Wheat, raw (incl. meslin)	RAC	0.01	0.01	0.00	1.12	0.01	NC	–	0.01	0.00	0.56	0.01	NC	–
CP 1212	Wheat, wholemeal bread	PP	0.001	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.03	0.00	0.01	0.00
CP 1211	Wheat, white bread	PP	0.001	0.25	0.00	0.63	0.00	0.12	0.00	0.43	0.00	1.39	0.00	0.22	0.00
CF 1211	Wheat, white flour (incl. white flour products: starch, gluten, macaroni, pastry)	PP	0.003	301.24	0.90	268.64	0.81	30.21	0.09	222.51	0.67	134.73	0.40	343.12	1.03
GC 0640	Barley, raw (incl. malt extract, incl. pot&pearled, incl. flour & grits, excl. beer, excl. malt)	RAC	0.05	18.86	0.94	11.93	0.60	0.18	0.01	0.23	0.01	2.25	0.11	0.72	0.04
–	Barley beer	PP	0.0015	4.87	0.01	93.78	0.14	24.28	0.04	12.76	0.02	39.28	0.06	18.15	0.03
–	Barley Malt	PP	0.005	0.09	0.00	1.04	0.01	0.18	0.00	0.33	0.00	0.04	0.00	0.10	0.00
GC 0647	Oats, raw (incl. rolled)	RAC	0.05	0.05	0.00	7.05	0.35	0.10	0.01	1.71	0.09	0.96	0.05	0.04	0.00
CM 0649 (GC 0649)	Rice, husked, dry (incl. flour, incl. oil, incl. beverages, incl. starch, excl. polished)	REP	0.68	1.26	0.86	1.58	1.07	31.05	21.11	5.43	3.69	0.90	0.61	2.18	1.48
CM 1205	Rice polished, dry	PP	0.06	34.21	2.05	10.39	0.62	41.72	2.50	82.38	4.94	150.24	9.01	70.47	4.23
GC 0651	Sorghum, raw (incl. flour, incl. beer) (i.e. Chicken corn, Dari seed, Durra, Feterita)	RAC	1.85	4.34	8.03	0.01	0.02	16.25	30.06	15.82	29.27	10.97	20.29	2.92	5.40
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. beer, incl. germ, excl. flour, excl. oil, excl. starch)	RAC	0.01	0.84	0.01	0.24	0.00	1.56	0.02	0.46	0.00	2.44	0.02	13.13	0.13
CF 1255	Maize, flour (white flour and wholemeal flour)	PP	0.01	22.72	0.23	35.61	0.36	87.27	0.87	34.92	0.35	46.71	0.47	49.12	0.49
–	Maize starch	PP	0.001	0.08	0.00	NC	–	0.01	0.00	2.29	0.00	0.08	0.00	0.11	0.00
OR 0645	Maize oil	PP	0.06	0.96	0.06	0.85	0.05	0.29	0.02	5.42	0.33	0.42	0.03	2.10	0.13

AZOXYSTROBIN (229) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
GS 0659	Sugar cane, raw	RAC	0.02	38.16	0.76	NC	–	12.58	0.25	0.34	0.01	17.79	0.36	42.78	0.86
–	Sugar cane, molasses	PP	0.005	NC	–	NC	–	NC	–	NC	–	0.01	0.00	NC	–
–	Sugar cane, sugar (incl. non-centrifugal sugar, incl. refined sugar and maltose)	PP	0.0066	61.52	0.41	86.27	0.57	18.80	0.12	80.02	0.53	66.39	0.44	56.32	0.37
TN 0660	Almonds, nutmeat	RAC	0.01	1.38	0.01	0.08	0.00	0.01	0.00	1.00	0.01	0.06	0.00	0.81	0.01
TN 0662	Brazil nuts, nutmeat	RAC	0.01	0.01	0.00	0.01	0.00	0.03	0.00	0.02	0.00	0.02	0.00	0.01	0.00
TN 0295	Cashew nuts, nutmeat	RAC	0.01	0.01	0.00	0.02	0.00	0.24	0.00	0.47	0.00	0.32	0.00	0.05	0.00
TN 0664	Chestnut, raw	RAC	0.01	0.03	0.00	0.02	0.00	0.01	0.00	0.31	0.00	0.09	0.00	0.67	0.01
TN 0665	Coconut, nutmeat (incl. copra, incl. desiccated, incl. oil)	RAC	0.01	1.73	0.02	1.20	0.01	6.63	0.07	10.18	0.10	13.07	0.13	2.98	0.03
TN 0666	Hazelnuts, nutmeat	RAC	0.01	0.03	0.00	0.13	0.00	0.01	0.00	0.11	0.00	0.01	0.00	1.11	0.01
TN 0669	Macadamia nuts, nutmeat (i.e. Queensland nuts)	RAC	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.04	0.00	NC	–	0.03	0.00
TN 0672	Pecan, nutmeat	RAC	0.01	0.05	0.00	0.05	0.00	0.02	0.00	0.14	0.00	0.09	0.00	0.13	0.00
TN 0673	Pine nut, nutmeat (i.e. pignolia nuts)	RAC	0.01	0.18	0.00	0.18	0.00	0.08	0.00	0.49	0.00	0.25	0.00	0.43	0.00
TN 0675	Pistachio nut, nutmeat	RAC	0.44	0.41	0.18	0.07	0.03	0.01	0.00	0.85	0.37	0.02	0.01	1.08	0.48
TN 0678	Walnut, nutmeat	RAC	0.01	0.23	0.00	1.49	0.01	0.01	0.00	0.33	0.00	0.07	0.00	2.06	0.02
SO 0495	Rape seed, raw (incl. oil)	RAC	0.02	0.93	0.02	1.16	0.02	0.49	0.01	2.53	0.05	9.32	0.19	2.02	0.04
SO 0702	Sunflower seed, raw	RAC	0.04	0.09	0.00	0.33	0.01	0.09	0.00	0.24	0.01	0.02	0.00	0.01	0.00
OR 0702	Sunflower seed oil, edible	PP	0.01	2.97	0.03	14.42	0.14	0.43	0.00	3.46	0.03	2.20	0.02	5.53	0.06
SO 0691	Cotton seed, raw (incl. oil)	RAC	0.01	20.53	0.21	9.80	0.10	6.42	0.06	4.73	0.05	7.14	0.07	18.68	0.19
SO 0697	Peanuts, nutmeat, raw (incl. roasted, incl. butter, excl. oil)	RAC	0.01	0.46	0.00	1.21	0.01	6.64	0.07	2.71	0.03	1.26	0.01	1.84	0.02

AZOXYSTROBIN (229) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
OR 0697	Peanut oil, edible	PP	0.03	0.36	0.01	0.01	0.00	2.57	0.08	0.07	0.00	2.29	0.07	0.36	0.01
SB 0716	Coffee Bean, raw (i.e. green coffee)	RAC	0.01	0.96	0.01	0.16	0.00	0.91	0.01	0.27	0.00	1.37	0.01	0.46	0.00
SM 0716	Coffee Bean, roasted	PP	0.006	0.19	0.00	0.91	0.01	0.16	0.00	2.50	0.02	0.39	0.00	0.40	0.00
–	Coffee Bean, instant coffee (incl. essences and concentrates)	PP	0.0106	0.07	0.00	0.94	0.01	0.07	0.00	0.70	0.01	0.07	0.00	0.29	0.00
HH 0092	Group of Herbs, raw (incl. dried)	RAC	23	1.69	38.87	1.91	43.93	1.18	27.14	3.35	77.05	0.55	12.65	1.64	37.72
HS 0444	Peppers, chili, dried	PP	3.5	0.42	1.47	0.53	1.86	0.84	2.94	0.50	1.75	0.95	3.33	0.37	1.30
DH 1100	Hops, dry	RAC	8.4	0.01	0.08	0.04	0.34	0.01	0.08	0.01	0.08	NC	–	0.01	0.08
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.01	24.96	0.25	57.95	0.58	16.70	0.17	38.38	0.38	26.46	0.26	29.00	0.29
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.015	6.24	0.09	14.49	0.22	4.18	0.06	9.60	0.14	6.62	0.10	7.25	0.11
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.015	3.29	0.05	6.14	0.09	0.82	0.01	1.57	0.02	2.23	0.03	1.07	0.02
MO 0105	Edible offal (mammalian), raw	RAC	0.02	4.79	0.10	9.68	0.19	2.97	0.06	5.49	0.11	3.84	0.08	5.03	0.10
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.01	289.65	2.90	485.88	4.86	26.92	0.27	239.03	2.39	199.91	2.00	180.53	1.81
PM 0110	Poultry meat, raw (incl. prepared)	RAC	0	14.63	0.00	29.76	0.00	8.04	0.00	129.68	0.00	25.04	0.00	35.66	0.00
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0	0.10	0.00	0.10	0.00	NC	–	0.10	0.00	0.10	0.00	0.10	0.00
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0	0.12	0.00	0.12	0.00	0.11	0.00	5.37	0.00	0.24	0.00	0.10	0.00
PE 0112	Eggs, raw, (incl. dried)	RAC	0	7.84	0.00	23.08	0.00	2.88	0.00	14.89	0.00	9.81	0.00	14.83	0.00
	Total intake (µg/person) =				366.8		1031.8		312.7		564.2		305.5		712.7
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (µg/person) =				1800		1800		1800		1800		1800		1800
	%ADI =				20.4%		57.3%		17.4%		31.3%		17.0%		39.6%
	Rounded %ADI =				20%		60%		20%		30%		20%		40%

AZOXYSTROBIN (229) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets as g/person/day						Intake as µg/person/day					
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
FC 0001	Group of Citrus fruit, raw (incl. kumquat commodities)	RAC	0.4802	38.66	18.56	54.93	26.38	26.36	12.66	51.46	24.71	51.06	24.52	466.36	223.95
JF 0001	Group of Citrus fruit, juice	PP	0.015	36.84	0.55	3.75	0.06	0.30	0.00	21.62	0.32	21.82	0.33	46.67	0.70
FC 0303	Kumquats, raw (incl. juice)	RAC	4.9	4.67	22.88	5.86	28.71	1.96	9.60	1.45	7.11	17.05	83.55	1.37	6.71
FS 0013	Subgroup of Cherries, raw	RAC	0.74	1.40	1.04	4.21	3.12	0.04	0.03	2.93	2.17	1.50	1.11	NC	–
FS 0014	Subgroup of Plums, raw	RAC	0.74	3.75	2.78	3.33	2.46	5.94	4.40	2.64	1.95	2.50	1.85	0.06	0.04
DF 0014	Plums, dried (prunes)	PP	0.14	0.61	0.09	0.35	0.05	0.05	0.01	0.35	0.05	0.49	0.07	0.13	0.02
FS 2001	Subgroup of peaches, raw (incl. dried apricots)	RAC	0.74	13.03	9.64	16.29	12.05	8.29	6.13	12.95	9.58	5.35	3.96	0.04	0.03
FB 2005	Subgroup of Caneberries, raw	RAC	1	0.56	0.56	1.43	1.43	0.14	0.14	1.23	1.23	1.14	1.14	0.01	0.01
FB 2006	Subgroup of Bush berries, raw (including processed)	RAC	1	1.31	1.31	5.50	5.50	0.01	0.01	2.57	2.57	0.82	0.82	2.15	2.15
FB 2007	Subgroup of Large shrub/tree berries, raw (including processed)	RAC	1	8.26	8.26	0.14	0.14	0.07	0.07	0.13	0.13	0.19	0.19	1.87	1.87
FB 0269	Grapes, raw (i.e. table grapes)	RAC	0.53	6.33	3.35	11.22	5.95	5.21	2.76	9.38	4.97	4.55	2.41	0.78	0.41
DF 0269	Grapes, dried (= currants. raisins and sultanas) (from table grapes)	PP	0.24	3.09	0.74	1.51	0.36	0.03	0.01	1.38	0.33	4.26	1.02	0.42	0.10
JF 0269	Grape juice (from wine grapes)	PP	0.19	0.56	0.11	1.96	0.37	0.02	0.00	2.24	0.43	2.27	0.43	0.34	0.06
–	Graps must (from wine grapes)	PP	0.28	0.16	0.04	0.09	0.03	0.01	0.00	0.12	0.03	0.11	0.03	NC	–
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.36	88.93	32.01	62.41	22.47	1.84	0.66	25.07	9.03	61.17	22.02	5.84	2.10
FB 0265	Cranberry, raw	RAC	0.23	0.06	0.01	0.01	0.00	0.01	0.00	1.22	0.28	0.11	0.03	NC	–
FB 0275	Strawberry, raw	RAC	1.3	4.49	5.84	5.66	7.36	0.02	0.03	6.63	8.62	5.75	7.48	0.05	0.07
FT 0289	Carambola, raw	RAC	0.023	NC	–	0.01	0.00	0.05	0.00	NC	–	NC	–	NC	–
FT 0336	Guava, raw	RAC	0.055	0.01	0.00	NC	–	0.42	0.02	NC	–	NC	–	NC	–
FI 0326	Avocado, raw	RAC	0.06	2.65	0.16	0.87	0.05	0.46	0.03	1.64	0.10	1.30	0.08	0.96	0.06
FI 0327	Banana, raw (incl. plantains) (incl. dried)	RAC	0.03	25.76	0.77	23.65	0.71	23.83	0.71	24.37	0.73	19.43	0.58	101.55	3.05
FI 0345	Mango, raw (incl. canned Mango, incl. mango juice)	RAC	0.035	1.80	0.06	0.63	0.02	10.05	0.35	1.07	0.04	3.52	0.12	16.44	0.58
FI 0350	Papaya, raw	RAC	0.1	0.31	0.03	0.18	0.02	1.50	0.15	0.51	0.05	0.54	0.05	1.08	0.11
FI 0353	Pineapple, raw (incl. canned Pineapple, incl. dried Pineapple, excl. pineapple juice)	RAC	0.01	8.17	0.08	7.53	0.08	5.95	0.06	7.61	0.08	8.17	0.08	16.18	0.16
JF 0341	Pineapple juice (single strength, incl. concentrated)	PP	0.022	2.91	0.06	2.11	0.05	0.58	0.01	3.95	0.09	16.73	0.37	1.54	0.03
FI 2540	Pitaya, raw (i.e dragon fruit or pitahaya)	RAC	0.041	NC	–	NC	–	0.08	0.00	NC	–	NC	–	NC	–
VA 0035	Group of Bulb vegetables, raw	RAC	2.2	26.24	57.73	36.47	80.23	39.29	86.44	39.37	86.61	29.12	64.06	20.21	44.46

AZOXYSTROBIN (229) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
VB 0040	Group of Brassica vegetables (excl. Brassica leafy vegetables), raw	RAC	1.2	20.71	24.85	39.81	47.77	25.06	30.07	37.93	45.52	18.12	21.74	16.74	20.09
VC 2039	Subgroup of Cucumbers and Squashes, raw	RAC	0.17	7.14	1.21	16.92	2.88	37.58	6.39	15.16	2.58	4.42	0.75	12.67	2.15
VC 2040	Subgroup of Melons. Pumpkins and Winter squashes	RAC	0.02	20.68	0.41	25.00	0.50	85.72	1.71	34.31	0.69	11.54	0.23	23.32	0.47
VO 0448	Tomato, raw	RAC	0.35	32.13	11.25	51.27	17.94	34.92	12.22	73.37	25.68	15.15	5.30	8.88	3.11
–	Tomato, canned (& peeled)	PP	0.05	7.57	0.38	2.66	0.13	0.30	0.02	0.97	0.05	7.31	0.37	0.41	0.02
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	1.1	4.96	5.46	3.20	3.52	0.15	0.17	1.61	1.77	6.88	7.57	0.52	0.57
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.16	0.80	0.13	0.07	0.01	0.05	0.01	0.61	0.10	0.40	0.06	0.08	0.01
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), incl. okra	RAC	0.35	6.39	2.24	15.53	5.44	19.13	6.70	10.53	3.69	8.29	2.90	5.25	1.84
VO 2046	Subgroup of eggplants	RAC	0.35	1.01	0.35	1.69	0.59	21.37	7.48	3.00	1.05	1.40	0.49	NC	–
VL 0483	Lettuce, leaf, raw	RAC	0.28	14.50	4.06	11.76	3.29	13.14	3.68	19.50	5.46	4.81	1.35	2.23	0.62
VL 0401	Broccoli, Chinese, raw (i.e. kailan)	RAC	0.18	NC	–	NC	–	9.03	1.63	NC	–	NC	–	0.12	0.02
VL 2832	Witloof chicory (sprouts)	RAC	0.05	1.50	0.08	0.95	0.05	NC	–	1.84	0.09	0.65	0.03	0.13	0.01
VP 0060	Group of Legume vegetables, raw	RAC	1	18.21	18.21	8.91	8.91	7.22	7.22	10.04	10.04	23.22	23.22	0.17	0.17
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.01	1.51	0.02	1.50	0.02	1.90	0.02	5.11	0.05	1.36	0.01	23.43	0.23
VD 0523	Broad Bean, dry, raw (incl. horse–Bean, field bean) (Vicia faba)	RAC	0.01	0.02	0.00	0.01	0.00	1.16	0.01	0.40	0.00	NC	–	0.06	0.00
VD 0527	Cowpea,dry, raw (Vigna sinensis. Dolichos sinensis)	RAC	0.01	NC	–	NC	–	0.16	0.00	0.01	0.00	NC	–	NC	–
VD 0541	Soya Bean, dry, raw (incl. flour, incl. paste, incl. curd, incl. sauce, excl. oil)	RAC	0.06	0.47	0.03	0.77	0.05	9.12	0.55	8.05	0.48	0.04	0.00	6.06	0.36
OR 0541	Soya oil, refined	PP	0.05	19.06	0.95	21.06	1.05	5.94	0.30	33.78	1.69	40.05	2.00	13.39	0.67
–	Beans (dry) NES: including inter alia lablab or hyacinth bean (Dolichos spp.); jack or sword bean (Canavalia spp.); winged bean (Psophocarpus tetragonolobus); guar bean (Cyamopsis tetragonoloba); velvet bean (Stizolobium spp.); yam bean (Pachyrrhizus erosus)	RAC	0.01	0.01	0.00	NC	–	0.57	0.01	0.11	0.00	0.16	0.00	0.94	0.01
VD 2066	Subgroup of dry peas, raw	RAC	0.01	5.01	0.05	3.76	0.04	1.82	0.02	3.44	0.03	3.49	0.03	5.15	0.05
VD 2067	Subgroup of dry underground pulses, raw	RAC	0.01	NC	–	NC	–	NC	–	NC	–	NC	–	NC	–
VR 0574	Beetroot, raw	RAC	0.23	9.91	2.28	6.34	1.46	NC	–	9.65	2.22	19.11	4.40	6.47	1.49
VR 0575	Burdock. greater or edible, raw	RAC	0.23	NC	–	NC	–	NC	–	0.48	0.11	NC	–	0.06	0.01

AZOXYSTROBIN (229) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
VR 0577	Carrots, raw	RAC	0.23	26.26	6.04	27.13	6.24	10.07	2.32	16.49	3.79	44.69	10.28	8.75	2.01
VR 0578	Celeriac, raw	RAC	0.23	2.97	0.68	1.79	0.41	NC	–	0.06	0.01	16.91	3.89	3.22	0.74
VR 0469	Chicory. roots, raw	RAC	0.23	0.01	0.00	0.51	0.12	0.01	0.00	0.01	0.00	21.12	4.86	NC	–
VR 0583	Horseradish, raw	RAC	0.23	0.01	0.00	0.42	0.10	13.01	2.99	0.26	0.06	2.70	0.62	0.97	0.22
VR 0587	Parsley turnip–rooted, raw	RAC	0.23	NC	–	NC	–	NC	–	NC	–	NC	–	0.61	0.14
VR 0588	Parsnip, raw	RAC	0.23	4.42	1.02	0.06	0.01	NC	–	NC	–	NC	–	1.12	0.26
VR 0494	Radish roots, raw	RAC	0.23	3.83	0.88	11.99	2.76	NC	–	5.26	1.21	2.19	0.50	4.37	1.01
VR 0591	Japanese radish, raw (i.e. Chinese radish. Daikon)	RAC	0.23	NC	–	NC	–	26.64	6.13	18.92	4.35	NC	–	3.59	0.83
VR 0498	Salsify, raw (i.e. Oysterplant)	RAC	0.23	1.02	0.23	0.52	0.12	NC	–	NC	–	2.08	0.48	0.39	0.09
VR 0596	Sugar beet, raw	RAC	1.35	0.01	0.01	NC	–	0.01	0.01	0.01	0.01	NC	–	NC	–
–	Sugar beet. sugar	PP	0.023	0.01	0.00	NC	–	0.01	0.00	NC	–	NC	–	NC	–
VR 0573	Arrowroot, raw	RAC	0.23	0.02	0.00	0.01	0.00	2.05	0.47	0.21	0.05	NC	–	0.76	0.17
VR 0463	Cassava raw (incl. starch, incl. tapioca, incl. flour) (i.e. Manioc)	RAC	0.23	0.01	0.00	NC	–	20.96	4.82	0.14	0.03	NC	–	9.62	2.21
VR 0585	Jerusalem artichoke, raw (i.e. Topinambur)	RAC	0.23	0.11	0.03	0.01	0.00	NC	–	0.22	0.05	NC	–	0.78	0.18
VR 0589	Potato, raw (incl. flour, incl. frozen, incl. starch, incl. tapioca)	RAC	2.3	225.03	517.57	234.24	538.75	71.48	164.40	177.55	408.37	234.55	539.47	37.71	86.73
VR 0508	Sweet potato, raw (incl. dried)	RAC	0.23	0.93	0.21	0.32	0.07	64.65	14.87	5.37	1.24	0.30	0.07	3.13	0.72
VR 0504	Tannia, raw (i.e. Tanier. Yautia)	RAC	0.23	NC	–	NC	–	NC	–	0.01	0.00	NC	–	10.74	2.47
VR 0505	Taro, raw (i.e. Dasheen. Eddoe)	RAC	0.23	NC	–	NC	–	1.93	0.44	0.84	0.19	NC	–	19.94	4.59
VR 0600	Yams, raw (incl. dried)	RAC	0.23	NC	–	NC	–	0.03	0.01	0.71	0.16	NC	–	17.57	4.04
VR 3001	Chinese water chestnut, raw	RAC	0.23	NC	–	NC	–	3.42	0.79	NC	–	NC	–	NC	–
VS 0624	Celery	RAC	0.43	7.68	3.30	2.85	1.23	NC	–	3.34	1.44	16.83	7.24	4.04	1.74
VS 0621	Asparagus, raw	RAC	0.01	0.84	0.01	2.08	0.02	7.11	0.07	1.01	0.01	1.69	0.02	0.04	0.00
VS 0620	Artichoke globe, raw	RAC	1.8	0.98	1.76	3.65	6.57	0.07	0.13	1.67	3.01	0.26	0.47	NC	–
GC 0650	Rye, raw (incl. flour)	RAC	0.01	3.21	0.03	35.38	0.35	0.21	0.00	6.50	0.07	1.49	0.01	NC	–
GC 0653	Triticale, raw (incl. flour)	RAC	0.01	0.01	0.00	0.17	0.00	0.29	0.00	0.01	0.00	NC	–	NC	–
GC 0654	Wheat, raw (incl. meslin)	RAC	0.01	NC	–	NC	–	NC	–	0.01	0.00	NC	–	NC	–
CP 1212	Wheat, wholemeal bread	PP	0.001	0.03	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.05	0.00	0.02	0.00
CP 1211	Wheat, white bread	PP	0.001	1.30	0.00	0.46	0.00	0.06	0.00	0.22	0.00	2.44	0.00	0.77	0.00
CF 1211	Wheat, white flour (incl. white flour products: starch, gluten, macaroni, pastry)	PP	0.003	198.08	0.59	193.03	0.58	106.24	0.32	185.09	0.56	168.67	0.51	131.59	0.39
GC 0640	Barley, raw (incl. malt extract, incl. pot&pearled, incl. flour & grits, excl. beer, excl. malt)	RAC	0.05	1.69	0.08	4.15	0.21	0.60	0.03	2.39	0.12	2.14	0.11	0.63	0.03
–	Barley beer	PP	0.0015	180.21	0.27	259.46	0.39	45.91	0.07	172.36	0.26	234.42	0.35	65.30	0.10

AZOXYSTROBIN (229) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
–	Barley Malt	PP	0.005	0.19	0.00	NC	–	0.04	0.00	0.08	0.00	NC	–	2.14	0.01
GC 0647	Oats, raw (incl. rolled)	RAC	0.05	7.50	0.38	6.26	0.31	0.15	0.01	4.87	0.24	3.16	0.16	2.98	0.15
CM 0649 (GC 0649)	Rice, husked, dry (incl. flour, incl. oil, incl. beverages, incl. starch, excl. polished)	REP	0.68	3.70	2.52	2.11	1.43	1.51	1.03	1.75	1.19	0.29	0.20	5.12	3.48
CM 1205	Rice polished, dry	PP	0.06	13.38	0.80	10.80	0.65	262.08	15.72	57.16	3.43	12.83	0.77	62.78	3.77
GC 0651	Sorghum, raw (incl. flour, incl. beer) (i.e. Chicken corn, Dari seed, Durra, Feterita)	RAC	1.85	NC	–	NC	–	1.44	2.66	1.15	2.13	NC	–	7.12	13.17
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. beer, incl. germ, excl. flour, excl. oil, excl. starch)	RAC	0.01	0.10	0.00	9.93	0.10	1.40	0.01	10.26	0.10	0.33	0.00	0.05	0.00
CF 1255	Maize, flour (white flour and wholemeal flour)	PP	0.01	14.27	0.14	12.86	0.13	19.71	0.20	12.55	0.13	4.21	0.04	52.30	0.52
–	Maize starch	PP	0.001	NC	–	NC	–	0.19	0.00	7.13	0.01	NC	–	NC	–
OR 0645	Maize oil	PP	0.06	0.90	0.05	0.47	0.03	0.15	0.01	3.01	0.18	1.86	0.11	0.36	0.02
GS 0659	Sugar cane, raw	RAC	0.02	NC	–	NC	–	4.27	0.09	0.01	0.00	NC	–	3.24	0.06
–	Sugar cane, molasses	PP	0.005	NC	–	NC	–	0.08	0.00	NC	–	NC	–	NC	–
–	Sugar cane, sugar (incl. non-centrifugal sugar, incl. refined sugar and maltose)	PP	0.0066	92.24	0.61	95.72	0.63	24.12	0.16	77.39	0.51	117.73	0.78	100.67	0.66
TN 0660	Almonds, nutmeat	RAC	0.01	0.81	0.01	2.21	0.02	0.03	0.00	1.02	0.01	1.47	0.01	NC	–
TN 0662	Brazil nuts, nutmeat	RAC	0.01	0.12	0.00	0.05	0.00	0.01	0.00	0.05	0.00	0.13	0.00	NC	–
TN 0295	Cashew nuts, nutmeat	RAC	0.01	0.59	0.01	0.23	0.00	0.18	0.00	0.52	0.01	1.75	0.02	2.78	0.03
TN 0664	Chestnut, raw	RAC	0.01	0.34	0.00	0.21	0.00	1.14	0.01	0.52	0.01	0.09	0.00	NC	–
TN 0665	Coconut, nutmeat (incl. copra, incl. desiccated, incl. oil)	RAC	0.01	4.13	0.04	2.73	0.03	13.15	0.13	5.85	0.06	6.92	0.07	22.24	0.22
TN 0666	Hazelnuts, nutmeat	RAC	0.01	0.45	0.00	1.12	0.01	0.02	0.00	0.34	0.00	1.63	0.02	NC	–
TN 0669	Macadamia nuts, nutmeat (i.e. Queensland nuts)	RAC	0.01	NC	–	0.40	0.00	NC	–	NC	–	NC	–	0.07	0.00
TN 0672	Pecan, nutmeat	RAC	0.01	0.38	0.00	NC	–	NC	–	0.27	0.00	NC	–	0.26	0.00
TN 0673	Pine nut, nutmeat (i.e. pignolia nuts)	RAC	0.01	0.99	0.01	0.66	0.01	0.22	0.00	0.27	0.00	1.89	0.02	0.89	0.01
TN 0675	Pistachio nut, nutmeat	RAC	0.44	0.35	0.15	0.48	0.21	0.07	0.03	0.39	0.17	0.23	0.10	0.02	0.01
TN 0678	Walnut, nutmeat	RAC	0.01	0.34	0.00	0.84	0.01	0.28	0.00	0.39	0.00	0.45	0.00	NC	–
SO 0495	Rape seed, raw (incl. oil)	RAC	0.02	32.68	0.65	19.91	0.40	7.83	0.16	15.69	0.31	NC	–	NC	–
SO 0702	Sunflower seed, raw	RAC	0.04	0.01	0.00	1.32	0.05	0.03	0.00	1.17	0.05	NC	–	0.02	0.00
OR 0702	Sunflower seed oil, edible	PP	0.01	9.50	0.10	11.37	0.11	0.49	0.00	5.15	0.05	2.63	0.03	2.80	0.03
SO 0691	Cotton seed, raw (incl. oil)	RAC	0.01	10.71	0.11	4.23	0.04	7.19	0.07	7.54	0.08	5.66	0.06	2.38	0.02
SO 0697	Peanuts, nutmeat, raw (incl. roasted, incl. butter, excl. oil)	RAC	0.01	3.26	0.03	2.22	0.02	5.38	0.05	4.85	0.05	1.54	0.02	1.82	0.02
OR 0697	Peanut oil, edible	PP	0.03	1.02	0.03	0.23	0.01	1.81	0.05	0.42	0.01	5.23	0.16	0.01	0.00

AZOXYSTROBIN (229) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
SB 0716	Coffee Bean, raw (i.e. green coffee)	RAC	0.01	0.60	0.01	NC	–	0.62	0.01	1.71	0.02	NC	–	3.51	0.04
SM 0716	Coffee Bean, roasted	PP	0.006	7.02	0.04	9.75	0.06	0.02	0.00	5.09	0.03	13.38	0.08	0.77	0.00
–	Coffee Bean, instant coffee (incl. essences and concentrates)	PP	0.0106	0.75	0.01	0.30	0.00	0.04	0.00	0.67	0.01	2.43	0.03	1.43	0.02
HH 0092	Group of Herbs, raw (incl. dried)	RAC	23	2.61	60.03	2.31	53.13	8.89	204.47	3.92	90.16	1.16	26.68	2.06	47.38
HS 0444	Peppers, chili, dried	PP	3.5	0.11	0.39	0.21	0.74	0.36	1.26	0.21	0.74	0.25	0.88	0.15	0.53
DH 1100	Hops, dry	RAC	8.4	NC	–	NC	–	0.02	0.17	0.02	0.17	NC	–	NC	–
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.01	112.02	1.12	120.71	1.21	63.46	0.63	88.99	0.89	96.24	0.96	41.02	0.41
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.015	28.01	0.42	30.18	0.45	15.86	0.24	22.25	0.33	24.06	0.36	10.25	0.15
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.015	6.44	0.10	15.51	0.23	3.79	0.06	8.29	0.12	18.44	0.28	8.00	0.12
MO 0105	Edible offal (mammalian), raw	RAC	0.02	15.17	0.30	5.19	0.10	6.30	0.13	6.78	0.14	3.32	0.07	3.17	0.06
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.01	388.92	3.89	335.88	3.36	49.15	0.49	331.25	3.31	468.56	4.69	245.45	2.45
PM 0110	Poultry meat, raw (incl. prepared)	RAC	0	73.76	0.00	53.86	0.00	23.98	0.00	87.12	0.00	53.38	0.00	84.45	0.00
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0	0.10	0.00	0.10	0.00	NC	–	0.10	0.00	0.71	0.00	NC	–
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0	0.33	0.00	0.72	0.00	0.27	0.00	0.35	0.00	0.80	0.00	NC	–
	Total intake (µg/person) =				843.3		912.7		628.2		792.2		892.2		506.6
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (µg/person) =				1800		1800		1650		1800		1800		1800
	%ADI =				46.9%		50.7%		38.1%		44.0%		49.6%		28.7%
	Rounded %ADI =				50%		50%		40%		40%		50%		30%

AZOXYSTROBIN (229) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets: g/person/day					Intake = daily intake: µg/person				
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
FC 0001	Group of Citrus fruit, raw (incl. kumquat commodities)	RAC	0.4802	20.93	10.05	2.35	1.13	30.71	14.75	0.15	0.07	4.45	2.14
JF 0001	Group of Citrus fruit, juice	PP	0.015	0.11	0.00	0.29	0.00	13.55	0.20	0.14	0.00	0.33	0.00
FC 0303	Kumquats, raw (incl. juice)	RAC	4.9	18.35	89.92	0.23	1.13	1.78	8.72	0.08	0.39	3.35	16.42
FS 0013	Subgroup of Cherries, raw	RAC	0.74	0.01	0.01	0.01	0.01	5.96	4.41	0.01	0.01	NC	–
FS 0014	Subgroup of Plums, raw	RAC	0.74	0.07	0.05	0.01	0.01	15.56	11.51	0.01	0.01	NC	–
DF 0014	Plums, dried (prunes)	PP	0.14	0.01	0.00	0.01	0.00	0.37	0.05	0.01	0.00	NC	–
FS 2001	Subgroup of peaches, raw (incl. dried apricots)	RAC	0.74	0.02	0.01	0.01	0.01	10.76	7.96	0.01	0.01	NC	–
FB 2005	Subgroup of Caneberries, raw	RAC	1	0.01	0.01	7.30	7.30	2.29	2.29	0.01	0.01	NC	–
FB 2006	Subgroup of Bush berries, raw (including processed)	RAC	1	0.82	0.82	4.05	4.05	5.94	5.94	0.43	0.43	2.66	2.66
FB 2007	Subgroup of Large shrub/tree berries, raw (including processed)	RAC	1	0.71	0.71	7.32	7.32	NC	–	0.38	0.38	2.32	2.32
FB 0269	Grapes, raw (i.e. table grapes)	RAC	0.53	0.14	0.07	0.36	0.19	15.22	8.07	0.01	0.01	0.09	0.05
DF 0269	Grapes, dried (= currants. raisins and sultanas) (from table grapes)	PP	0.24	0.01	0.00	0.13	0.03	1.06	0.25	0.01	0.00	0.03	0.01
JF 0269	Grape juice (from wine grapes)	PP	0.19	0.01	0.00	0.01	0.00	0.41	0.08	0.01	0.00	NC	–
–	Graps must (from wine grapes)	PP	0.28	0.01	0.00	0.01	0.00	0.11	0.03	0.01	0.00	0.19	0.05
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.36	0.31	0.11	0.23	0.08	60.43	21.75	0.52	0.19	31.91	11.49
FB 0265	Cranberry, raw	RAC	0.23	NC	–	NC	–	0.03	0.01	NC	–	NC	–
FB 0275	Strawberry, raw	RAC	1.3	0.01	0.01	0.01	0.01	3.35	4.36	0.01	0.01	0.01	0.01
FT 0289	Carambola, raw	RAC	0.023	0.01	0.00	0.01	0.00	NC	–	0.01	0.00	0.04	0.00
FT 0336	Guava, raw	RAC	0.055	0.10	0.01	0.08	0.00	NC	–	0.14	0.01	3.11	0.17
FI 0326	Avocado, raw	RAC	0.06	1.12	0.07	0.01	0.00	0.84	0.05	0.01	0.00	6.60	0.40
FI 0327	Banana, raw (incl. plantains) (incl. dried)	RAC	0.03	44.80	1.34	118.17	3.55	25.25	0.76	454.49	13.63	310.23	9.31
FI 0345	Mango, raw (incl. canned Mango, incl. mango juice)	RAC	0.035	12.25	0.43	6.83	0.24	0.76	0.03	0.01	0.00	20.12	0.70
FI 0350	Papaya, raw	RAC	0.1	6.47	0.65	0.25	0.03	0.19	0.02	0.01	0.00	26.42	2.64
FI 0353	Pineapple, raw (incl. canned Pineapple, incl. dried Pineapple, excl. pineapple juice)	RAC	0.01	7.68	0.08	6.15	0.06	4.79	0.05	0.15	0.00	24.94	0.25
JF 0341	Pineapple juice (single strength,	PP	0.022	0.49	0.01	0.07	0.00	1.23	0.03	0.02	0.00	NC	–

AZOXYSTROBIN (229) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets: g/person/day					Intake = daily intake: µg/person				
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
	incl. concentrated)												
FI 2540	Pitaya, raw (i.e dragon fruit or pitahaya)	RAC	0.041	0.01	0.00	0.01	0.00	NC	–	0.01	0.00	0.04	0.00
VA 0035	Group of Bulb vegetables, raw	RAC	2.2	11.28	24.82	23.80	52.36	36.11	79.44	9.66	21.25	8.69	19.12
VB 0040	Group of Brassica vegetables (excl. Brassica leafy vegetables), raw	RAC	1.2	5.46	6.55	4.28	5.14	58.72	70.46	0.02	0.02	NC	–
VC 2039	Subgroup of Cucumbers and Squashes, raw	RAC	0.17	0.92	0.16	3.20	0.54	13.55	2.30	1.91	0.32	0.05	0.01
VC 2040	Subgroup of Melons. Pumpkins and Winter squashes	RAC	0.02	5.04	0.10	6.54	0.13	38.26	0.77	11.70	0.23	NC	–
VO 0448	Tomato, raw	RAC	0.35	12.99	4.55	4.79	1.68	58.40	20.44	0.92	0.32	0.09	0.03
–	Tomato, canned (& peeled)	PP	0.05	0.07	0.00	0.08	0.00	2.42	0.12	0.07	0.00	NC	–
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	1.1	0.58	0.64	0.22	0.24	2.21	2.43	0.24	0.26	3.10	3.41
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.16	0.05	0.01	0.01	0.00	0.42	0.07	0.01	0.00	0.02	0.00
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), incl. okra	RAC	0.35	15.20	5.32	14.23	4.98	25.14	8.80	0.91	0.32	NC	–
VO 2046	Subgroup of eggplants	RAC	0.35	1.31	0.46	8.26	2.89	3.95	1.38	0.01	0.00	NC	–
VL 0483	Lettuce, leaf, raw	RAC	0.28	0.29	0.08	0.03	0.01	6.71	1.88	0.01	0.00	NC	–
VL 0401	Broccoli, Chinese, raw (i.e. kailan)	RAC	0.18	0.01	0.00	0.01	0.00	NC	–	0.01	0.00	NC	–
VL 2832	Witloof chicory (sprouts)	RAC	0.05	0.02	0.00	0.01	0.00	0.01	0.00	0.01	0.00	NC	–
VP 0060	Group of Legume vegetables, raw	RAC	1	0.58	0.58	3.16	3.16	10.38	10.38	0.04	0.04	NC	–
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.01	7.11	0.07	2.33	0.02	3.76	0.04	44.70	0.45	3.27	0.03
VD 0523	Broad Bean, dry, raw (incl. horse–Bean, field bean) (Vicia faba)	RAC	0.01	3.70	0.04	0.03	0.00	0.17	0.00	0.01	0.00	NC	–
VD 0527	Cowpea,dry, raw (Vigna sinensis. Dolichos sinensis)	RAC	0.01	12.77	0.13	0.99	0.01	0.01	0.00	4.33	0.04	NC	–
VD 0541	Soya Bean, dry, raw (incl. flour, incl. paste, incl. curd, incl. sauce, excl. oil)	RAC	0.06	2.89	0.17	0.21	0.01	0.48	0.03	3.16	0.19	0.26	0.02
OR 0541	Soya oil, refined	PP	0.05	2.32	0.12	2.54	0.13	18.70	0.94	2.51	0.13	6.29	0.31
–	Beans (dry) NES: including inter alia lablab or hyacinth bean (Dolichos spp.); jack or sword bean (Canavalia spp.); winged bean	RAC	0.01	2.54	0.03	1.77	0.02	0.03	0.00	0.03	0.00	3.99	0.04

AZOXYSTROBIN (229) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets: g/person/day					Intake = daily intake: µg/person				
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
	(Psophocarpus tetragonolobus); guar bean (Cyamopsis tetragonoloba); velvet bean (Stizolobium spp.); yam bean (Pachyrrhizus erosus)												
VD 2066	Subgroup of dry peas, raw	RAC	0.01	4.43	0.04	11.36	0.11	4.22	0.04	9.36	0.09	1.21	0.01
VD 2067	Subgroup of dry underground pulses, raw	RAC	0.01	0.20	0.00	NC	–	NC	–	NC	–	NC	–
VR 0574	Beetroot, raw	RAC	0.23	5.86	1.35	4.23	0.97	9.46	2.18	3.96	0.91	7.91	1.82
VR 0575	Burdock. greater or edible, raw	RAC	0.23	0.06	0.01	0.04	0.01	NC	–	0.04	0.01	0.08	0.02
VR 0577	Carrots, raw	RAC	0.23	2.07	0.48	3.00	0.69	25.29	5.82	0.05	0.01	NC	–
VR 0578	Celeriac, raw	RAC	0.23	2.91	0.67	2.10	0.48	7.59	1.75	1.97	0.45	3.93	0.90
VR 0469	Chicory. roots, raw	RAC	0.23	0.01	0.00	0.03	0.01	0.10	0.02	NC	–	NC	–
VR 0583	Horseradish, raw	RAC	0.23	0.88	0.20	0.63	0.14	0.54	0.12	0.59	0.14	1.19	0.27
VR 0587	Parsley turnip–rooted, raw	RAC	0.23	0.55	0.13	0.40	0.09	4.29	0.99	0.37	0.09	0.74	0.17
VR 0588	Parsnip, raw	RAC	0.23	1.02	0.23	0.74	0.17	3.50	0.81	0.69	0.16	1.37	0.32
VR 0494	Radish roots, raw	RAC	0.23	3.96	0.91	2.86	0.66	3.30	0.76	2.67	0.61	5.34	1.23
VR 0591	Japanese radish, raw (i.e. Chinese radish. Daikon)	RAC	0.23	3.25	0.75	2.35	0.54	NC	–	2.20	0.51	4.39	1.01
VR 0498	Salsify, raw (i.e. Oysterplant)	RAC	0.23	0.36	0.08	0.26	0.06	NC	–	0.24	0.06	0.48	0.11
VR 0596	Sugar beet, raw	RAC	1.35	0.01	0.01	NC	–	NC	–	NC	–	NC	–
–	Sugar beet. sugar	PP	0.023	0.56	0.01	0.24	0.01	NC	–	NC	–	5.13	0.12
VR 0573	Arrowroot, raw	RAC	0.23	13.83	3.18	18.24	4.20	0.01	0.00	0.05	0.01	19.60	4.51
VR 0463	Cassava raw (incl. starch, incl. tapioca, incl. flour) (i.e. Manioc)	RAC	0.23	91.92	21.14	34.12	7.85	NC	–	259.92	59.78	45.48	10.46
VR 0585	Jerusalem artichoke, raw (i.e. Topinambur)	RAC	0.23	14.22	3.27	18.75	4.31	0.01	0.00	0.06	0.01	20.14	4.63
VR 0589	Potato, raw (incl. flour, incl. frozen, incl. starch, incl. tapioca)	RAC	2.3	23.96	55.11	13.56	31.19	213.41	490.84	104.35	240.01	8.56	19.69
VR 0508	Sweet potato, raw (incl. dried)	RAC	0.23	28.83	6.63	61.55	14.16	0.15	0.03	221.94	51.05	NC	–
VR 0504	Tannia, raw (i.e. Tanier. Yautia)	RAC	0.23	NC	–	NC	–	0.01	0.00	NC	–	NC	–
VR 0505	Taro, raw (i.e. Dasheen. Eddoe)	RAC	0.23	6.71	1.54	31.91	7.34	NC	–	10.73	2.47	264.31	60.79
VR 0600	Yams, raw (incl. dried)	RAC	0.23	70.93	16.31	30.62	7.04	0.07	0.02	5.65	1.30	30.85	7.10
VR 3001	Chinese water chestnut, raw	RAC	0.23	NC	–	NC	–	NC	–	NC	–	NC	–
VS 0624	Celery	RAC	0.43	3.66	1.57	2.65	1.14	4.84	2.08	2.47	1.06	4.94	2.12
VS 0621	Asparagus, raw	RAC	0.01	0.01	0.00	0.01	0.00	0.17	0.00	0.01	0.00	NC	–
VS 0620	Artichoke globe, raw	RAC	1.8	0.01	0.02	NC	–	0.08	0.14	0.01	0.02	NC	–

AZOXYSTROBIN (229) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets: g/person/day					Intake = daily intake: µg/person				
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
GC 0650	Rye, raw (incl. flour)	RAC	0.01	0.03	0.00	0.01	0.00	13.95	0.14	0.01	0.00	0.88	0.01
GC 0653	Triticale, raw (incl. flour)	RAC	0.01	0.01	0.00	NC	–	NC	–	NC	–	NC	–
GC 0654	Wheat, raw (incl. meslin)	RAC	0.01	NC	–	NC	–	NC	–	NC	–	0.97	0.01
CP 1212	Wheat, wholemeal bread	PP	0.001	0.01	0.00	0.01	0.00	0.03	0.00	0.01	0.00	0.01	0.00
CP 1211	Wheat, white bread	PP	0.001	0.43	0.00	0.41	0.00	1.56	0.00	0.11	0.00	0.07	0.00
CF 1211	Wheat, white flour (incl. white flour products: starch, gluten, macaroni, pastry)	PP	0.003	44.78	0.13	86.96	0.26	214.05	0.64	20.31	0.06	103.60	0.31
GC 0640	Barley, raw (incl. malt extract, incl. pot&pearled, incl. flour & grits, excl. beer, excl. malt)	RAC	0.05	8.49	0.42	0.02	0.00	3.01	0.15	0.01	0.00	0.11	0.01
–	Barley beer	PP	0.0015	16.25	0.02	11.36	0.02	225.21	0.34	19.49	0.03	52.17	0.08
–	Barley Malt	PP	0.005	0.01	0.00	0.11	0.00	0.67	0.00	0.01	0.00	4.61	0.02
GC 0647	Oats, raw (incl. rolled)	RAC	0.05	0.37	0.02	0.07	0.00	2.79	0.14	0.10	0.01	NC	–
CM 0649 (GC 0649)	Rice, husked, dry (incl. flour, incl. oil, incl. beverages, incl. starch, excl. polished)	REP	0.68	13.58	9.23	4.29	2.92	2.17	1.48	0.01	0.01	8.84	6.01
CM 1205	Rice polished, dry	PP	0.06	30.20	1.81	218.34	13.10	12.77	0.77	15.24	0.91	51.35	3.08
GC 0651	Sorghum, raw (incl. flour, incl. beer) (i.e. Chicken corn, Dari seed, Durra, Feterita)	RAC	1.85	89.16	164.95	2.02	3.74	NC	–	35.38	65.45	NC	–
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. beer, incl. germ, excl. flour, excl. oil, excl. starch)	RAC	0.01	0.55	0.01	0.51	0.01	3.26	0.03	7.96	0.08	NC	–
CF 1255	Maize, flour (white flour and wholemeal flour)	PP	0.01	94.34	0.94	8.09	0.08	28.03	0.28	55.94	0.56	28.07	0.28
–	Maize starch	PP	0.001	0.02	0.00	0.01	0.00	NC	–	NC	–	NC	–
OR 0645	Maize oil	PP	0.06	0.33	0.02	0.07	0.00	0.81	0.05	0.01	0.00	NC	–
GS 0659	Sugar cane, raw	RAC	0.02	5.62	0.11	50.91	1.02	NC	–	11.04	0.22	0.10	0.00
–	Sugar cane, molasses	PP	0.005	NC	–	NC	–	NC	–	NC	–	NC	–
–	Sugar cane, sugar (incl. non-centrifugal sugar, incl. refined sugar and maltose)	PP	0.0066	28.13	0.19	55.38	0.37	78.09	0.52	18.04	0.12	45.60	0.30
TN 0660	Almonds, nutmeat	RAC	0.01	0.01	0.00	0.01	0.00	0.61	0.01	0.01	0.00	NC	–
TN 0662	Brazil nuts, nutmeat	RAC	0.01	0.01	0.00	0.01	0.00	0.02	0.00	0.01	0.00	NC	–
TN 0295	Cashew nuts, nutmeat	RAC	0.01	0.91	0.01	0.14	0.00	0.11	0.00	0.01	0.00	NC	–

AZOXYSTROBIN (229) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets: g/person/day					Intake = daily intake: µg/person				
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
TN 0664	Chestnut, raw	RAC	0.01	0.01	0.00	0.01	0.00	0.75	0.01	0.01	0.00	NC	–
TN 0665	Coconut, nutmeat (incl. copra, incl. desiccated, incl. oil)	RAC	0.01	2.77	0.03	134.37	1.34	2.81	0.03	0.70	0.01	317.67	3.18
TN 0666	Hazelnuts, nutmeat	RAC	0.01	0.01	0.00	0.01	0.00	0.21	0.00	0.01	0.00	NC	–
TN 0669	Macadamia nuts, nutmeat (i.e. Queensland nuts)	RAC	0.01	0.04	0.00	0.05	0.00	NC	–	0.01	0.00	0.01	0.00
TN 0672	Pecan, nutmeat	RAC	0.01	0.15	0.00	0.22	0.00	0.31	0.00	0.01	0.00	0.01	0.00
TN 0673	Pine nut, nutmeat (i.e. pignolia nuts)	RAC	0.01	0.51	0.01	0.74	0.01	0.36	0.00	0.01	0.00	0.05	0.00
TN 0675	Pistachio nut, nutmeat	RAC	0.44	0.01	0.00	0.01	0.00	0.15	0.07	0.01	0.00	NC	–
TN 0678	Walnut, nutmeat	RAC	0.01	0.01	0.00	0.01	0.00	0.81	0.01	0.01	0.00	NC	–
SO 0495	Rape seed, raw (incl. oil)	RAC	0.02	0.19	0.00	0.07	0.00	12.07	0.24	0.08	0.00	NC	–
SO 0702	Sunflower seed, raw	RAC	0.04	0.02	0.00	0.01	0.00	0.03	0.00	2.23	0.09	NC	–
OR 0702	Sunflower seed oil, edible	PP	0.01	0.37	0.00	0.09	0.00	12.98	0.13	4.01	0.04	0.20	0.00
SO 0691	Cotton seed, raw (incl. oil)	RAC	0.01	8.14	0.08	0.32	0.00	2.84	0.03	2.69	0.03	0.97	0.01
SO 0697	Peanuts, nutmeat, raw (incl. roasted, incl. butter, excl. oil)	RAC	0.01	7.14	0.07	0.45	0.00	1.87	0.02	6.22	0.06	0.53	0.01
OR 0697	Peanut oil, edible	PP	0.03	5.02	0.15	0.05	0.00	0.17	0.01	0.29	0.01	NC	–
SB 0716	Coffee Bean, raw (i.e. green coffee)	RAC	0.01	0.83	0.01	0.69	0.01	1.09	0.01	2.91	0.03	0.82	0.01
SM 0716	Coffee Bean, roasted	PP	0.006	0.02	0.00	0.41	0.00	7.50	0.05	0.01	0.00	0.06	0.00
–	Coffee Bean, instant coffee (incl. essences and concentrates)	PP	0.0106	0.03	0.00	0.05	0.00	0.60	0.01	0.01	0.00	5.53	0.06
HH 0092	Group of Herbs, raw (incl. dried)	RAC	23	1.85	42.55	1.67	38.41	2.80	64.40	1.24	28.52	2.75	63.25
HS 0444	Peppers, chili, dried	PP	3.5	0.58	2.03	1.27	4.45	1.21	4.24	0.12	0.42	NC	–
DH 1100	Hops, dry	RAC	8.4	NC	–	NC	–	0.04	0.34	NC	–	NC	–
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.01	23.34	0.23	40.71	0.41	97.15	0.97	18.06	0.18	57.71	0.58
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.015	5.84	0.09	10.18	0.15	24.29	0.36	4.52	0.07	14.43	0.22
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.015	1.05	0.02	1.14	0.02	18.69	0.28	0.94	0.01	3.12	0.05
MO 0105	Edible offal (mammalian), raw	RAC	0.02	4.64	0.09	1.97	0.04	10.01	0.20	3.27	0.07	3.98	0.08
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.01	108.75	1.09	70.31	0.70	436.11	4.36	61.55	0.62	79.09	0.79

AZOXYSTROBIN (229) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets: g/person/day					Intake = daily intake: µg/person				
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
PM 0110	Poultry meat, raw (incl. prepared)	RAC	0	3.92	0.00	12.03	0.00	57.07	0.00	5.03	0.00	55.56	0.00
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0	NC	–	NC	–	0.32	0.00	NC	–	NC	–
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0	0.10	0.00	0.70	0.00	0.97	0.00	0.10	0.00	NC	–
	Total intake (µg/person) =				486.2		244.7		876.7		495.1		265.2
	Bodyweight per region (kg bw) =				60.00		60		60		60		60
	ADI (µg/person) =				1800		1800		1800		1800		1800
	%ADI =				27.0%		13.6%		48.7%		27.5%		14.7%
	Rounded %ADI =				30%		10%		50%		30%		10%

BIFENTHRIN (178) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
FC 0002	Subgroup of Lemons and limes, raw (incl. lemon juice) (incl. kumquat commodities)	RAC	0.05	4.82	0.24	2.45	0.12	3.93	0.20	25.44	1.27	8.74	0.44	16.23	0.81
FC 0003	Subgroup of Mandarins, raw (incl. mandarin juice)	RAC	0.05	6.18	0.31	3.66	0.18	0.25	0.01	6.82	0.34	3.49	0.17	19.38	0.97
FC 0004	Subgroup of Oranges, sweet, sour, raw (incl. orange juice)	RAC	0.04	23.26	0.93	9.71	0.39	12.09	0.48	62.02	2.48	22.09	0.88	59.91	2.40
FC 0005	Subgroup of Pummelo and grapefruits, raw (incl. grapefruit juice)	RAC	0.05	0.66	0.03	0.69	0.03	0.96	0.05	10.20	0.51	1.25	0.06	2.97	0.15
FP 0009	Group of Pome fruits, raw (incl. apple cider, excl. apple juice)	RAC	0.195	19.35	3.77	34.06	6.64	17.87	3.48	25.74	5.02	7.69	1.50	56.85	11.09
JF 0226	Apple juice. single strength (incl. concentrated)	PP	0.0096	0.32	0.00	3.07	0.03	0.07	0.00	5.00	0.05	0.29	0.00	5.57	0.05
FS 2001	Subgroup of peaches, raw (incl. dried apricots)	RAC	0.22	8.01	1.76	5.87	1.29	0.18	0.04	8.19	1.80	1.64	0.36	22.46	4.94
FB 0264	Blackberries, raw	RAC	0.29	0.35	0.10	0.11	0.03	0.01	0.00	0.02	0.01	0.01	0.00	1.23	0.36
FB 0266	Dewberries, incl. boysen– & loganberry, raw	RAC	0.29	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00
FB 0272	Raspberries, red, black, raw	RAC	0.29	0.07	0.02	0.93	0.27	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00

BIFENTHRIN (178) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
FB 0020	Blueberries, raw	RAC	0.67	0.01	0.01	0.03	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
FB 0269	Grapes, raw (incl. must, incl. dried, incl. juice, incl. wine)	RAC	0.06	16.25	0.98	28.96	1.74	2.87	0.17	24.22	1.45	9.33	0.56	68.64	4.12
FB 0265	Cranberry, raw	RAC	0.56	0.02	0.01	0.01	0.01	NC	–	0.03	0.02	0.01	0.01	0.01	0.01
FB 0275	Strawberry, raw	RAC	0.46	0.70	0.32	2.01	0.92	0.04	0.02	1.36	0.63	0.37	0.17	2.53	1.16
FI 0326	Avocado, raw	RAC	0.089	0.13	0.01	0.03	0.00	2.05	0.18	2.54	0.23	2.34	0.21	0.12	0.01
FI 0327	Banana, raw (incl. plantains) (incl. dried)	RAC	0.01	5.23	0.05	6.94	0.07	99.45	0.99	32.47	0.32	48.30	0.48	24.70	0.25
FI 0345	Mango, raw	RAC	0.01	10.38	0.10	0.01	0.00	7.24	0.07	6.85	0.07	19.53	0.20	4.52	0.05
FI 0350	Papaya, raw	RAC	0.01	0.35	0.00	0.01	0.00	3.05	0.03	0.80	0.01	7.28	0.07	1.00	0.01
FI 0355	Pomegranate, raw, (incl. processed)	RAC	0.165	3.40	0.56	2.10	0.35	2.65	0.44	10.89	1.80	NC	–	6.67	1.10
VB 0040	Group of Brassica vegetables (excl. Brassica leafy vegetables), raw	RAC	0.115	6.43	0.74	40.26	4.63	0.80	0.09	9.94	1.14	12.07	1.39	17.73	2.04
VO 0448	Tomato, raw (incl. juice, incl. canned, excl. paste)	RAC	0.06	42.41	2.54	76.50	4.59	10.69	0.64	85.07	5.10	24.98	1.50	203.44	12.21
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.04	2.34	0.09	1.33	0.05	1.57	0.06	4.24	0.17	0.34	0.01	2.83	0.11
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), excl. okra	RAC	0.12	8.48	1.02	13.74	1.65	10.13	1.22	11.29	1.35	9.52	1.14	26.36	3.16
VO 0442	Okra, raw (i.e. Lady's Finger. Gombo)	RAC	0.07	1.97	0.14	NC	–	3.68	0.26	3.24	0.23	5.72	0.40	1.57	0.11
VO 2046	Subgroup of eggplants	RAC	0.12	5.58	0.67	4.31	0.52	0.89	0.11	9.31	1.12	13.64	1.64	20.12	2.41
VL 0485	Mustard greens, raw (i.e. Indian mustard, Amsoi, mustard cabbage)	RAC	1.16	0.03	0.03	0.31	0.36	0.01	0.01	0.05	0.06	0.47	0.55	0.11	0.13
VL 0494	Radish leaves, raw	RAC	1.75	0.26	0.46	0.45	0.79	0.28	0.49	0.68	1.19	NC	–	0.33	0.58
VD 0070	Group of Pulses, raw (incl. processed)	RAC	0.05	87.29	4.36	64.04	3.20	37.15	1.86	89.82	4.49	91.02	4.55	98.20	4.91
OR 0541	Soya oil, refined	PP	0.05	12.99	0.65	10.43	0.52	3.63	0.18	13.10	0.66	10.70	0.54	13.10	0.66
VR 0075	Group of Root and tuber vegetables, raw (incl. processed)	RAC	0.05	87.83	4.39	374.04	18.70	668.92	33.45	121.64	6.08	94.20	4.71	247.11	12.36
VS 0624	Celery	RAC	0.7	2.14	1.50	3.79	2.65	2.35	1.65	5.69	3.98	0.02	0.01	2.75	1.93
GC 0654	Wheat, raw (incl. bulgur, incl. fermented beverages, incl. germ, incl. wholemeal bread, incl. white	RAC	0.25	381.15	95.29	341.55	85.39	38.35	9.59	281.89	70.47	172.83	43.21	434.07	108.52

BIFENTHRIN (178) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
	flour products, incl. white bread)														
GC 0654	Wheat, raw (incl. meslin)	RAC	0.25	0.01	0.00	1.12	0.28	NC	–	0.01	0.00	0.56	0.14	NC	–
–	Wheat, bulgur	PP	0.25	NC	–	NC	–	NC	–	0.03	0.01	NC	–	NC	–
CF 1210	Wheat, germ	PP	0.45	NC	–	NC	–	0.01	0.00	0.01	0.00	0.14	0.06	0.01	0.00
CP 1212	Wheat, wholemeal bread	PP	0.19	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.03	0.01	0.01	0.00
CP 1211	Wheat, white bread	PP	0.061	0.25	0.02	0.63	0.04	0.12	0.01	0.43	0.03	1.39	0.08	0.22	0.01
–	Wheat, Fermented Beverages (Korean jakju and takju)	PP	0.25	NC	–	NC	–	NC	–	NC	–	NC	–	NC	–
CF 1211	Wheat, white flour (incl. white flour products: starch, gluten, macaroni, pastry)	PP	0.078	301.24	23.50	268.64	20.95	30.21	2.36	222.51	17.36	134.73	10.51	343.12	26.76
TN 0085	Group of Tree nuts, raw (incl. processed)	RAC	0.05	4.06	0.20	3.27	0.16	7.01	0.35	13.93	0.70	14.01	0.70	9.36	0.47
SO 0495	Rape seed, raw	RAC	0.05	0.02	0.00	NC	–	NC	–	0.01	0.00	0.75	0.04	0.01	0.00
OR 0495	Rape seed oil, edible	PP	0.08	0.35	0.03	0.44	0.04	0.19	0.02	0.97	0.08	3.28	0.26	0.77	0.06
OR 0691	Cotton seed oil, edible	PP	0.005	3.22	0.02	1.54	0.01	1.01	0.01	0.74	0.00	1.12	0.01	2.93	0.01
SO 0697	Peanuts, nutmeat, raw (incl. roasted, incl. oil, incl. butter)	RAC	0.05	1.30	0.07	1.23	0.06	12.62	0.63	2.87	0.14	6.59	0.33	2.67	0.13
OR 0697	Peanut oil, edible	PP	0.05	0.36	0.02	0.01	0.00	2.57	0.13	0.07	0.00	2.29	0.11	0.36	0.02
HS 0444	Peppers, chili, dried	PP	0.84	0.42	0.35	0.53	0.45	0.84	0.71	0.50	0.42	0.95	0.80	0.37	0.31
DH 1100	Hops, dry	RAC	1.9	0.01	0.02	0.04	0.08	0.01	0.02	0.01	0.02	NC	–	0.01	0.02
DT 1114	Tea, green or black, fermented and dried, (including concentrates)	RAC	5.2	2.28	11.86	1.98	10.30	0.46	2.39	2.43	12.64	1.29	6.71	3.04	15.81
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.07	24.96	1.75	57.95	4.06	16.70	1.17	38.38	2.69	26.46	1.85	29.00	2.03
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.59	6.24	3.68	14.49	8.55	4.18	2.46	9.60	5.66	6.62	3.90	7.25	4.28
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.59	3.29	1.94	6.14	3.62	0.82	0.48	1.57	0.93	2.23	1.32	1.07	0.63
MO 0105	Edible offal (mammalian), raw	RAC	0.07	4.79	0.34	9.68	0.68	2.97	0.21	5.49	0.38	3.84	0.27	5.03	0.35
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.053	289.65	15.35	485.88	25.75	26.92	1.43	239.03	12.67	199.91	10.60	180.53	9.57
	Total intake (µg/person) =				180.2		210.2		68.2		165.8		102.5		237.1

BIFENTHRIN (178) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (µg/person) =				600		600		600		600		600		600
	%ADI =				30.0%		35.0%		11.4%		27.6%		17.1%		39.5%
	Rounded %ADI =				30%		40%		10%		30%		20%		40%

BIFENTHRIN (178) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
FC 0002	Subgroup of Lemons and limes, raw (incl. lemon juice) (incl. kumquat commodities)	RAC	0.05	10.12	0.51	15.69	0.78	2.88	0.14	12.30	0.62	22.32	1.12	6.59	0.33
FC 0003	Subgroup of Mandarins, raw (incl. mandarin juice)	RAC	0.05	12.42	0.62	14.99	0.75	16.08	0.80	10.78	0.54	9.94	0.50	NC	–
FC 0004	Subgroup of Oranges, sweet, sour, raw (incl. orange juice)	RAC	0.04	83.66	3.35	27.64	1.11	7.37	0.29	67.80	2.71	43.97	1.76	187.74	7.51
FC 0005	Subgroup of Pummelo and grapefruits, raw (incl. grapefruit juice)	RAC	0.05	8.21	0.41	4.60	0.23	0.64	0.03	5.85	0.29	19.98	1.00	368.86	18.44
FP 0009	Group of Pome fruits, raw (incl. apple cider, excl. apple juice)	RAC	0.195	51.09	9.96	65.40	12.75	42.71	8.33	45.29	8.83	62.51	12.19	7.74	1.51
JF 0226	Apple juice. single strength (incl. concentrated)	PP	0.0096	14.88	0.14	11.98	0.12	0.15	0.00	9.98	0.10	30.32	0.29	3.47	0.03
FS 2001	Subgroup of peaches, raw (incl. dried apricots)	RAC	0.22	13.03	2.87	16.29	3.58	8.29	1.82	12.95	2.85	5.35	1.18	0.04	0.01
FB 0264	Blackberries, raw	RAC	0.29	0.09	0.03	0.52	0.15	0.14	0.04	0.24	0.07	NC	–	0.01	0.00
FB 0266	Dewberries, incl. boysen– & loganberry, raw	RAC	0.29	0.01	0.00	NC	–	0.01	0.00	0.01	0.00	NC	–	0.01	0.00
FB 0272	Raspberries, red, black, raw	RAC	0.29	0.47	0.14	0.91	0.26	0.01	0.00	0.99	0.29	1.14	0.33	NC	–
FB 0020	Blueberries, raw	RAC	0.67	0.04	0.03	0.23	0.15	0.01	0.01	0.83	0.56	0.33	0.22	NC	–
FB 0269	Grapes, raw (incl. must, incl. dried, incl. juice, incl. wine)	RAC	0.06	142.23	8.53	105.77	6.35	7.87	0.47	52.44	3.15	109.22	6.55	10.96	0.66
FB 0265	Cranberry, raw	RAC	0.56	0.06	0.03	0.01	0.01	0.01	0.01	1.22	0.68	0.11	0.06	NC	–
FB 0275	Strawberry, raw	RAC	0.46	4.49	2.07	5.66	2.60	0.02	0.01	6.63	3.05	5.75	2.65	0.05	0.02

BIFENTHRIN (178) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
FI 0326	Avocado, raw	RAC	0.089	2.65	0.24	0.87	0.08	0.46	0.04	1.64	0.15	1.30	0.12	0.96	0.09
FI 0327	Banana, raw (incl. plantains) (incl. dried)	RAC	0.01	25.76	0.26	23.65	0.24	23.83	0.24	24.37	0.24	19.43	0.19	101.55	1.02
FI 0345	Mango, raw	RAC	0.01	1.80	0.02	0.63	0.01	9.73	0.10	1.07	0.01	3.52	0.04	16.44	0.16
FI 0350	Papaya, raw	RAC	0.01	0.31	0.00	0.18	0.00	1.50	0.02	0.51	0.01	0.54	0.01	1.08	0.01
FI 0355	Pomegranate, raw, (incl. processed)	RAC	0.165	7.91	1.31	9.72	1.60	7.67	1.27	5.26	0.87	9.04	1.49	14.43	2.38
VB 0040	Group of Brassica vegetables (excl. Brassica leafy vegetables), raw	RAC	0.115	20.71	2.38	39.81	4.58	25.06	2.88	37.93	4.36	18.12	2.08	16.74	1.93
VO 0448	Tomato, raw (incl. juice, incl. canned, excl. paste)	RAC	0.06	44.88	2.69	55.49	3.33	35.44	2.13	75.65	4.54	27.00	1.62	9.61	0.58
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.04	4.96	0.20	3.20	0.13	0.15	0.01	1.61	0.06	6.88	0.28	0.52	0.02
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), excl. okra	RAC	0.12	6.39	0.77	15.53	1.86	19.09	2.29	10.36	1.24	8.29	0.99	4.53	0.54
VO 0442	Okra, raw (i.e. Lady's Finger. Gombo)	RAC	0.07	NC	–	NC	–	0.04	0.00	0.17	0.01	NC	–	0.72	0.05
VO 2046	Subgroup of eggplants	RAC	0.12	1.01	0.12	1.69	0.20	21.37	2.56	3.00	0.36	1.40	0.17	NC	–
VL 0485	Mustard greens, raw (i.e. Indian mustard, Amsoi, mustard cabbage)	RAC	1.16	NC	–	NC	–	NC	–	NC	–	NC	–	0.13	0.15
VL 0494	Radish leaves, raw	RAC	1.75	NC	–	NC	–	NC	–	3.78	6.62	NC	–	0.48	0.84
VD 0070	Group of Pulses, raw (incl. processed)	RAC	0.05	112.88	5.64	123.05	6.15	47.73	2.39	204.75	10.24	227.52	11.38	110.05	5.50
OR 0541	Soya oil, refined	PP	0.05	19.06	0.95	21.06	1.05	5.94	0.30	33.78	1.69	40.05	2.00	13.39	0.67
VR 0075	Group of Root and tuber vegetables, raw (incl. processed)	RAC	0.05	290.31	14.52	300.35	15.02	214.25	10.71	242.72	12.14	348.67	17.43	137.52	6.88
VS 0624	Celery	RAC	0.7	7.68	5.38	2.85	2.00	NC	–	3.34	2.34	16.83	11.78	4.04	2.83
GC 0654	Wheat, raw (incl. bulgur, incl. fermented beverages, incl. germ, incl. wholemeal bread, incl. white flour products, incl. white bread)	RAC	0.25	253.07	63.27	244.73	61.18	134.44	33.61	235.10	58.78	216.39	54.10	167.40	41.85
GC 0654	Wheat, raw (incl. meslin)	RAC	0.25	NC	–	NC	–	NC	–	0.01	0.00	NC	–	NC	–
–	Wheat, bulgur	PP	0.25	NC	–	NC	–	0.01	0.00	NC	–	NC	–	NC	–
CF 1210	Wheat, germ	PP	0.45	0.97	0.44	0.10	0.05	0.03	0.01	0.01	0.00	NC	–	0.04	0.02
CP 1212	Wheat, wholemeal bread	PP	0.19	0.03	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.05	0.01	0.02	0.00

BIFENTHRIN (178) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
CP 1211	Wheat, white bread	PP	0.061	1.30	0.08	0.46	0.03	0.06	0.00	0.22	0.01	2.44	0.15	0.77	0.05
–	Wheat, Fermented Beverages (Korean jakju and takju)	PP	0.25	NC	–	NC	–	NC	–	4.36	1.09	NC	–	NC	–
CF 1211	Wheat, white flour (incl. white flour products: starch, gluten, macaroni, pastry)	PP	0.078	198.08	15.45	193.03	15.06	106.24	8.29	185.09	14.44	168.67	13.16	131.59	10.26
TN 0085	Group of Tree nuts, raw (incl. processed)	RAC	0.05	8.52	0.43	8.94	0.45	15.09	0.75	9.60	0.48	14.57	0.73	26.26	1.31
SO 0495	Rape seed, raw	RAC	0.05	NC	–	NC	–	0.01	0.00	NC	–	NC	–	NC	–
OR 0495	Rape seed oil, edible	PP	0.08	12.52	1.00	7.63	0.61	3.00	0.24	6.01	0.48	NC	–	NC	–
OR 0691	Cotton seed oil, edible	PP	0.005	1.68	0.01	0.66	0.00	1.13	0.01	1.18	0.01	0.89	0.00	0.37	0.00
SO 0697	Peanuts, nutmeat, raw (incl. roasted, incl. oil, incl. butter)	RAC	0.05	5.63	0.28	2.75	0.14	9.58	0.48	5.82	0.29	13.71	0.69	1.84	0.09
OR 0697	Peanut oil, edible	PP	0.05	1.02	0.05	0.23	0.01	1.81	0.09	0.42	0.02	5.23	0.26	0.01	0.00
HS 0444	Peppers, chili dried	PP	0.84	0.11	0.09	0.21	0.18	0.36	0.30	0.21	0.18	0.25	0.21	0.15	0.13
DH 1100	Hops, dry	RAC	1.9	NC	–	NC	–	0.02	0.04	0.02	0.04	NC	–	NC	–
DT 1114	Tea, green or black, fermented and dried, (including concentrates)	RAC	5.2	2.91	15.13	1.73	9.00	1.14	5.93	1.85	9.62	2.29	11.91	0.74	3.85
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.07	112.02	7.84	120.71	8.45	63.46	4.44	88.99	6.23	96.24	6.74	41.02	2.87
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.59	28.01	16.52	30.18	17.81	15.86	9.36	22.25	13.13	24.06	14.20	10.25	6.05
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.59	6.44	3.80	15.51	9.15	3.79	2.24	8.29	4.89	18.44	10.88	8.00	4.72
MO 0105	Edible offal (mammalian), raw	RAC	0.07	15.17	1.06	5.19	0.36	6.30	0.44	6.78	0.47	3.32	0.23	3.17	0.22
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.053	388.92	20.61	335.88	17.80	49.15	2.60	331.25	17.56	468.56	24.83	245.45	13.01
	Total intake (µg/person) =				209.2		205.4		105.7		196.3		215.5		136.6
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (µg/person) =				600		600		550		600		600		600

BIFENTHRIN (178) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
	%ADI =				34.9%		34.2%		19.2%		32.7%		35.9%		22.8%
	Rounded %ADI =				30%		30%		20%		30%		40%		20%

BIFENTHRIN (178) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
FC 0002	Subgroup of Lemons and limes, raw (incl. lemon juice) (incl. kumquat commodities)	RAC	0.05	18.97	0.95	0.97	0.05	6.23	0.31	0.09	0.00	3.35	0.17
FC 0003	Subgroup of Mandarins, raw (incl. mandarin juice)	RAC	0.05	0.16	0.01	0.27	0.01	9.06	0.45	0.01	0.00	0.02	0.00
FC 0004	Subgroup of Oranges, sweet, sour, raw (incl. orange juice)	RAC	0.04	1.34	0.05	1.65	0.07	40.03	1.60	0.33	0.01	1.76	0.07
FC 0005	Subgroup of Pummelo and grapefruits, raw (incl. grapefruit juice)	RAC	0.05	0.68	0.03	0.05	0.00	3.21	0.16	0.01	0.00	NC	–
FP 0009	Group of Pome fruits, raw (incl. apple cider, excl. apple juice)	RAC	0.195	68.85	13.43	10.93	2.13	70.82	13.81	189.78	37.01	19.56	3.81
JF 0226	Apple juice. single strength (incl. concentrated)	PP	0.0096	0.03	0.00	0.10	0.00	7.19	0.07	0.03	0.00	NC	–
FS 2001	Subgroup of peaches, raw (incl. dried apricots)	RAC	0.22	0.02	0.00	0.01	0.00	10.76	2.37	0.01	0.00	NC	–
FB 0264	Blackberries, raw	RAC	0.29	0.01	0.00	7.29	2.11	0.25	0.07	0.01	0.00	NC	–
FB 0266	Dewberries, incl. boysen– & loganberry, raw	RAC	0.29	0.01	0.00	0.01	0.00	NC	–	0.01	0.00	NC	–
FB 0272	Raspberries, red, black, raw	RAC	0.29	0.01	0.00	0.01	0.00	2.04	0.59	0.01	0.00	NC	–
FB 0020	Blueberries, raw	RAC	0.67	NC	–	NC	–	0.20	0.13	NC	–	NC	–
FB 0269	Grapes raw (incl. must, incl. dried, incl. juice, incl. wine)	RAC	0.06	0.60	0.04	1.26	0.08	103.25	6.20	0.74	0.04	44.23	2.65
FB 0265	Cranberry, raw	RAC	0.56	NC	–	NC	–	0.03	0.02	NC	–	NC	–
FB 0275	Strawberry, raw	RAC	0.46	0.01	0.00	0.01	0.00	3.35	1.54	0.01	0.00	0.01	0.00
FI 0326	Avocado, raw	RAC	0.089	1.12	0.10	0.01	0.00	0.84	0.07	0.01	0.00	6.60	0.59
FI 0327	Banana, raw (incl. plantains) (incl. dried)	RAC	0.01	44.80	0.45	118.17	1.18	25.25	0.25	454.49	4.54	310.23	3.10
FI 0345	Mango, raw	RAC	0.01	12.25	0.12	6.74	0.07	0.76	0.01	0.01	0.00	20.12	0.20
FI 0350	Papaya, raw	RAC	0.01	6.47	0.06	0.25	0.00	0.19	0.00	0.01	0.00	26.42	0.26
FI 0355	Pomegranate, raw, (incl. processed)	RAC	0.165	5.49	0.91	27.17	4.48	NC	–	2.89	0.48	17.87	2.95
VB 0040	Group of Brassica vegetables (excl. Brassica leafy vegetables), raw	RAC	0.115	5.46	0.63	4.28	0.49	58.72	6.75	0.02	0.00	NC	–
VO 0448	Tomato, raw (incl. juice, incl. canned, excl. paste)	RAC	0.06	13.17	0.79	4.92	0.30	62.69	3.76	1.04	0.06	0.11	0.01

BIFENTHRIN (178) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.04	0.58	0.02	0.22	0.01	2.21	0.09	0.24	0.01	3.10	0.12
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), excl. okra	RAC	0.12	8.97	1.08	14.13	1.70	25.14	3.02	0.91	0.11	NC	–
VO 0442	Okra, raw (i.e. Lady's Finger. Gombo)	RAC	0.07	6.23	0.44	0.10	0.01	NC	–	NC	–	NC	–
VO 2046	Subgroup of eggplants	RAC	0.12	1.31	0.16	8.26	0.99	3.95	0.47	0.01	0.00	NC	–
VL 0485	Mustard greens, raw (i.e. Indian mustard, Amsoi, mustard cabbage)	RAC	1.16	0.04	0.05	0.03	0.03	NC	–	0.01	0.01	NC	–
VL 0494	Radish leaves, raw	RAC	1.75	0.44	0.77	0.32	0.56	NC	–	0.30	0.53	0.59	1.03
VD 0070	Group of Pulses, raw (incl. processed)	RAC	0.05	46.57	2.33	30.77	1.54	112.53	5.63	75.53	3.78	43.68	2.18
OR 0541	Soya oil, refined	PP	0.05	2.32	0.12	2.54	0.13	18.70	0.94	2.51	0.13	6.29	0.31
VR 0075	Group of Root and tuber vegetables, raw (incl. processed)	RAC	0.05	282.25	14.11	232.11	11.61	281.91	14.10	620.21	31.01	459.96	23.00
VS 0624	Celery	RAC	0.7	3.66	2.56	2.65	1.86	4.84	3.39	2.47	1.73	4.94	3.46
GC 0654	Wheat, raw (incl. bulgur, incl. fermented beverages, incl. germ, incl. wholemeal bread, incl. white flour products, incl. white bread)	RAC	0.25	57.20	14.30	110.47	27.62	272.62	68.16	25.82	6.46	132.04	33.01
GC 0654	Wheat, raw (incl. meslin)	RAC	0.25	NC	–	NC	–	NC	–	NC	–	0.97	0.24
–	Wheat, bulgur	PP	0.25	0.01	0.00	NC	–	NC	–	NC	–	NC	–
CF 1210	Wheat, germ	PP	0.45	0.04	0.02	0.01	0.00	0.01	0.00	0.01	0.00	NC	–
CP 1212	Wheat, wholemeal bread	PP	0.19	0.01	0.00	0.01	0.00	0.03	0.01	0.01	0.00	0.01	0.00
CP 1211	Wheat, white bread	PP	0.061	0.43	0.03	0.41	0.03	1.56	0.10	0.11	0.01	0.07	0.00
–	Wheat, Fermented Beverages (Korean jakju and takju)	PP	0.25	NC	–	NC	–	NC	–	NC	–	NC	–
CF 1211	Wheat, white flour (incl. white flour products: starch, gluten, macaroni, pastry)	PP	0.078	44.78	3.49	86.96	6.78	214.05	16.70	20.31	1.58	103.60	8.08
TN 0085	Group of Tree nuts, raw (incl. processed)	RAC	0.05	4.39	0.22	135.53	6.78	6.11	0.31	0.72	0.04	317.74	15.89
SO 0495	Rape seed, raw	RAC	0.05	NC	–	0.01	0.00	NC	–	NC	–	NC	–
OR 0495	Rape seed oil, edible	PP	0.08	0.07	0.01	0.03	0.00	4.62	0.37	0.03	0.00	NC	–
OR 0691	Cotton seed oil, edible	PP	0.005	1.28	0.01	0.05	0.00	0.45	0.00	0.42	0.00	0.15	0.00
SO 0697	Peanuts, nutmeat, raw (incl. roasted, incl. oil, incl. butter)	RAC	0.05	18.82	0.94	0.57	0.03	2.28	0.11	6.90	0.35	0.53	0.03
OR 0697	Peanut oil, edible	PP	0.05	5.02	0.25	0.05	0.00	0.17	0.01	0.29	0.01	NC	–
HS 0444	Peppers, chili, dried	PP	0.84	0.58	0.49	1.27	1.07	1.21	1.02	0.12	0.10	NC	–
DH 1100	Hops, dry	RAC	1.9	NC	–	NC	–	0.04	0.08	NC	–	NC	–
DT 1114	Tea, green or black, fermented and dried, (including concentrates)	RAC	5.2	0.53	2.76	5.25	27.30	0.86	4.47	0.56	2.91	0.88	4.58

BIFENTHRIN (178) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.07	23.34	1.63	40.71	2.85	97.15	6.80	18.06	1.26	57.71	4.04
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.59	5.84	3.44	10.18	6.01	24.29	14.33	4.52	2.66	14.43	8.51
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.59	1.05	0.62	1.14	0.67	18.69	11.03	0.94	0.55	3.12	1.84
MO 0105	Edible offal (mammalian), raw	RAC	0.07	4.64	0.32	1.97	0.14	10.01	0.70	3.27	0.23	3.98	0.28
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.053	108.75	5.76	70.31	3.73	436.11	23.11	61.55	3.26	79.09	4.19
	Total intake (µg/person) =				73.5		112.4		213.1		98.9		124.6
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (µg/person) =				600		600		600		600		600
	%ADI =				12.3%		18.7%		35.5%		16.5%		20.8%
	Rounded %ADI =				10%		20%		40%		20%		20%

BOSCALID (221) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
FC 0002	Subgroup of Lemons and limes, raw (incl. lemon juice) (incl. kumquat commodities)	RAC	0.05	4.82	0.24	2.45	0.12	3.93	0.20	25.44	1.27	8.74	0.44	16.23	0.81
FC 0003	Subgroup of Mandarins, raw (incl. mandarin juice)	RAC	0.05	6.18	0.31	3.66	0.18	0.25	0.01	6.82	0.34	3.49	0.17	19.38	0.97
FC 0004	Subgroup of Oranges, sweet, sour, raw	RAC	0.05	20.66	1.03	5.23	0.26	11.90	0.60	37.90	1.90	21.16	1.06	56.46	2.82
JF 0004	Subgroup of Oranges. juice (single strength, incl. concentrated)	PP	0.0108	1.27	0.01	2.20	0.02	0.09	0.00	11.81	0.13	0.46	0.00	1.69	0.02
FC 0005	Subgroup of Pummelo and grapefruits, raw (incl. grapefruit juice)	RAC	0.05	0.66	0.03	0.69	0.03	0.96	0.05	10.20	0.51	1.25	0.06	2.97	0.15
FP 0226	Apple, raw (incl. cider, excl. juice)	RAC	0.35	13.49	4.72	26.63	9.32	15.05	5.27	16.28	5.70	6.47	2.26	47.88	16.76
JF 0226	Apple juice. single strength (incl. concentrated)	PP	0.028	0.32	0.01	3.07	0.09	0.07	0.00	5.00	0.14	0.29	0.01	5.57	0.16
FP 0228	Loquat, raw (incl. processed) (i.e. Japanese medlar)	RAC	0.35	0.59	0.21	0.36	0.13	0.46	0.16	1.88	0.66	NC	–	1.15	0.40
FP 0229	Medlar, raw (incl. processed)	RAC	0.35	0.47	0.16	0.29	0.10	0.36	0.13	1.49	0.52	NC	–	0.92	0.32
FP 0230	Pear, raw	RAC	0.35	2.16	0.76	6.24	2.18	0.05	0.02	4.07	1.42	1.16	0.41	5.34	1.87
FP 0307	Persimmon. Japanese, raw (i.e. Kaki fruit)	RAC	0.35	1.91	0.67	0.01	0.00	1.94	0.68	1.96	0.69	NC	–	0.25	0.09

BOSCALID (221) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

Codex code	Commodity description	Expr. as	STMR mg/kg	Diets as g/person/day						Intake as µg/person/day					
				G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
FP 0231	Quince, raw	RAC	0.35	0.73	0.26	0.54	0.19	0.01	0.00	0.07	0.02	0.06	0.02	1.31	0.46
FS 0013	Subgroup of Cherries, raw	RAC	1.5	0.92	1.38	9.15	13.73	0.01	0.02	0.61	0.92	0.06	0.09	6.64	9.96
FS 0014	Subgroup of Plums, raw	RAC	0.25	2.40	0.60	8.60	2.15	0.06	0.02	2.52	0.63	0.58	0.15	4.16	1.04
DF 0014	Plums, dried (prunes)	PP	0.7	0.09	0.06	0.06	0.04	0.01	0.01	0.18	0.13	0.04	0.03	0.06	0.04
FS 2001	Subgroup of peaches, raw (incl. dried apricots)	RAC	0.6	8.01	4.81	5.87	3.52	0.18	0.11	8.19	4.91	1.64	0.98	22.46	13.48
FB 2005	Subgroup of Caneberries, raw	RAC	2.53	0.42	1.06	1.05	2.66	0.01	0.03	0.02	0.05	0.02	0.05	1.24	3.14
FB 2006	Subgroup of Bush berries, raw (including processed)	RAC	2.53	0.53	1.34	1.31	3.31	0.40	1.01	1.66	4.20	0.01	0.03	0.99	2.50
FB 2007	Subgroup of Large shrub/tree berries, raw (including processed)	RAC	2.53	0.62	1.57	0.33	0.83	0.34	0.86	1.42	3.59	0.01	0.03	1.51	3.82
FB 0269	Grapes, raw (incl. must, excl. dried, excl. juice, excl. wine)	RAC	1.09	13.02	14.19	9.25	10.08	0.03	0.03	16.91	18.43	3.70	4.03	54.44	59.34
DF 0269	Grapes, dried (= currants. raisins and sultanas) (from table grapes)	PP	2.6	0.51	1.33	0.51	1.33	0.01	0.03	1.27	3.30	0.12	0.31	2.07	5.38
JF 0269	Grape juice (from wine grapes)	PP	0.46	0.14	0.06	0.29	0.13	0.05	0.02	0.30	0.14	0.24	0.11	0.05	0.02
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.38	0.67	0.25	12.53	4.76	2.01	0.76	1.21	0.46	3.53	1.34	4.01	1.52
FB 0275	Strawberry, raw	RAC	0.555	0.70	0.39	2.01	1.12	0.04	0.02	1.36	0.75	0.37	0.21	2.53	1.40
FI 0327	Banana, raw (incl. plantains) (incl. dried)	RAC	0.05	5.23	0.26	6.94	0.35	99.45	4.97	32.47	1.62	48.30	2.42	24.70	1.24
FI 0345	Mango, raw (incl. canned Mango, incl. mango juice)	RAC	0.255	10.48	2.67	0.01	0.00	7.24	1.85	6.87	1.75	19.98	5.09	6.25	1.59
FI 0355	Pomegranate, raw, (incl. processed)	RAC	0.041	3.40	0.14	2.10	0.09	2.65	0.11	10.89	0.45	NC	–	6.67	0.27
FI 0341	Kiwifruit, raw	RAC	0.0073	0.03	0.00	0.36	0.00	0.01	0.00	1.17	0.01	0.06	0.00	0.69	0.01
VA 0035	Group of Bulb vegetables, raw	RAC	1.02	34.29	34.98	46.37	47.30	4.73	4.82	41.36	42.19	21.08	21.50	52.54	53.59
VB 0040	Group of Brassica vegetables (excl. Brassica leafy vegetables), raw	RAC	1.52	6.43	9.77	40.26	61.20	0.80	1.22	9.94	15.11	12.07	18.35	17.73	26.95
VC 0045	Group of Fruiting vegetables, cucurbits, raw	RAC	0.565	53.14	30.02	86.21	48.71	6.28	3.55	92.76	52.41	15.64	8.84	155.30	87.74
VO 0448	Tomato, raw (incl. canned, excl. juice, excl. paste)	RAC	0.565	42.04	23.75	76.13	43.01	10.69	6.04	84.59	47.79	24.92	14.08	203.27	114.85
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.413	2.34	0.97	1.33	0.55	1.57	0.65	4.24	1.75	0.34	0.14	2.83	1.17
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.085	0.29	0.02	0.29	0.02	0.01	0.00	0.38	0.03	0.05	0.00	0.14	0.01
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), excl. okra	RAC	0.565	8.48	4.79	13.74	7.76	10.13	5.72	11.29	6.38	9.52	5.38	26.36	14.89
–	Peppers, sweet. dried	PP	1.4	0.42	0.59	0.53	0.74	0.84	1.18	0.50	0.70	0.95	1.33	0.37	0.52
VO 2046	Subgroup of eggplants	RAC	0.565	5.58	3.15	4.31	2.44	0.89	0.50	9.31	5.26	13.64	7.71	20.12	11.37

BOSCALID (221) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

Codex code	Commodity description	Expr. as	STMR mg/kg	Diets as g/person/day						Intake as µg/person/day					
				G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
VL 0053	Group of Leafy vegetables, raw	RAC	2.95	8.47	24.99	22.36	65.96	7.74	22.83	25.51	75.25	45.77	135.02	21.22	62.60
VP 0060	Group of Legume vegetables, raw	RAC	0.5	7.73	3.87	1.53	0.77	0.51	0.26	2.95	1.48	5.08	2.54	12.86	6.43
VD 0070	Group of Pulses, raw (incl. processed)	RAC	0.12	87.29	10.47	64.04	7.68	37.15	4.46	89.82	10.78	91.02	10.92	98.20	11.78
VR 0075	Group of Root and tuber vegetables, raw (incl. processed)	RAC	0.305	87.83	26.79	374.04	114.08	668.92	204.02	121.64	37.10	94.20	28.73	247.11	75.37
VS 0078	Group of Stalk and stem vegetables, raw	RAC	8.85	6.03	53.37	9.47	83.81	5.86	51.86	14.55	128.77	2.61	23.10	8.27	73.19
GC 0648	Quinoa, raw	RAC	0.1	NC	–	NC	–	NC	–	NC	–	0.07	0.01	NC	–
GC 0650	Rye, raw (incl. flour)	RAC	0.075	0.13	0.01	19.38	1.45	0.10	0.01	0.12	0.01	0.03	0.00	2.15	0.16
GC 0653	Triticale, raw	RAC	0.075	NC	–	NC	–	NC	–	0.01	0.00	NC	–	NC	–
GC 0654	Wheat, raw (incl. bulgur, incl. fermented beverages, excl. germ, excl. wholemeal bread, excl. white flour products, excl. white bread)	RAC	0.075	0.01	0.00	1.12	0.08	NC	–	0.03	0.00	0.56	0.04	NC	–
CF 1210	Wheat, germ	PP	0.1	NC	–	NC	–	0.01	0.00	0.01	0.00	0.14	0.01	0.01	0.00
CP 1212	Wheat, wholemeal bread	PP	0.092	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.03	0.00	0.01	0.00
CP 1211	Wheat, white bread	PP	0.026	0.25	0.01	0.63	0.02	0.12	0.00	0.43	0.01	1.39	0.04	0.22	0.01
CF 1211	Wheat, white flour (incl. white flour products: starch, gluten, macaroni, pastry)	PP	0.026	301.24	7.83	268.64	6.98	30.21	0.79	222.51	5.79	134.73	3.50	343.12	8.92
GC 0640	Barley, raw (incl. malt extract, incl. flour & grits, incl. beer, excl. pot&pearled, excl. malt)	RAC	0.075	8.83	0.66	18.46	1.38	4.76	0.36	2.60	0.20	8.68	0.65	3.86	0.29
–	Barley. pot&pearled	PP	0.026	7.12	0.19	7.34	0.19	0.02	0.00	0.03	0.00	0.67	0.02	0.20	0.01
GC 0647	Oats, raw (incl. rolled)	RAC	0.075	0.05	0.00	7.05	0.53	0.10	0.01	1.71	0.13	0.96	0.07	0.04	0.00
GC 2088	Subgroup of rice cereals	REP	0.1	45.40	4.54	14.99	1.50	84.88	8.49	111.73	11.17	194.75	19.48	93.12	9.31
GC 2091	Subgroup of Maize Cereals	RAC	0.1	29.81	2.98	44.77	4.48	108.95	10.90	52.37	5.24	60.28	6.03	75.69	7.57
GC 2090	Subgroup of Sweet Corns	RAC	0.1	0.14	0.01	0.94	0.09	5.70	0.57	2.61	0.26	1.94	0.19	0.22	0.02
TN 0660	Almonds, nutmeat	RAC	0.05	1.38	0.07	0.08	0.00	0.01	0.00	1.00	0.05	0.06	0.00	0.81	0.04
TN 0662	Brazil nuts, nutmeat	RAC	0.05	0.01	0.00	0.01	0.00	0.03	0.00	0.02	0.00	0.02	0.00	0.01	0.00
TN 0295	Cashew nuts, nutmeat	RAC	0.05	0.01	0.00	0.02	0.00	0.24	0.01	0.47	0.02	0.32	0.02	0.05	0.00
TN 0664	Chestnut, raw	RAC	0.05	0.03	0.00	0.02	0.00	0.01	0.00	0.31	0.02	0.09	0.00	0.67	0.03
TN 0665	Coconut, nutmeat (incl. copra, incl. desiccated, incl. oil)	RAC	0.05	1.73	0.09	1.20	0.06	6.63	0.33	10.18	0.51	13.07	0.65	2.98	0.15
TN 0666	Hazelnuts, nutmeat	RAC	0.05	0.03	0.00	0.13	0.01	0.01	0.00	0.11	0.01	0.01	0.00	1.11	0.06
TN 0669	Macadamia nuts, nutmeat (i.e. Queensland nuts)	RAC	0.05	0.01	0.00	0.01	0.00	0.01	0.00	0.04	0.00	NC	–	0.03	0.00
TN 0672	Pecan, nutmeat	RAC	0.05	0.05	0.00	0.05	0.00	0.02	0.00	0.14	0.01	0.09	0.00	0.13	0.01
TN 0673	Pine nut, nutmeat (i.e. pignolia nuts)	RAC	0.05	0.18	0.01	0.18	0.01	0.08	0.00	0.49	0.02	0.25	0.01	0.43	0.02
TN 0675	Pistachio nut, nutmeat	RAC	0.27	0.41	0.11	0.07	0.02	0.01	0.00	0.85	0.23	0.02	0.01	1.08	0.29
TN 0678	Walnut, nutmeat	RAC	0.05	0.23	0.01	1.49	0.07	0.01	0.00	0.33	0.02	0.07	0.00	2.06	0.10

BOSCALID (221) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets as g/person/day											
				Intake as µg/person/day											
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
SO 0088	Group of Oilseeds & Oilfruits, raw (incl. processed)	RAC	0.145	78.79	11.42	54.57	7.91	96.08	13.93	137.03	19.87	60.49	8.77	88.56	12.84
SB 0716	Coffee bean raw (incl. roasted, incl. instant coffee, incl. substitutes)	RAC	0.05	1.36	0.07	3.59	0.18	1.44	0.07	5.18	0.26	2.02	0.10	1.70	0.09
DH 1100	Hops, dry	RAC	21.5	0.01	0.22	0.04	0.86	0.01	0.22	0.01	0.22	NC	–	0.01	0.22
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.051	24.96	1.27	57.95	2.96	16.70	0.85	38.38	1.96	26.46	1.35	29.00	1.48
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.26	6.24	1.62	14.49	3.77	4.18	1.09	9.60	2.49	6.62	1.72	7.25	1.89
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.26	3.29	0.86	6.14	1.60	0.82	0.21	1.57	0.41	2.23	0.58	1.07	0.28
MO 0105	Edible offal (mammalian), raw	RAC	0.23	4.79	1.10	9.68	2.23	2.97	0.68	5.49	1.26	3.84	0.88	5.03	1.16
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.049	289.65	14.19	485.88	23.81	26.92	1.32	239.03	11.71	199.91	9.80	180.53	8.85
PM 0110	Poultry meat, raw (incl. prepared) – 90% as muscle	RAC	0.001	13.17	0.01	26.78	0.03	7.24	0.01	116.71	0.12	22.54	0.02	32.09	0.03
PM 0110	Poultry meat, raw (incl. prepared) – 10% as fat	RAC	0.006	1.46	0.01	2.98	0.02	0.80	0.00	12.97	0.08	2.50	0.02	3.57	0.02
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0.006	0.10	0.00	0.10	0.00	NC	–	0.10	0.00	0.10	0.00	0.10	0.00
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0.001	0.12	0.00	0.12	0.00	0.11	0.00	5.37	0.01	0.24	0.00	0.10	0.00
PE 0112	Eggs, raw, (incl. dried)	RAC	0.009	7.84	0.07	23.08	0.21	2.88	0.03	14.89	0.13	9.81	0.09	14.83	0.13
	Total intake (µg/person) =				313.4		601.2		363.9		541.8		351.0		724.0
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (µg/person) =				2400		2400		2400		2400		2400		2400
	%ADI =				13.1%		25.1%		15.2%		22.6%		14.6%		30.2%
	Rounded %ADI =				10%		30%		20%		20%		10%		30%

BOSCALID (221) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets as g/person/day											
				Intake as µg/person/day											
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
FC 0002	Subgroup of Lemons and limes, raw (incl. lemon juice) (incl. kumquat commodities)	RAC	0.05	10.12	0.51	15.69	0.78	2.88	0.14	12.30	0.62	22.32	1.12	6.59	0.33
FC 0003	Subgroup of Mandarins, raw (incl. mandarin juice)	RAC	0.05	12.42	0.62	14.99	0.75	16.08	0.80	10.78	0.54	9.94	0.50	NC	–
FC 0004	Subgroup of Oranges, sweet, sour, raw	RAC	0.05	15.68	0.78	24.00	1.20	6.80	0.34	29.09	1.45	15.39	0.77	160.47	8.02
JF 0004	Subgroup of Oranges. juice (single strength, incl.	PP	0.0108	33.31	0.36	1.78	0.02	0.28	0.00	18.97	0.20	14.01	0.15	13.36	0.14

BOSCALID (221) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
	concentrated)														
FC 0005	Subgroup of Pummelo and grapefruits, raw (incl. grapefruit juice)	RAC	0.05	8.21	0.41	4.60	0.23	0.64	0.03	5.85	0.29	19.98	1.00	368.86	18.44
FP 0226	Apple, raw (incl. cider, excl. juice)	RAC	0.35	41.14	14.40	56.49	19.77	26.64	9.32	31.58	11.05	51.94	18.18	3.05	1.07
JF 0226	Apple juice. single strength (incl. concentrated)	PP	0.028	14.88	0.42	11.98	0.34	0.15	0.00	9.98	0.28	30.32	0.85	3.47	0.10
FP 0228	Loquat, raw (incl. processed) (i.e. Japanese medlar)	RAC	0.35	0.96	0.34	NC	–	NC	–	3.92	1.37	NC	–	2.49	0.87
FP 0229	Medlar, raw (incl. processed)	RAC	0.35	NC	–	NC	–	NC	–	NC	–	NC	–	1.98	0.69
FP 0230	Pear, raw	RAC	0.35	8.79	3.08	8.44	2.95	12.37	4.33	9.60	3.36	10.27	3.59	0.23	0.08
FP 0307	Persimmon. Japanese, raw (i.e. Kaki fruit)	RAC	0.35	0.01	0.00	0.30	0.11	3.59	1.26	0.15	0.05	0.02	0.01	NC	–
FP 0231	Quince, raw	RAC	0.35	0.19	0.07	0.18	0.06	0.11	0.04	0.04	0.01	0.28	0.10	NC	–
FS 0013	Subgroup of Cherries, raw	RAC	1.5	1.40	2.10	4.21	6.32	0.04	0.06	2.93	4.40	1.50	2.25	NC	–
FS 0014	Subgroup of Plums, raw	RAC	0.25	3.75	0.94	3.33	0.83	5.94	1.49	2.64	0.66	2.50	0.63	0.06	0.02
DF 0014	Plums, dried (prunes)	PP	0.7	0.61	0.43	0.35	0.25	0.05	0.04	0.35	0.25	0.49	0.34	0.13	0.09
FS 2001	Subgroup of peaches, raw (incl. dried apricots)	RAC	0.6	13.03	7.82	16.29	9.77	8.29	4.97	12.95	7.77	5.35	3.21	0.04	0.02
FB 2005	Subgroup of Caneberries, raw	RAC	2.53	0.56	1.42	1.43	3.62	0.14	0.35	1.23	3.11	1.14	2.88	0.01	0.03
FB 2006	Subgroup of Bush berries, raw (including processed)	RAC	2.53	1.31	3.31	5.50	13.92	0.01	0.03	2.57	6.50	0.82	2.07	2.15	5.44
FB 2007	Subgroup of Large shrub/tree berries, raw (including processed)	RAC	2.53	8.26	20.90	0.14	0.35	0.07	0.18	0.13	0.33	0.19	0.48	1.87	4.73
FB 0269	Grapes, raw (incl. must, excl. dried, excl. juice, excl. wine)	RAC	1.09	6.48	7.06	11.31	12.33	5.21	5.68	9.50	10.36	4.66	5.08	0.78	0.85
DF 0269	Grapes, dried (= currants. raisins and sultanas) (from table grapes)	PP	2.6	3.09	8.03	1.51	3.93	0.03	0.08	1.38	3.59	4.26	11.08	0.42	1.09
JF 0269	Grape juice (from wine grapes)	PP	0.46	0.56	0.26	1.96	0.90	0.02	0.01	2.24	1.03	2.27	1.04	0.34	0.16
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.38	88.93	33.79	62.41	23.72	1.84	0.70	25.07	9.53	61.17	23.24	5.84	2.22
FB 0275	Strawberry, raw	RAC	0.555	4.49	2.49	5.66	3.14	0.02	0.01	6.63	3.68	5.75	3.19	0.05	0.03
FI 0327	Banana, raw (incl. plantains) (incl. dried)	RAC	0.05	25.76	1.29	23.65	1.18	23.83	1.19	24.37	1.22	19.43	0.97	101.55	5.08
FI 0345	Mango, raw (incl. canned Mango, incl. mango juice)	RAC	0.255	1.80	0.46	0.63	0.16	10.05	2.56	1.07	0.27	3.52	0.90	16.44	4.19
FI 0355	Pomegranate, raw, (incl. processed)	RAC	0.041	7.91	0.32	9.72	0.40	7.67	0.31	5.26	0.22	9.04	0.37	14.43	0.59
FI 0341	Kiwifruit, raw	RAC	0.0073	2.46	0.02	3.62	0.03	0.04	0.00	1.48	0.01	7.43	0.05	0.03	0.00
VA 0035	Group of Bulb vegetables, raw	RAC	1.02	26.24	26.76	36.47	37.20	39.29	40.08	39.37	40.16	29.12	29.70	20.21	20.61
VB 0040	Group of Brassica vegetables (excl. Brassica leafy vegetables), raw	RAC	1.52	20.71	31.48	39.81	60.51	25.06	38.09	37.93	57.65	18.12	27.54	16.74	25.44
VC 0045	Group of Fruiting vegetables, cucurbits, raw	RAC	0.565	27.81	15.71	41.93	23.69	123.30	69.66	49.47	27.95	15.95	9.01	35.99	20.33
VO 0448	Tomato, raw (incl. canned, excl. juice, excl. paste)	RAC	0.565	43.88	24.79	55.41	31.31	35.38	19.99	74.88	42.31	26.50	14.97	9.51	5.37
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.413	4.96	2.05	3.20	1.32	0.15	0.06	1.61	0.66	6.88	2.84	0.52	0.21
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.085	0.80	0.07	0.07	0.01	0.05	0.00	0.61	0.05	0.40	0.03	0.08	0.01

BOSCALID (221) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), excl. okra	RAC	0.565	6.39	3.61	15.53	8.77	19.09	10.79	10.36	5.85	8.29	4.68	4.53	2.56
–	Peppers, sweet. dried	PP	1.4	0.11	0.15	0.21	0.29	0.36	0.50	0.21	0.29	0.25	0.35	0.15	0.21
VO 2046	Subgroup of eggplants	RAC	0.565	1.01	0.57	1.69	0.95	21.37	12.07	3.00	1.70	1.40	0.79	NC	–
VL 0053	Group of Leafy vegetables, raw	RAC	2.95	18.83	55.55	21.85	64.46	121.23	357.63	43.09	127.12	18.18	53.63	18.32	54.04
VP 0060	Group of Legume vegetables, raw	RAC	0.5	18.21	9.11	8.91	4.46	7.22	3.61	10.04	5.02	23.22	11.61	0.17	0.09
VD 0070	Group of Pulses, raw (incl. processed)	RAC	0.12	112.88	13.55	123.05	14.77	47.73	5.73	204.75	24.57	227.52	27.30	110.05	13.21
VR 0075	Group of Root and tuber vegetables, raw (incl. processed)	RAC	0.305	290.31	88.54	300.35	91.61	214.25	65.35	242.72	74.03	348.67	106.34	137.52	41.94
VS 0078	Group of Stalk and stem vegetables, raw	RAC	8.85	12.56	111.16	15.57	137.79	72.50	641.63	8.11	71.77	28.79	254.79	10.13	89.65
GC 0648	Quinoa, raw	RAC	0.1	NC	–	NC	–	NC	–	NC	–	NC	–	NC	–
GC 0650	Rye, raw (incl. flour)	RAC	0.075	3.21	0.24	35.38	2.65	0.21	0.02	6.50	0.49	1.49	0.11	NC	–
GC 0653	Triticale, raw	RAC	0.075	NC	–	NC	–	0.01	0.00	0.01	0.00	NC	–	NC	–
GC 0654	Wheat, raw (incl. bulgur, incl. fermented beverages, excl. germ, excl. wholemeal bread, excl. white flour products, excl. white bread)	RAC	0.075	NC	–	NC	–	0.02	0.00	0.83	0.06	NC	–	NC	–
CF 1210	Wheat, germ	PP	0.1	0.97	0.10	0.10	0.01	0.03	0.00	0.01	0.00	NC	–	0.04	0.00
CP 1212	Wheat, wholemeal bread	PP	0.092	0.03	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.05	0.00	0.02	0.00
CP 1211	Wheat, white bread	PP	0.026	1.30	0.03	0.46	0.01	0.06	0.00	0.22	0.01	2.44	0.06	0.77	0.02
CF 1211	Wheat, white flour (incl. white flour products: starch, gluten, macaroni, pastry)	PP	0.026	198.08	5.15	193.03	5.02	106.24	2.76	185.09	4.81	168.67	4.39	131.59	3.42
GC 0640	Barley, raw (incl. malt extract, incl. flour & grits, incl. beer, excl. pot&pearled, excl. malt)	RAC	0.075	35.06	2.63	49.50	3.71	8.81	0.66	34.28	2.57	46.12	3.46	13.03	0.98
–	Barley. pot&pearled	PP	0.026	0.57	0.01	2.56	0.07	0.33	0.01	0.56	0.01	0.36	0.01	NC	–
GC 0647	Oats, raw (incl. rolled)	RAC	0.075	7.50	0.56	6.26	0.47	0.15	0.01	4.87	0.37	3.16	0.24	2.98	0.22
GC 2088	Subgroup of rice cereals	REP	0.1	20.96	2.10	16.04	1.60	339.67	33.97	75.51	7.55	16.86	1.69	86.13	8.61
GC 2091	Subgroup of Maize Cereals	RAC	0.1	18.51	1.85	26.18	2.62	26.04	2.60	39.99	4.00	7.36	0.74	64.58	6.46
GC 2090	Subgroup of Sweet Corns	RAC	0.1	11.43	1.14	3.71	0.37	0.74	0.07	13.63	1.36	3.07	0.31	1.50	0.15
TN 0660	Almonds, nutmeat	RAC	0.05	0.81	0.04	2.21	0.11	0.03	0.00	1.02	0.05	1.47	0.07	NC	–
TN 0662	Brazil nuts, nutmeat	RAC	0.05	0.12	0.01	0.05	0.00	0.01	0.00	0.05	0.00	0.13	0.01	NC	–
TN 0295	Cashew nuts, nutmeat	RAC	0.05	0.59	0.03	0.23	0.01	0.18	0.01	0.52	0.03	1.75	0.09	2.78	0.14
TN 0664	Chestnut, raw	RAC	0.05	0.34	0.02	0.21	0.01	1.14	0.06	0.52	0.03	0.09	0.00	NC	–
TN 0665	Coconut, nutmeat (incl. copra, incl. desiccated, incl. oil)	RAC	0.05	4.13	0.21	2.73	0.14	13.15	0.66	5.85	0.29	6.92	0.35	22.24	1.11
TN 0666	Hazelnuts, nutmeat	RAC	0.05	0.45	0.02	1.12	0.06	0.02	0.00	0.34	0.02	1.63	0.08	NC	–
TN 0669	Macadamia nuts, nutmeat (i.e. Queensland nuts)	RAC	0.05	NC	–	0.40	0.02	NC	–	NC	–	NC	–	0.07	0.00
TN 0672	Pecan, nutmeat	RAC	0.05	0.38	0.02	NC	–	NC	–	0.27	0.01	NC	–	0.26	0.01

BOSCALID (221) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
TN 0673	Pine nut, nutmeat (i.e. pignolia nuts)	RAC	0.05	0.99	0.05	0.66	0.03	0.22	0.01	0.27	0.01	1.89	0.09	0.89	0.04
TN 0675	Pistachio nut, nutmeat	RAC	0.27	0.35	0.09	0.48	0.13	0.07	0.02	0.39	0.11	0.23	0.06	0.02	0.01
TN 0678	Walnut, nutmeat	RAC	0.05	0.34	0.02	0.84	0.04	0.28	0.01	0.39	0.02	0.45	0.02	NC	–
SO 0088	Group of Oilseeds & Oilfruits, raw (incl. processed)	RAC	0.145	108.59	15.75	112.13	16.26	64.09	9.29	81.53	11.82	66.09	9.58	20.02	2.90
SB 0716	Coffee bean raw (incl. roasted, incl. instant coffee, incl. substitutes)	RAC	0.05	10.90	0.55	12.44	0.62	0.77	0.04	9.48	0.47	22.07	1.10	8.15	0.41
DH 1100	Hops, dry	RAC	21.5	NC	–	NC	–	0.02	0.43	0.02	0.43	NC	–	NC	–
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.051	112.02	5.71	120.71	6.16	63.46	3.24	88.99	4.54	96.24	4.91	41.02	2.09
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.26	28.01	7.28	30.18	7.85	15.86	4.12	22.25	5.78	24.06	6.26	10.25	2.67
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.26	6.44	1.67	15.51	4.03	3.79	0.99	8.29	2.16	18.44	4.79	8.00	2.08
MO 0105	Edible offal (mammalian), raw	RAC	0.23	15.17	3.49	5.19	1.19	6.30	1.45	6.78	1.56	3.32	0.76	3.17	0.73
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.049	388.92	19.06	335.88	16.46	49.15	2.41	331.25	16.23	468.56	22.96	245.45	12.03
PM 0110	Poultry meat, raw (incl. prepared) – 90% as muscle	RAC	0.001	66.38	0.07	48.47	0.05	21.58	0.02	78.41	0.08	48.04	0.05	76.01	0.08
PM 0110	Poultry meat, raw (incl. prepared) – 10% as fat	RAC	0.006	7.38	0.04	5.39	0.03	2.40	0.01	8.71	0.05	5.34	0.03	8.45	0.05
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0.006	0.10	0.00	0.10	0.00	NC	–	0.10	0.00	0.71	0.00	NC	–
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0.001	0.33	0.00	0.72	0.00	0.27	0.00	0.35	0.00	0.80	0.00	NC	–
PE 0112	Eggs, raw, (incl. dried)	RAC	0.009	25.84	0.23	29.53	0.27	28.05	0.25	33.19	0.30	36.44	0.33	8.89	0.08
	Total intake (µg/person) =				562.9		654.2		1362.3		616.5		690.2		372.3
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (µg/person) =				2400		2400		2200		2400		2400		2400
	%ADI =				23.5%		27.3%		61.9%		25.7%		28.8%		15.5%
	Rounded %ADI =				20%		30%		60%		30%		30%		20%

BOSCALID (221) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets: g/person/day				Intake = daily intake: µg/person					
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
FC 0002	Subgroup of Lemons and limes, raw (incl. lemon juice) (incl. kumquat commodities)	RAC	0.05	18.97	0.95	0.97	0.05	6.23	0.31	0.09	0.00	3.35	0.17
FC 0003	Subgroup of Mandarins, raw (incl. mandarin juice)	RAC	0.05	0.16	0.01	0.27	0.01	9.06	0.45	0.01	0.00	0.02	0.00
FC 0004	Subgroup of Oranges, sweet, sour, raw	RAC	0.05	1.18	0.06	1.11	0.06	14.28	0.71	0.05	0.00	1.08	0.05
JF 0004	Subgroup of Oranges. juice (single strength, incl. concentrated)	PP	0.0108	0.08	0.00	0.26	0.00	12.61	0.14	0.14	0.00	0.33	0.00

BOSCALID (221) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets: g/person/day				Intake = daily intake: µg/person					
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
FC 0005	Subgroup of Pummelo and grapefruits, raw (incl. grapefruit juice)	RAC	0.05	0.68	0.03	0.05	0.00	3.21	0.16	0.01	0.00	NC	–
FP 0226	Apple, raw (incl. cider, excl. juice)	RAC	0.35	66.67	23.33	2.06	0.72	55.83	19.54	188.29	65.90	1.38	0.48
JF 0226	Apple juice. single strength (incl. concentrated)	PP	0.028	0.03	0.00	0.10	0.00	7.19	0.20	0.03	0.00	NC	–
FP 0228	Loquat, raw (incl. processed) (i.e. Japanese medlar)	RAC	0.35	0.94	0.33	4.68	1.64	NC	–	0.50	0.18	3.08	1.08
FP 0229	Medlar, raw (incl. processed)	RAC	0.35	0.75	0.26	3.73	1.31	4.87	1.70	0.40	0.14	2.45	0.86
FP 0230	Pear, raw	RAC	0.35	0.07	0.02	0.14	0.05	9.45	3.31	0.01	0.00	0.14	0.05
FP 0307	Persimmon. Japanese, raw (i.e. Kaki fruit)	RAC	0.35	0.41	0.14	0.32	0.11	0.02	0.01	0.58	0.20	12.51	4.38
FP 0231	Quince, raw	RAC	0.35	NC	–	NC	–	0.65	0.23	NC	–	NC	–
FS 0013	Subgroup of Cherries, raw	RAC	1.5	0.01	0.02	0.01	0.02	5.96	8.94	0.01	0.02	NC	–
FS 0014	Subgroup of Plums, raw	RAC	0.25	0.07	0.02	0.01	0.00	15.56	3.89	0.01	0.00	NC	–
DF 0014	Plums, dried (prunes)	PP	0.7	0.01	0.01	0.01	0.01	0.37	0.26	0.01	0.01	NC	–
FS 2001	Subgroup of peaches, raw (incl. dried apricots)	RAC	0.6	0.02	0.01	0.01	0.01	10.76	6.46	0.01	0.01	NC	–
FB 2005	Subgroup of Caneberries, raw	RAC	2.53	0.01	0.03	7.30	18.47	2.29	5.79	0.01	0.03	NC	–
FB 2006	Subgroup of Bush berries, raw (including processed)	RAC	2.53	0.82	2.07	4.05	10.25	5.94	15.03	0.43	1.09	2.66	6.73
FB 2007	Subgroup of Large shrub/tree berries, raw (including processed)	RAC	2.53	0.71	1.80	7.32	18.52	NC	–	0.38	0.96	2.32	5.87
FB 0269	Grapes, raw (incl. must, excl. dried, excl. juice, excl. wine)	RAC	1.09	0.14	0.15	0.36	0.39	15.33	16.71	0.01	0.01	0.28	0.31
DF 0269	Grapes, dried (= currants. raisins and sultanas) (from table grapes)	PP	2.6	0.01	0.03	0.13	0.34	1.06	2.76	0.01	0.03	0.03	0.08
JF 0269	Grape juice (from wine grapes)	PP	0.46	0.01	0.00	0.01	0.00	0.41	0.19	0.01	0.00	NC	–
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.38	0.31	0.12	0.23	0.09	60.43	22.96	0.52	0.20	31.91	12.13
FB 0275	Strawberry, raw	RAC	0.555	0.01	0.01	0.01	0.01	3.35	1.86	0.01	0.01	0.01	0.01
FI 0327	Banana, raw (incl. plantains) (incl. dried)	RAC	0.05	44.80	2.24	118.17	5.91	25.25	1.26	454.49	22.72	310.23	15.51
FI 0345	Mango, raw (incl. canned Mango, incl. mango juice)	RAC	0.255	12.25	3.12	6.83	1.74	0.76	0.19	0.01	0.00	20.12	5.13
FI 0355	Pomegranate, raw, (incl. processed)	RAC	0.041	5.49	0.23	27.17	1.11	NC	–	2.89	0.12	17.87	0.73
FI 0341	Kiwifruit, raw	RAC	0.0073	0.01	0.00	0.01	0.00	2.00	0.01	0.01	0.00	NC	–
VA 0035	Group of Bulb vegetables, raw	RAC	1.02	11.28	11.51	23.80	24.28	36.11	36.83	9.66	9.85	8.69	8.86
VB 0040	Group of Brassica vegetables (excl. Brassica leafy vegetables), raw	RAC	1.52	5.46	8.30	4.28	6.51	58.72	89.25	0.02	0.03	NC	–
VC 0045	Group of Fruiting vegetables, cucurbits, raw	RAC	0.565	5.96	3.37	9.74	5.50	51.82	29.28	13.61	7.69	0.05	0.03
VO 0448	Tomato, raw (incl. canned, excl. juice, excl. paste)	RAC	0.565	13.10	7.40	4.90	2.77	62.16	35.12	1.04	0.59	0.09	0.05
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.413	0.58	0.24	0.22	0.09	2.21	0.91	0.24	0.10	3.10	1.28
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.085	0.05	0.00	0.01	0.00	0.42	0.04	0.01	0.00	0.02	0.00
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), excl. okra	RAC	0.565	8.97	5.07	14.13	7.98	25.14	14.20	0.91	0.51	NC	–

BOSCALID (221) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
–	Peppers, sweet. dried	PP	1.4	0.58	0.81	1.27	1.78	1.21	1.69	0.12	0.17	NC	–
VO 2046	Subgroup of eggplants	RAC	0.565	1.31	0.74	8.26	4.67	3.95	2.23	0.01	0.01	NC	–
VL 0053	Group of Leafy vegetables, raw	RAC	2.95	12.42	36.64	8.75	25.81	7.53	22.21	7.07	20.86	14.11	41.62
VP 0060	Group of Legume vegetables, raw	RAC	0.5	0.58	0.29	3.16	1.58	10.38	5.19	0.04	0.02	NC	–
VD 0070	Group of Pulses, raw (incl. processed)	RAC	0.12	46.57	5.59	30.77	3.69	112.53	13.50	75.53	9.06	43.68	5.24
VR 0075	Group of Root and tuber vegetables, raw (incl. processed)	RAC	0.305	282.25	86.09	232.11	70.79	281.91	85.98	620.21	189.16	459.96	140.29
VS 0078	Group of Stalk and stem vegetables, raw	RAC	8.85	9.14	80.89	6.60	58.41	7.58	67.08	6.18	54.69	12.34	109.21
GC 0648	Quinoa, raw	RAC	0.1	NC	–	NC	–	NC	–	NC	–	NC	–
GC 0650	Rye, raw (incl. flour)	RAC	0.075	0.03	0.00	0.01	0.00	13.95	1.05	0.01	0.00	0.88	0.07
GC 0653	Triticale, raw	RAC	0.075	0.01	0.00	NC	–	NC	–	NC	–	NC	–
GC 0654	Wheat, raw (incl. bulgur, incl. fermented beverages, excl. germ, excl. wholemeal bread, excl. white flour products, excl. white bread)	RAC	0.075	0.01	0.00	NC	–	NC	–	NC	–	0.97	0.07
CF 1210	Wheat, germ	PP	0.1	0.04	0.00	0.01	0.00	0.01	0.00	0.01	0.00	NC	–
CP 1212	Wheat, wholemeal bread	PP	0.092	0.01	0.00	0.01	0.00	0.03	0.00	0.01	0.00	0.01	0.00
CP 1211	Wheat, white bread	PP	0.026	0.43	0.01	0.41	0.01	1.56	0.04	0.11	0.00	0.07	0.00
CF 1211	Wheat, white flour (incl. white flour products: starch, gluten, macaroni, pastry)	PP	0.026	44.78	1.16	86.96	2.26	214.05	5.57	20.31	0.53	103.60	2.69
GC 0640	Barley, raw (incl. malt extract, incl. flour & grits, incl. beer, excl. pot&pearled, excl. malt)	RAC	0.075	3.17	0.24	2.16	0.16	43.59	3.27	3.71	0.28	10.02	0.75
–	Barley. pot&pearled	PP	0.026	5.46	0.14	0.01	0.00	1.44	0.04	0.01	0.00	NC	–
GC 0647	Oats, raw (incl. rolled)	RAC	0.075	0.37	0.03	0.07	0.01	2.79	0.21	0.10	0.01	NC	–
GC 2088	Subgroup of rice cereals	REP	0.1	52.55	5.26	286.02	28.60	18.64	1.86	19.67	1.97	75.09	7.51
GC 2091	Subgroup of Maize Cereals	RAC	0.1	116.66	11.67	10.52	1.05	38.46	3.85	76.60	7.66	34.44	3.44
GC 2090	Subgroup of Sweet Corns	RAC	0.1	3.63	0.36	20.50	2.05	8.78	0.88	0.02	0.00	0.17	0.02
TN 0660	Almonds, nutmeat	RAC	0.05	0.01	0.00	0.01	0.00	0.61	0.03	0.01	0.00	NC	–
TN 0662	Brazil nuts, nutmeat	RAC	0.05	0.01	0.00	0.01	0.00	0.02	0.00	0.01	0.00	NC	–
TN 0295	Cashew nuts, nutmeat	RAC	0.05	0.91	0.05	0.14	0.01	0.11	0.01	0.01	0.00	NC	–
TN 0664	Chestnut, raw	RAC	0.05	0.01	0.00	0.01	0.00	0.75	0.04	0.01	0.00	NC	–
TN 0665	Coconut, nutmeat (incl. copra, incl. desiccated, incl. oil)	RAC	0.05	2.77	0.14	134.37	6.72	2.81	0.14	0.70	0.04	317.67	15.88
TN 0666	Hazelnuts, nutmeat	RAC	0.05	0.01	0.00	0.01	0.00	0.21	0.01	0.01	0.00	NC	–
TN 0669	Macadamia nuts, nutmeat (i.e. Queensland nuts)	RAC	0.05	0.04	0.00	0.05	0.00	NC	–	0.01	0.00	0.01	0.00
TN 0672	Pecan, nutmeat	RAC	0.05	0.15	0.01	0.22	0.01	0.31	0.02	0.01	0.00	0.01	0.00
TN 0673	Pine nut, nutmeat (i.e. pignolia nuts)	RAC	0.05	0.51	0.03	0.74	0.04	0.36	0.02	0.01	0.00	0.05	0.00
TN 0675	Pistachio nut, nutmeat	RAC	0.27	0.01	0.00	0.01	0.00	0.15	0.04	0.01	0.00	NC	–

BOSCALID (221) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
TN 0678	Walnut, nutmeat	RAC	0.05	0.01	0.00	0.01	0.00	0.81	0.04	0.01	0.00	NC	–
SO 0088	Group of Oilseeds & Oilfruits, raw (incl. processed)	RAC	0.145	130.71	18.95	22.07	3.20	69.33	10.05	55.22	8.01	84.31	12.22
SB 0716	Coffee bean raw (incl. roasted, incl. instant coffee, incl. substitutes)	RAC	0.05	0.95	0.05	1.32	0.07	11.64	0.58	2.96	0.15	14.73	0.74
DH 1100	Hops, dry	RAC	21.5	NC	–	NC	–	0.04	0.86	NC	–	NC	–
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.051	23.34	1.19	40.71	2.08	97.15	4.95	18.06	0.92	57.71	2.94
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.26	5.84	1.52	10.18	2.65	24.29	6.31	4.52	1.17	14.43	3.75
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.26	1.05	0.27	1.14	0.30	18.69	4.86	0.94	0.24	3.12	0.81
MO 0105	Edible offal (mammalian), raw	RAC	0.23	4.64	1.07	1.97	0.45	10.01	2.30	3.27	0.75	3.98	0.92
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.049	108.75	5.33	70.31	3.45	436.11	21.37	61.55	3.02	79.09	3.88
PM 0110	Poultry meat, raw (incl. prepared) – 90% as muscle	RAC	0.001	3.53	0.00	10.83	0.01	51.36	0.05	4.53	0.00	50.00	0.05
PM 0110	Poultry meat, raw (incl. prepared) – 10% as fat	RAC	0.006	0.39	0.00	1.20	0.01	5.71	0.03	0.50	0.00	5.56	0.03
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0.006	NC	–	NC	–	0.32	0.00	NC	–	NC	–
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0.001	0.10	0.00	0.70	0.00	0.97	0.00	0.10	0.00	NC	–
PE 0112	Eggs, raw, (incl. dried)	RAC	0.009	3.84	0.03	4.41	0.04	27.25	0.25	1.13	0.01	7.39	0.07
	Total intake (µg/person) =				329.4		327.8		585.3		409.1		416.0
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (µg/person) =				2400		2400		2400		2400		2400
	%ADI =				13.7%		13.7%		24.4%		17.0%		17.3%
	Rounded %ADI =				10%		10%		20%		20%		20%

BROFLANILIDE (326) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.02 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
VB 0400	Broccoli, raw	RAC	0.076	0.88	0.07	0.17	0.01	0.01	0.00	1.25	0.10	3.00	0.23	1.09	0.08
VB 0041	Cabbages. head, raw	RAC	0.19	2.73	0.52	27.92	5.30	0.55	0.10	4.47	0.85	4.27	0.81	10.25	1.95
VB 0467	Chinese cabbage. type pe–tsai, raw	RAC	0.19	0.45	0.09	4.56	0.87	0.09	0.02	0.73	0.14	NC	–	1.67	0.32
VC 0424	Cucumber, raw	RAC	0.01	8.01	0.08	30.66	0.31	1.45	0.01	19.84	0.20	0.27	0.00	34.92	0.35
VO 0448	Tomato, raw	RAC	0.0165	41.73	0.69	75.65	1.25	10.66	0.18	82.87	1.37	24.75	0.41	200.9	3.32
–	Tomato, canned (& peeled)	PP	0.002	0.20	0.00	0.31	0.00	0.02	0.00	1.11	0.00	0.11	0.00	1.50	0.00
–	Tomato, paste (i.e. concentrated tomato	PP	0.036	2.34	0.08	1.33	0.05	1.57	0.06	4.24	0.15	0.34	0.01	2.83	0.10

BROFLANILIDE (326) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.02 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
	sauce/puree)														
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.004	0.29	0.00	0.29	0.00	0.01	0.00	0.38	0.00	0.05	0.00	0.14	0.00
VO 0444	Peppers, chili, raw	RAC	0.055	3.99	0.22	7.30	0.40	2.93	0.16	5.62	0.31	NC	–	17.44	0.96
VO 0445	Peppers, sweet, raw (incl. dried)	RAC	0.0145	4.49	0.07	6.44	0.09	7.21	0.10	5.68	0.08	9.52	0.14	8.92	0.13
VO 2046	Subgroup of eggplants	RAC	0.0165	5.58	0.09	4.31	0.07	0.89	0.01	9.31	0.15	13.64	0.23	20.12	0.33
VL 0483	Lettuce, leaf, raw	RAC	0.32	0.53	0.17	0.36	0.12	0.16	0.05	6.21	1.99	1.90	0.61	6.05	1.94
VL 0502	Spinach, raw	RAC	0.63	0.74	0.47	0.22	0.14	0.02	0.01	0.91	0.57	0.04	0.03	2.92	1.84
VL 0054	Subgroup of Leaves of Brassicaceae, raw	RAC	0.39	2.63	1.03	9.27	3.62	1.86	0.73	5.82	2.27	19.53	7.62	4.90	1.91
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.011	2.39	0.03	1.61	0.02	10.47	0.12	1.84	0.02	12.90	0.14	7.44	0.08
VD 0541	Soya Bean, dry, raw (Glycine soja)	RAC	0.0048	0.58	0.00	0.05	0.00	0.37	0.00	0.03	0.00	1.65	0.01	0.30	0.00
–	Soya paste (i.e. miso)	PP	0.0007	NC	–	NC	–	NC	–	NC	–	NC	–	NC	–
–	Soya curd (i.e. tofu)	PP	0.0005	NC	–	NC	–	NC	–	NC	–	NC	–	NC	–
OR 0541	Soya oil, refined	PP	0.0005	12.99	0.01	10.43	0.01	3.63	0.00	13.10	0.01	10.70	0.01	13.10	0.01
–	Soya sauce	PP	0.0001	0.01	0.00	0.02	0.00	0.01	0.00	0.34	0.00	0.03	0.00	0.01	0.00
–	Soya flour	PP	0.0001	0.05	0.00	0.86	0.00	0.02	0.00	1.02	0.00	0.01	0.00	0.15	0.00
VR 0591	Japanese radish, raw (i.e. Chinese radish. Daikon)	RAC	0.01	1.90	0.02	3.36	0.03	2.08	0.02	5.06	0.05	NC	–	2.44	0.02
VR 0573	Arrowroot, raw	RAC	0.00175	1.53	0.00	0.01	0.00	0.93	0.00	1.33	0.00	0.47	0.00	0.02	0.00
VR 0463	Cassava raw (incl. starch, incl. tapioca, incl. flour) (i.e. Manioc)	RAC	0.00175	0.08	0.00	0.01	0.00	482.6	0.84	0.99	0.00	25.75	0.05	3.29	0.01
VR 0585	Jerusalem artichoke, raw (i.e. Topinambur)	RAC	0.00175	1.57	0.00	0.01	0.00	0.96	0.00	1.36	0.00	0.48	0.00	0.02	0.00
VR 0589	Potato, raw (incl. flour, incl. frozen, incl. tapioca, excl. starch)	RAC	0.00175	59.60	0.10	316.1	0.55	9.77	0.02	59.59	0.10	54.12	0.09	119.8	0.21
–	Potato, starch	PP	0.0003	0.03	0.00	0.01	0.00	0.01	0.00	0.15	0.00	0.01	0.00	0.01	0.00
VR 0508	Sweet potato, raw (incl. dried)	RAC	0.00175	0.18	0.00	0.18	0.00	42.16	0.07	1.61	0.00	3.06	0.01	6.67	0.01
VR 0504	Tannia, raw (i.e. Tanier. Yautia)	RAC	0.00175	NC	–	NC	–	NC	–	0.01	0.00	0.26	0.00	1.27	0.00
VR 0505	Taro, raw (i.e. Dasheen. Eddoe)	RAC	0.00175	0.01	0.00	NC	–	25.12	0.04	0.04	0.00	0.01	0.00	0.97	0.00
VR 0600	Yams, raw (incl. dried)	RAC	0.00175	0.02	0.00	NC	–	90.40	0.16	6.45	0.01	0.74	0.00	0.65	0.00
VS 2080	Subgroup of stems and petioles	RAC	0.14	3.11	0.44	5.52	0.77	3.42	0.48	8.29	1.16	0.02	0.00	4.00	0.56
GC 0654	Wheat, raw (incl. bulgur, incl. fermented beverages, excl. germ, excl. wholemeal bread, excl. white flour products, excl. white bread)	RAC	0	0.01	0.00	1.12	0.00	NC	–	0.03	0.00	0.56	0.00	NC	–
CF 1210	Wheat, germ	PP	0	NC	–	NC	–	0.01	0.00	0.01	0.00	0.14	0.00	0.01	0.00
CP 1212	Wheat, wholemeal bread	PP	0	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.03	0.00	0.01	0.00
CF 1211	Wheat, white flour (incl. white flour products: starch, gluten, macaroni, pastry)	PP	0	301.24	0.00	######	0.00	30.21	0.00	59.6	0.00	54.1	0.00	119.8	0.00

BROFLANILIDE (326) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.02 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
GC 2087	Subgroup of barley. similar grains. and pseudocereals with husks, raw (including processed)	RAC	0	19.96	0.00	38.62	0.00	5.13	0.00	4.81	0.00	10.80	0.00	4.44	0.00
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. beer, excl. flour, excl. oil, excl. germ, excl. starch)	RAC	0	0.84	0.00	0.24	0.00	1.56	0.00	0.46	0.00	2.21	0.00	13.13	0.00
CF 1255	Maize, flour (white flour and wholemeal flour)	PP	0	22.72	0.00	35.61	0.00	87.27	0.00	34.92	0.00	46.71	0.00	49.12	0.00
–	Maize, germ	PP	0	0.01	0.00	NC	–	0.01	0.00	0.01	0.00	0.22	0.00	NC	–
–	Maize starch	PP	0	0.08	0.00	NC	–	0.01	0.00	2.29	0.00	0.08	0.00	0.11	0.00
OR 0645	Maize oil	PP	0	0.96	0.00	0.85	0.00	0.29	0.00	5.42	0.00	0.42	0.00	2.10	0.00
GC 2090	Subgroup of Sweet Corns	RAC	0.001	0.14	0.00	0.94	0.00	5.70	0.01	2.61	0.00	1.94	0.00	0.22	0.00
SB 0716	Coffee Bean, raw (i.e. green coffee)	RAC	0.0023	0.96	0.00	0.16	0.00	0.91	0.00	0.27	0.00	1.37	0.00	0.46	0.00
SM 0716	Coffee Bean, roasted	PP	0.0019	0.19	0.00	0.91	0.00	0.16	0.00	2.50	0.00	0.39	0.00	0.40	0.00
–	Coffee Bean, instant coffee (incl. essences and concentrates)	PP	0.0002	0.07	0.00	0.94	0.00	0.07	0.00	0.70	0.00	0.07	0.00	0.29	0.00
HS 0444	Peppers, chili, dried	PP	0.385	0.42	0.16	0.53	0.20	0.84	0.32	0.50	0.19	0.95	0.37	0.37	0.14
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.02	24.96	0.50	57.95	1.16	16.70	0.33	38.38	0.77	26.46	0.53	29.00	0.58
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.099	6.24	0.62	14.49	1.43	4.18	0.41	9.60	0.95	6.62	0.65	7.25	0.72
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.099	3.29	0.33	6.14	0.61	0.82	0.08	1.57	0.16	2.23	0.22	1.07	0.11
MO 0105	Edible offal (mammalian), raw	RAC	0.02	4.79	0.10	9.68	0.19	2.97	0.06	5.49	0.11	3.84	0.08	5.03	0.10
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.005	289.65	1.45	485.9	2.43	26.92	0.13	239	1.20	199.9	1.00	180.5	0.90
	Total intake (µg/person) =				7.3		19.6		4.6		12.9		13.2		16.7
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (µg/person) =				1200		1200		1200		1200		1200		1200
	%ADI =				0.6%		1.6%		0.4%		1.1%		1.1%		1.4%
	Rounded %ADI =				1%		2%		0%		1%		1%		1%

BROFLANILIDE (326) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.02mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
VB 0400	Broccoli, raw	RAC	0.076	4.24	0.32	1.76	0.13	NC	–	0.51	0.04	3.79	0.29	0.26	0.02
VB 0041	Cabbages. head, raw	RAC	0.19	8.97	1.70	27.12	5.15	1.44	0.27	24.96	4.74	4.55	0.86	11.23	2.13
VB 0467	Chinese cabbage. type pe–tsai, raw	RAC	0.19	NC	–	NC	–	17.39	3.30	9.44	1.79	NC	–	1.83	0.35
VC 0424	Cucumber, raw	RAC	0.01	6.72	0.07	11.03	0.11	32.10	0.32	15.10	0.15	4.05	0.04	9.57	0.10
VO 0448	Tomato, raw	RAC	0.0165	32.13	0.53	51.27	0.85	34.92	0.58	73.37	1.21	15.15	0.25	8.88	0.15
–	Tomato, canned (& peeled)	PP	0.002	7.57	0.02	2.66	0.01	0.30	0.00	0.97	0.00	7.31	0.01	0.41	0.00
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.036	4.96	0.18	3.20	0.12	0.15	0.01	1.61	0.06	6.88	0.25	0.52	0.02
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.004	0.80	0.00	0.07	0.00	0.05	0.00	0.61	0.00	0.40	0.00	0.08	0.00
VO 0444	Peppers, chili, raw	RAC	0.055	5.57	0.31	14.00	0.77	8.25	0.45	5.77	0.32	6.44	0.35	2.53	0.14
VO 0445	Peppers, sweet, raw (incl. dried)	RAC	0.0145	0.82	0.01	1.53	0.02	10.85	0.16	4.59	0.07	1.84	0.03	2.00	0.03
VO 2046	Subgroup of eggplants	RAC	0.0165	1.01	0.02	1.69	0.03	21.37	0.35	3.00	0.05	1.40	0.02	NC	–
VL 0483	Lettuce, leaf, raw	RAC	0.32	14.50	4.64	11.76	3.76	13.14	4.20	19.50	6.24	4.81	1.54	2.23	0.71
VL 0502	Spinach, raw	RAC	0.63	2.20	1.39	1.76	1.11	13.38	8.43	2.94	1.85	5.53	3.48	0.02	0.01
VL 0054	Subgroup of Leaves of Brassicaceae, raw	RAC	0.39	0.10	0.04	NC	–	26.78	10.44	5.00	1.95	0.58	0.23	5.68	2.22
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.011	1.51	0.02	1.50	0.02	1.90	0.02	5.11	0.06	1.36	0.01	23.43	0.26
VD 0541	Soya Bean, dry, raw (Glycine soja)	RAC	0.0048	0.02	0.00	0.33	0.00	6.64	0.03	3.94	0.02	NC	–	5.78	0.03
–	Soya paste (i.e. miso)	PP	0.0007	NC	–	NC	–	NC	–	1.87	0.00	NC	–	NC	–
–	Soya curd (i.e. tofu)	PP	0.0005	NC	–	NC	–	0.68	0.00	0.87	0.00	NC	–	NC	–
OR 0541	Soya oil, refined	PP	0.0005	19.06	0.01	21.06	0.01	5.94	0.00	33.78	0.02	40.05	0.02	13.39	0.01
–	Soya sauce	PP	0.0001	0.45	0.00	0.29	0.00	2.93	0.00	4.35	0.00	0.09	0.00	0.70	0.00
–	Soya flour	PP	0.0001	0.22	0.00	0.27	0.00	0.29	0.00	0.17	0.00	NC	–	NC	–
VR 0591	Japanese radish, raw (i.e. Chinese radish. Daikon)	RAC	0.01	NC	–	NC	–	26.64	0.27	18.92	0.19	NC	–	3.59	0.04
VR 0573	Arrowroot, raw	RAC	0.00175	0.02	0.00	0.01	0.00	2.05	0.00	0.21	0.00	NC	–	0.76	0.00
VR 0463	Cassava raw (incl. starch, incl. tapioca, incl. flour) (i.e. Manioc)	RAC	0.00175	0.01	0.00	NC	–	20.96	0.04	0.14	0.00	NC	–	9.62	0.02
VR 0585	Jerusalem artichoke, raw (i.e. Topinambur)	RAC	0.00175	0.11	0.00	0.01	0.00	NC	–	0.22	0.00	NC	–	0.78	0.00
VR 0589	Potato, raw (incl. flour, incl. frozen, incl. tapioca, excl. starch)	RAC	0.00175	225.0	0.4	226.4	0.4	71.3	0.1	173.4	0.3	234.6	0.4	37.71	0.07
–	Potato, starch	PP	0.0003	NC	–	1.74	0.00	0.05	0.00	0.92	0.00	NC	–	NC	–
VR 0508	Sweet potato, raw (incl. dried)	RAC	0.00175	0.93	0.00	0.32	0.00	64.65	0.11	5.37	0.01	0.30	0.00	3.13	0.01
VR 0504	Tannia, raw (i.e. Tanier. Yautia)	RAC	0.00175	NC	–	NC	–	NC	–	0.01	0.00	NC	–	10.74	0.02
VR 0505	Taro, raw (i.e. Dasheen. Eddoe)	RAC	0.00175	NC	–	NC	–	1.93	0.00	0.84	0.00	NC	–	19.94	0.03
VR 0600	Yams, raw (incl. dried)	RAC	0.00175	NC	–	NC	–	0.03	0.00	0.71	0.00	NC	–	17.57	0.03
VS 2080	Subgroup of stems and petioles	RAC	0.14	9.31	1.30	8.57	1.20	NC	–	3.88	0.54	24.46	3.42	5.89	0.82

BROFLANILIDE (326) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.02mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
GC 0654	Wheat, raw (incl. bulgur, incl. fermented beverages, excl. germ, excl. wholemeal bread, excl. white flour products, excl. white bread)	RAC	0	NC	–	NC	–	0.02	0.00	0.83	0.00	NC	–	NC	–
CF 1210	Wheat, germ	PP	0	0.97	0.00	0.10	0.00	0.03	0.00	0.01	0.00	NC	–	0.04	0.00
CP 1212	Wheat, wholemeal bread	PP	0	0.03	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.05	0.00	0.02	0.00
CF 1211	Wheat, white flour (incl. white flour products: starch, gluten, macaroni, pastry)	PP	0	198.1	0.0	193.0	0.0	106.2	0.0	185.1	0.0	168.7	0.0	131.6	0.00
GC 2087	Subgroup of barley. similar grains. and pseudocereals with husks, raw (including processed)	RAC	0	43.68	0.00	60.49	0.00	9.72	0.00	40.47	0.00	49.83	0.00	18.90	0.00
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. beer, excl. flour, excl. oil, excl. germ, excl. starch)	RAC	0	0.10	0.00	9.93	0.00	1.40	0.00	10.26	0.00	0.33	0.00	0.04	0.00
CF 1255	Maize, flour (white flour and wholemeal flour)	PP	0	14.27	0.00	12.86	0.00	19.71	0.00	12.55	0.00	4.21	0.00	52.30	0.00
–	Maize, germ	PP	0	0.01	0.00	NC	–	NC	–	0.01	0.00	NC	–	0.01	0.00
–	Maize starch	PP	0	NC	–	NC	–	0.19	0.00	7.13	0.00	NC	–	NC	–
OR 0645	Maize oil	PP	0	0.90	0.00	0.47	0.00	0.15	0.00	3.01	0.00	1.86	0.00	0.36	0.00
GC 2090	Subgroup of Sweet Corns	RAC	0.001	11.43	0.01	3.71	0.00	0.74	0.00	13.63	0.01	3.07	0.00	1.50	0.00
SB 0716	Coffee Bean, raw (i.e. green coffee)	RAC	0.0023	0.60	0.00	NC	–	0.62	0.00	1.71	0.00	NC	–	3.51	0.01
SM 0716	Coffee Bean, roasted	PP	0.0019	7.02	0.01	9.75	0.02	0.02	0.00	5.09	0.01	13.38	0.03	0.77	0.00
–	Coffee Bean, instant coffee (incl. essences and concentrates)	PP	0.0002	0.75	0.00	0.30	0.00	0.04	0.00	0.67	0.00	2.43	0.00	1.43	0.00
HS 0444	Peppers, chili, dried	PP	0.385	0.11	0.04	0.21	0.08	0.36	0.14	0.21	0.08	0.25	0.10	0.15	0.06
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.02	112.0	2.2	120.7	2.41	63.46	1.27	88.99	1.78	96.24	1.92	41.02	0.82
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.099	28.01	2.77	30.18	2.99	15.86	1.57	22.25	2.20	24.06	2.38	10.25	1.02
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.099	6.44	0.64	15.51	1.54	3.79	0.38	8.29	0.82	18.44	1.83	8.00	0.79
MO 0105	Edible offal (mammalian), raw	RAC	0.02	15.17	0.30	5.19	0.10	6.30	0.13	6.78	0.14	3.32	0.07	3.17	0.06
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.005	388.9	1.9	335.9	1.7	49.2	0.2	331.3	1.7	468.6	2.3	245.5	1.2
	Total intake (µg/person) =				18.9		22.5		32.9		26.3		19.9		11.2
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (µg/person) =				1200		1200		1100		1200		1200		1200
	%ADI =				1.6%		1.9%		3.0%		2.2%		1.7%		0.9%

BROFLANILIDE (326) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.02mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
	Rounded %ADI =				2%		2%		3%		2%		2%		1%

BROFLANILIDE (326) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.02 mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
VB 0400	Broccoli, raw	RAC	0.076	0.01	0.00	0.01	0.00	2.13	0.16	0.01	0.00	NC	–
VB 0041	Cabbages. head, raw	RAC	0.19	3.82	0.73	2.99	0.57	49.16	9.34	0.01	0.00	NC	–
VB 0467	Chinese cabbage. type pe–tsai, raw	RAC	0.19	0.62	0.12	0.49	0.09	NC	–	0.01	0.00	NC	–
VC 0424	Cucumber, raw	RAC	0.01	0.68	0.01	1.81	0.02	10.40	0.10	0.01	0.00	0.04	0.00
VO 0448	Tomato, raw	RAC	0.0165	12.99	0.21	4.79	0.08	58.40	0.96	0.92	0.02	0.09	0.00
–	Tomato, canned (& peeled)	PP	0.002	0.07	0.00	0.08	0.00	2.42	0.00	0.07	0.00	NC	–
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.036	0.58	0.02	0.22	0.01	2.21	0.08	0.24	0.01	3.10	0.11
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.004	0.05	0.00	0.01	0.00	0.42	0.00	0.01	0.00	0.02	0.00
VO 0444	Peppers, chili, raw	RAC	0.055	3.47	0.19	3.56	0.20	16.30	0.90	0.01	0.00	NC	–
VO 0445	Peppers, sweet, raw (incl. dried)	RAC	0.0145	5.49	0.08	10.57	0.15	8.84	0.13	0.91	0.01	NC	–
VO 2046	Subgroup of eggplants	RAC	0.0165	1.31	0.02	8.26	0.14	3.95	0.07	0.01	0.00	NC	–
VL 0483	Lettuce, leaf, raw	RAC	0.32	0.29	0.09	0.03	0.01	6.71	2.15	0.01	0.00	NC	–
VL 0502	Spinach, raw	RAC	0.63	0.17	0.11	0.01	0.01	0.81	0.51	0.01	0.01	NC	–
VL 0054	Subgroup of Leaves of Brassicaceae, raw	RAC	0.39	3.58	1.40	2.64	1.03	NC	–	1.83	0.71	3.65	1.42
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.011	7.11	0.08	2.33	0.03	3.76	0.04	44.70	0.49	3.27	0.04
VD 0541	Soya Bean, dry, raw (Glycine soja)	RAC	0.0048	2.76	0.01	0.07	0.00	0.33	0.00	3.16	0.02	NC	–
–	Soya paste (i.e. miso)	PP	0.0007	NC	–	NC	–	NC	–	NC	–	NC	–
–	Soya curd (i.e. tofu)	PP	0.0005	NC	–	NC	–	NC	–	NC	–	NC	–
OR 0541	Soya oil, refined	PP	0.0005	2.32	0.00	2.54	0.00	18.70	0.01	2.51	0.00	6.29	0.00
–	Soya sauce	PP	0.0001	0.01	0.00	0.13	0.00	0.17	0.00	0.01	0.00	0.56	0.00
–	Soya flour	PP	0.0001	0.11	0.00	0.08	0.00	0.07	0.00	0.01	0.00	0.03	0.00
VR 0591	Japanese radish, raw (i.e. Chinese radish. Daikon)	RAC	0.01	3.25	0.03	2.35	0.02	NC	–	2.20	0.02	4.39	0.04
VR 0573	Arrowroot, raw	RAC	0.00175	13.83	0.02	18.24	0.03	0.01	0.00	0.05	0.00	19.60	0.03
VR 0463	Cassava raw (incl. starch, incl. tapioca, incl. flour) (i.e. Manioc)	RAC	0.00175	91.92	0.16	34.12	0.06	NC	–	259.9	0.5	45.5	0.08
VR 0585	Jerusalem artichoke, raw (i.e. Topinambur)	RAC	0.00175	14.22	0.02	18.75	0.03	0.0	0.0	0.1	0.0	20.1	0.04
VR 0589	Potato, raw (incl. flour, incl. frozen, incl. tapioca, excl. starch)	RAC	0.00175	23.96	0.04	13.54	0.02	213.4	0.4	104.4	0.2	8.6	0.01

BROFLANILIDE (326) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.02 mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
–	Potato, starch	PP	0.0003	0.01	0.00	0.01	0.00	NC	–	NC	–	NC	–
VR 0508	Sweet potato, raw (incl. dried)	RAC	0.00175	28.83	0.05	61.55	0.11	0.2	0.0	221.9	0.4	NC	–
VR 0504	Tannia, raw (i.e. Tanier. Yautia)	RAC	0.00175	NC	–	NC	–	0.0	0.0	NC	–	NC	–
VR 0505	Taro, raw (i.e. Dasheen. Eddoe)	RAC	0.00175	6.71	0.01	31.91	0.06	NC	–	10.7	0.0	264.3	0.46
VR 0600	Yams, raw (incl. dried)	RAC	0.00175	70.93	0.12	30.62	0.05	0.07	0.00	5.65	0.01	30.85	0.05
VS 2080	Subgroup of stems and petioles	RAC	0.14	5.33	0.75	3.85	0.54	5.80	0.81	3.60	0.50	7.20	1.01
GC 0654	Wheat, raw (incl. bulgur, incl. fermented beverages, excl. germ, excl. wholemeal bread, excl. white flour products, excl. white bread)	RAC	0	0.01	0.00	NC	–	NC	–	NC	–	0.97	0.00
CF 1210	Wheat, germ	PP	0	0.04	0.00	0.01	0.00	0.01	0.00	0.01	0.00	NC	–
CP 1212	Wheat, wholemeal bread	PP	0	0.01	0.00	0.01	0.00	0.03	0.00	0.01	0.00	0.01	0.00
CF 1211	Wheat, white flour (incl. white flour products: starch, gluten, macaroni, pastry)	PP	0	44.78	0.00	86.96	0.00	214.1	0.0	20.3	0.0	103.6	0.00
GC 2087	Subgroup of barley. similar grains. and pseudocereals with husks, raw (including processed)	RAC	0	11.99	0.00	5.22	0.00	49.50	0.00	3.82	0.00	16.26	0.00
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. beer, excl. flour, excl. oil, excl. germ, excl. starch)	RAC	0	0.54	0.00	0.51	0.00	3.26	0.00	7.96	0.00	NC	–
CF 1255	Maize, flour (white flour and wholemeal flour)	PP	0	94.34	0.00	8.09	0.00	28.03	0.00	55.94	0.00	28.07	0.00
–	Maize, germ	PP	0	0.01	0.00	NC	–	NC	–	NC	–	NC	–
–	Maize starch	PP	0	0.02	0.00	0.01	0.00	NC	–	NC	–	NC	–
OR 0645	Maize oil	PP	0	0.33	0.00	0.07	0.00	0.81	0.00	0.01	0.00	NC	–
GC 2090	Subgroup of Sweet Corns	RAC	0.001	3.63	0.00	20.50	0.02	8.78	0.01	0.02	0.00	0.17	0.00
SB 0716	Coffee Bean, raw (i.e. green coffee)	RAC	0.0023	0.83	0.00	0.69	0.00	1.09	0.00	2.91	0.01	0.82	0.00
SM 0716	Coffee Bean, roasted	PP	0.0019	0.02	0.00	0.41	0.00	7.50	0.01	0.01	0.00	0.06	0.00
–	Coffee Bean, instant coffee (incl. essences and concentrates)	PP	0.0002	0.03	0.00	0.05	0.00	0.60	0.00	0.01	0.00	5.53	0.00
HS 0444	Peppers, chili, dried	PP	0.385	0.58	0.22	1.27	0.49	1.21	0.47	0.12	0.05	NC	–
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.02	23.34	0.47	40.71	0.81	97.15	1.94	18.06	0.36	57.71	1.15
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.099	5.84	0.58	10.18	1.01	24.29	2.40	4.52	0.45	14.43	1.43
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.099	1.05	0.10	1.14	0.11	18.69	1.85	0.94	0.09	3.12	0.31
MO 0105	Edible offal (mammalian), raw	RAC	0.02	4.64	0.09	1.97	0.04	10.01	0.20	3.27	0.07	3.98	0.08
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.005	108.8	0.5	70.3	0.4	436.1	2.2	61.55	0.31	79.09	0.40
	Total intake (µg/person) =				6.3		6.1		24.7		4.2		6.7

BROFLANILIDE (326) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.02 mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (µg/person) =				1200		1200		1200		1200		1200
	%ADI =				0.5%		0.5%		2.1%		0.3%		0.6%
	Rounded %ADI =				1%		1%		2%		0%		1%

CYANTRANILIPROLE (263) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
FC 0001	Group of Citrus fruit, raw (incl. citrus fruit juice, incl. kumquat commodities)	RAC	0.041	34.91	1.43	16.51	0.68	17.23	0.71	104.48	4.28	35.57	1.46	98.49	4.04
FP 0009	Group of Pome fruits, raw (incl. apple cider, excl. apple juice)	RAC	0.16	19.35	3.10	34.06	5.45	17.87	2.86	25.74	4.12	7.69	1.23	56.85	9.10
JF 0226	Apple juice. single strength (incl. concentrated)	PP	0.05	0.32	0.02	3.07	0.15	0.07	0.00	5.00	0.25	0.29	0.01	5.57	0.28
FS 0013	Subgroup of Cherries, raw	RAC	0.93	0.92	0.86	9.15	8.51	0.01	0.01	0.61	0.57	0.06	0.06	6.64	6.18
FS 0014	Subgroup of Plums, raw	RAC	0.07	2.40	0.17	8.60	0.60	0.06	0.00	2.52	0.18	0.58	0.04	4.16	0.29
DF 0014	Plums, dried (prunes)	PP	0.54	0.09	0.05	0.06	0.03	0.01	0.01	0.18	0.10	0.04	0.02	0.06	0.03
FS 2001	Subgroup of peaches, raw (incl. dried apricots)	RAC	0.34	8.01	2.72	5.87	2.00	0.18	0.06	8.19	2.78	1.64	0.56	22.46	7.64
FB 2005	Subgroup of Caneberries, raw	RAC	1	0.42	0.42	1.05	1.05	0.01	0.01	0.02	0.02	0.02	0.02	1.24	1.24
FB 2006	Subgroup of Bush berries, raw (including processed)	RAC	0.75	0.53	0.40	1.31	0.98	0.40	0.30	1.66	1.25	0.01	0.01	0.99	0.74
FB 0269	Grapes, raw (i.e. table grapes)	RAC	0.21	12.68	2.66	9.12	1.92	0.03	0.01	16.88	3.54	3.70	0.78	54.42	11.43
JF 0269	Grape juice (from wine grapes)	PP	0.11	0.14	0.02	0.29	0.03	0.05	0.01	0.30	0.03	0.24	0.03	0.05	0.01
–	Graps must (from wine grapes)	PP	0.32	0.33	0.11	0.13	0.04	0.01	0.00	0.02	0.01	0.01	0.00	0.02	0.01
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.21	0.67	0.14	12.53	2.63	2.01	0.42	1.21	0.25	3.53	0.74	4.01	0.84
FB 0265	Cranberry, raw	RAC	0.012	0.02	0.00	0.01	0.00	NC	–	0.03	0.00	0.01	0.00	0.01	0.00
FB 0275	Strawberry, raw	RAC	0.455	0.70	0.32	2.01	0.91	0.04	0.02	1.36	0.62	0.37	0.17	2.53	1.15
FT 0305	Table olives, raw	RAC	0.33	0.08	0.03	0.16	0.05	NC	–	0.24	0.08	0.01	0.00	0.65	0.21
DM 0305	Table olives. preserved	PP	0.19	0.58	0.11	0.15	0.03	0.01	0.00	1.22	0.23	0.15	0.03	1.13	0.21
FI 0326	Avocado, raw	RAC	0.03	0.13	0.00	0.03	0.00	2.05	0.06	2.54	0.08	2.34	0.07	0.12	0.00
FI 0345	Mango, raw (incl. canned Mango, incl. mango juice)	RAC	0.01	10.48	0.10	0.01	0.00	7.24	0.07	6.87	0.07	19.98	0.20	6.25	0.06
FI 0350	Papaya, raw	RAC	0.016	0.35	0.01	0.01	0.00	3.05	0.05	0.80	0.01	7.28	0.12	1.00	0.02
FI 0355	Pomegranate, raw, (incl. processed)	RAC	0.01	3.40	0.03	2.10	0.02	2.65	0.03	10.89	0.11	NC	–	6.67	0.07
VA 0381	Garlic, raw	RAC	0.02	2.29	0.05	5.78	0.12	0.11	0.00	3.69	0.07	1.65	0.03	3.91	0.08
–	Onions, dry, raw	RAC	0.02	29.36	0.59	37.50	0.75	3.56	0.07	34.78	0.70	18.81	0.38	43.38	0.87
–	Onions. green, raw	RAC	1.3	2.45	3.19	1.49	1.94	1.02	1.33	2.60	3.38	0.60	0.78	2.03	2.64
VB 0040	Group of Brassica vegetables (excl. Brassica leafy vegetables), raw	RAC	0.56	6.43	3.60	40.26	22.55	0.80	0.45	9.94	5.57	12.07	6.76	17.73	9.93
VC 2039	Subgroup of Cucumbers and Squashes, raw	RAC	0.065	10.52	0.68	39.36	2.56	2.07	0.13	25.74	1.67	2.80	0.18	44.83	2.91
VC 2040	Subgroup of Melons. Pumpkins and Winter squashes	RAC	0.01	42.62	0.43	46.85	0.47	4.21	0.04	67.02	0.67	12.84	0.13	110.47	1.10
VO 0448	Tomato, raw	RAC	0.08	41.73	3.34	75.65	6.05	10.66	0.85	82.87	6.63	24.75	1.98	200.93	16.07
–	Tomato, canned (& peeled)	PP	0.004	0.20	0.00	0.31	0.00	0.02	0.00	1.11	0.00	0.11	0.00	1.50	0.01
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.07	2.34	0.16	1.33	0.09	1.57	0.11	4.24	0.30	0.34	0.02	2.83	0.20

CYANTRANILIPROLE (263) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.014	0.29	0.00	0.29	0.00	0.01	0.00	0.38	0.01	0.05	0.00	0.14	0.00
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), excl. okra	RAC	0.08	8.48	0.68	13.74	1.10	10.13	0.81	11.29	0.90	9.52	0.76	26.36	2.11
VO 2046	Subgroup of eggplants	RAC	0.08	5.58	0.45	4.31	0.34	0.89	0.07	9.31	0.74	13.64	1.09	20.12	1.61
VL 0053	Group of Leafy vegetables, raw	RAC	4.7	8.47	39.81	22.36	105.09	7.74	36.38	25.51	119.90	45.77	215.12	21.22	99.73
VP 2060	Subgroup of beans with pods (all commodities within this group)	RAC	0.29	0.68	0.20	NC	–	NC	–	0.39	0.11	0.22	0.06	0.49	0.14
VP 2062	Subgroup of succulent beans without pods (all commodities within this group)	RAC	0.07	5.07	0.35	1.02	0.07	0.49	0.03	1.78	0.12	1.19	0.08	8.57	0.60
VP 2063	Subgroup of succulent peas without pods	RAC	0.07	1.97	0.14	0.51	0.04	0.02	0.00	0.79	0.06	3.68	0.26	3.80	0.27
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.01	2.39	0.02	1.61	0.02	10.47	0.10	1.84	0.02	12.90	0.13	7.44	0.07
VD 0541	Soya Bean, dry, raw (incl. paste, incl. curd, incl. oil, incl. sauce)	RAC	0.033	72.79	2.40	59.05	1.95	20.55	0.68	74.20	2.45	61.12	2.02	73.24	2.42
VR 2070	Subgroup of Root vegetables, raw	RAC	0.01	24.72	0.25	57.71	0.58	17.01	0.17	49.58	0.50	9.33	0.09	114.41	1.14
VR 0573	Arrowroot, raw	RAC	0.01	1.53	0.02	0.01	0.00	0.93	0.01	1.33	0.01	0.47	0.00	0.02	0.00
VR 0463	Cassava raw (incl. starch, incl. tapioca, incl. flour) (i.e. Manioc)	RAC	0.01	0.08	0.00	0.01	0.00	482.56	4.83	0.99	0.01	25.75	0.26	3.29	0.03
VR 0585	Jerusalem artichoke, raw (i.e. Topinambur)	RAC	0.01	1.57	0.02	0.01	0.00	0.96	0.01	1.36	0.01	0.48	0.00	0.02	0.00
VR 0589	Potato, raw (incl. flour, incl. frozen, incl. starch, incl. tapioca)	RAC	0.02	59.74	1.19	316.14	6.32	9.78	0.20	60.26	1.21	54.12	1.08	119.82	2.40
VR 0508	Sweet potato, raw (incl. dried)	RAC	0.01	0.18	0.00	0.18	0.00	42.16	0.42	1.61	0.02	3.06	0.03	6.67	0.07
VR 0504	Tannia, raw (i.e. Tanier. Yautia)	RAC	0.01	NC	–	NC	–	NC	–	0.01	0.00	0.26	0.00	1.27	0.01
VR 0505	Taro, raw (i.e. Dasheen. Eddoe)	RAC	0.01	0.01	0.00	NC	–	25.12	0.25	0.04	0.00	0.01	0.00	0.97	0.01
VR 0600	Yams, raw (incl. dried)	RAC	0.01	0.02	0.00	NC	–	90.40	0.90	6.45	0.06	0.74	0.01	0.65	0.01
VR 2072	Subgroup of Aquatic root and tuber vegetables	RAC	0.01	NC	–	NC	–	NC	–	NC	–	NC	–	NC	–
VS 0624	Celery	RAC	2	2.14	4.28	3.79	7.58	2.35	4.70	5.69	11.38	0.02	0.04	2.75	5.50
CM 0649 (GC 0649)	Rice, husked, dry (incl. polished, incl. flour, incl. starch, incl. oil, incl. beverages)	REP	0.01	45.40	0.45	14.99	0.15	84.88	0.85	111.73	1.12	194.75	1.95	93.12	0.93
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. flour, incl. oil, incl. beer, incl. germ, incl. starch)	RAC	0	29.81	0.00	44.77	0.00	108.95	0.00	52.37	0.00	60.28	0.00	75.69	0.00
TN 0085	Group of Tree nuts, raw (incl. processed)	RAC	0.01	4.06	0.04	3.27	0.03	7.01	0.07	13.93	0.14	14.01	0.14	9.36	0.09
SO 0495	Rape seed, raw (incl. oil)	RAC	0.077	0.93	0.07	1.16	0.09	0.49	0.04	2.53	0.19	9.32	0.72	2.02	0.16
SO 0702	Sunflower seed, raw (incl. oil)	RAC	0.067	7.40	0.50	35.86	2.40	1.15	0.08	8.76	0.59	5.45	0.37	13.62	0.91
SO 0691	Cotton seed, raw (incl. oil)	RAC	0.16	20.53	3.28	9.80	1.57	6.42	1.03	4.73	0.76	7.14	1.14	18.68	2.99
SO 0305	Olives for oil production, raw	RAC	0.33	1.47	0.49	0.67	0.22	NC	–	1.26	0.42	0.04	0.01	7.63	2.52

CYANTRANILIPROLE (263) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
–	Olive oil (virgin and residue oil)	PP	0.4	2.17	0.87	0.13	0.05	0.05	0.02	1.32	0.53	0.10	0.04	2.76	1.10
SB 0716	Coffee bean raw (incl. roasted, incl. instant coffee, incl. substitutes)	RAC	0.01	1.36	0.01	3.59	0.04	1.44	0.01	5.18	0.05	2.02	0.02	1.70	0.02
HH 2095	Subgroup of Herbaceous plants, raw (incl. dried)	RAC	13	1.69	21.97	1.91	24.83	1.18	15.34	3.35	43.55	0.55	7.15	1.64	21.32
HS 0190	Subgroup of seed spices (incl. processed)	RAC	19	0.51	9.69	0.03	0.57	0.01	0.19	1.82	34.58	0.28	5.32	0.29	5.51
HS 0444	Peppers, chili, dried	PP	0.7	0.42	0.29	0.53	0.37	0.84	0.59	0.50	0.35	0.95	0.67	0.37	0.26
057	Dried herbs	–	16.65	–	–	–	–	–	–	–	–	–	–	–	–
DH 1100	Hops, dry	RAC	17.2	0.01	0.17	0.04	0.69	0.01	0.17	0.01	0.17	NC	–	0.01	0.17
DT 1114	Tea, green or black, fermented and dried, (including concentrates)	RAC	4.05	2.28	9.23	1.98	8.02	0.46	1.86	2.43	9.84	1.29	5.22	3.04	12.31
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.041	24.96	1.02	57.95	2.38	16.70	0.68	38.38	1.57	26.46	1.09	29.00	1.19
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.1	6.24	0.62	14.49	1.45	4.18	0.42	9.60	0.96	6.62	0.66	7.25	0.73
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.1	3.29	0.33	6.14	0.61	0.82	0.08	1.57	0.16	2.23	0.22	1.07	0.11
MO 0105	Edible offal (mammalian), raw	RAC	0.38	4.79	1.82	9.68	3.68	2.97	1.13	5.49	2.09	3.84	1.46	5.03	1.91
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.21	289.65	60.83	485.88	102.03	26.92	5.65	239.03	50.20	199.91	41.98	180.53	37.91
PM 0110	Poultry meat, raw (incl. prepared) – 90% as muscle	RAC	0.0039	13.17	0.05	26.78	0.10	7.24	0.03	116.71	0.46	22.54	0.09	32.09	0.13
PM 0110	Poultry meat, raw (incl. prepared) – 10% as fat	RAC	0.0083	1.46	0.01	2.98	0.02	0.80	0.01	12.97	0.11	2.50	0.02	3.57	0.03
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0.0083	0.10	0.00	0.10	0.00	NC	–	0.10	0.00	0.10	0.00	0.10	0.00
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0.0321	0.12	0.00	0.12	0.00	0.11	0.00	5.37	0.17	0.24	0.01	0.10	0.00
PE 0112	Eggs, raw, (incl. dried)	RAC	0.0426	7.84	0.33	23.08	0.98	2.88	0.12	14.89	0.63	9.81	0.42	14.83	0.63
	Total intake (µg/person) =				186.6		333.0		85.6		323.7		305.5		284.4
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (µg/person) =				1800		1800		1800		1800		1800		1800
	%ADI =				10.4%		18.5%		4.8%		18.0%		17.0%		15.8%
	Rounded %ADI =				10%		20%		5%		20%		20%		20%

CYANTRANILIPROLE (263) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
FC 0001	Group of Citrus fruit, raw (incl. citrus fruit juice, incl. kumquat commodities)	RAC	0.041	114.42	4.69	62.91	2.58	26.97	1.11	96.72	3.97	96.22	3.95	563.19	23.09
FP 0009	Group of Pome fruits, raw (incl. apple cider, excl. apple juice)	RAC	0.16	51.09	8.17	65.40	10.46	42.71	6.83	45.29	7.25	62.51	10.00	7.74	1.24
JF 0226	Apple juice. single strength (incl. concentrated)	PP	0.05	14.88	0.74	11.98	0.60	0.15	0.01	9.98	0.50	30.32	1.52	3.47	0.17
FS 0013	Subgroup of Cherries, raw	RAC	0.93	1.40	1.30	4.21	3.92	0.04	0.04	2.93	2.72	1.50	1.40	NC	–
FS 0014	Subgroup of Plums, raw	RAC	0.07	3.75	0.26	3.33	0.23	5.94	0.42	2.64	0.18	2.50	0.18	0.06	0.00
DF 0014	Plums, dried (prunes)	PP	0.54	0.61	0.33	0.35	0.19	0.05	0.03	0.35	0.19	0.49	0.26	0.13	0.07
FS 2001	Subgroup of peaches, raw (incl. dried apricots)	RAC	0.34	13.03	4.43	16.29	5.54	8.29	2.82	12.95	4.40	5.35	1.82	0.04	0.01
FB 2005	Subgroup of Caneberries, raw	RAC	1	0.56	0.56	1.43	1.43	0.14	0.14	1.23	1.23	1.14	1.14	0.01	0.01
FB 2006	Subgroup of Bush berries, raw (including processed)	RAC	0.75	1.31	0.98	5.50	4.13	0.01	0.01	2.57	1.93	0.82	0.62	2.15	1.61
FB 0269	Grapes, raw (i.e. table grapes)	RAC	0.21	6.33	1.33	11.22	2.36	5.21	1.09	9.38	1.97	4.55	0.96	0.78	0.16
JF 0269	Grape juice (from wine grapes)	PP	0.11	0.56	0.06	1.96	0.22	0.02	0.00	2.24	0.25	2.27	0.25	0.34	0.04
–	Graps must (from wine grapes)	PP	0.32	0.16	0.05	0.09	0.03	0.01	0.00	0.12	0.04	0.11	0.04	NC	–
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.21	88.93	18.68	62.41	13.11	1.84	0.39	25.07	5.26	61.17	12.85	5.84	1.23
FB 0265	Cranberry, raw	RAC	0.012	0.06	0.00	0.01	0.00	0.01	0.00	1.22	0.01	0.11	0.00	NC	–
FB 0275	Strawberry, raw	RAC	0.455	4.49	2.04	5.66	2.58	0.02	0.01	6.63	3.02	5.75	2.62	0.05	0.02
FT 0305	Table olives, raw	RAC	0.33	0.04	0.01	0.01	0.00	0.01	0.00	0.03	0.01	0.01	0.00	NC	–
DM 0305	Table olives. preserved	PP	0.19	1.85	0.35	2.34	0.44	0.01	0.00	1.11	0.21	1.54	0.29	0.26	0.05
FI 0326	Avocado, raw	RAC	0.03	2.65	0.08	0.87	0.03	0.46	0.01	1.64	0.05	1.30	0.04	0.96	0.03
FI 0345	Mango, raw (incl. canned Mango, incl. mango juice)	RAC	0.01	1.80	0.02	0.63	0.01	10.05	0.10	1.07	0.01	3.52	0.04	16.44	0.16
FI 0350	Papaya, raw	RAC	0.016	0.31	0.00	0.18	0.00	1.50	0.02	0.51	0.01	0.54	0.01	1.08	0.02
FI 0355	Pomegranate, raw, (incl. processed)	RAC	0.01	7.91	0.08	9.72	0.10	7.67	0.08	5.26	0.05	9.04	0.09	14.43	0.14
VA 0381	Garlic, raw	RAC	0.02	0.98	0.02	1.49	0.03	12.88	0.26	3.74	0.07	2.05	0.04	1.14	0.02
–	Onions, dry, raw	RAC	0.02	19.69	0.39	29.83	0.60	24.64	0.49	31.35	0.63	9.72	0.19	12.59	0.25
–	Onions. green, raw	RAC	1.3	1.55	2.02	0.74	0.96	1.05	1.37	3.74	4.86	0.94	1.22	6.45	8.39
VB 0040	Group of Brassica vegetables (excl. Brassica leafy vegetables), raw	RAC	0.56	20.71	11.60	39.81	22.29	25.06	14.03	37.93	21.24	18.12	10.15	16.74	9.37
VC 2039	Subgroup of Cucumbers and Squashes, raw	RAC	0.065	7.14	0.46	16.92	1.10	37.58	2.44	15.16	0.99	4.42	0.29	12.67	0.82
VC 2040	Subgroup of Melons. Pumpkins and Winter squashes	RAC	0.01	20.68	0.21	25.00	0.25	85.72	0.86	34.31	0.34	11.54	0.12	23.32	0.23
VO 0448	Tomato, raw	RAC	0.08	32.13	2.57	51.27	4.10	34.92	2.79	73.37	5.87	15.15	1.21	8.88	0.71
–	Tomato, canned (& peeled)	PP	0.004	7.57	0.03	2.66	0.01	0.30	0.00	0.97	0.00	7.31	0.03	0.41	0.00
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.07	4.96	0.35	3.20	0.22	0.15	0.01	1.61	0.11	6.88	0.48	0.52	0.04
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.014	0.80	0.01	0.07	0.00	0.05	0.00	0.61	0.01	0.40	0.01	0.08	0.00

CYANTRANILIPROLE (263) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), excl. okra	RAC	0.08	6.39	0.51	15.53	1.24	19.09	1.53	10.36	0.83	8.29	0.66	4.53	0.36
VO 2046	Subgroup of eggplants	RAC	0.08	1.01	0.08	1.69	0.14	21.37	1.71	3.00	0.24	1.40	0.11	NC	–
VL 0053	Group of Leafy vegetables, raw	RAC	4.7	18.83	88.50	21.85	102.70	121.23	569.78	43.09	202.52	18.18	85.45	18.32	86.10
VP 2060	Subgroup of beans with pods (all commodities within this group)	RAC	0.29	5.07	1.47	0.83	0.24	0.17	0.05	3.70	1.07	NC	–	NC	–
VP 2062	Subgroup of succulent beans without pods (all commodities within this group)	RAC	0.07	2.42	0.17	6.09	0.43	4.33	0.30	2.09	0.15	18.99	1.33	0.17	0.01
VP 2063	Subgroup of succulent peas without pods	RAC	0.07	10.72	0.75	1.99	0.14	2.72	0.19	4.26	0.30	4.23	0.30	NC	–
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.01	1.51	0.02	1.50	0.02	1.90	0.02	5.11	0.05	1.36	0.01	23.43	0.23
VD 0541	Soya Bean, dry, raw (incl. paste, incl. curd, incl. oil, incl. sauce)	RAC	0.033	106.33	3.51	117.78	3.89	42.12	1.39	195.70	6.46	222.52	7.34	80.47	2.66
VR 2070	Subgroup of Root vegetables, raw	RAC	0.01	64.22	0.64	65.78	0.66	49.73	0.50	57.68	0.58	113.82	1.14	37.27	0.37
VR 0573	Arrowroot, raw	RAC	0.01	0.02	0.00	0.01	0.00	2.05	0.02	0.21	0.00	NC	–	0.76	0.01
VR 0463	Cassava raw (incl. starch, incl. tapioca, incl. flour) (i.e. Manioc)	RAC	0.01	0.01	0.00	NC	–	20.96	0.21	0.14	0.00	NC	–	9.62	0.10
VR 0585	Jerusalem artichoke, raw (i.e. Topinambur)	RAC	0.01	0.11	0.00	0.01	0.00	NC	–	0.22	0.00	NC	–	0.78	0.01
VR 0589	Potato, raw (incl. flour, incl. frozen, incl. starch, incl. tapioca)	RAC	0.02	225.03	4.50	234.24	4.68	71.48	1.43	177.55	3.55	234.55	4.69	37.71	0.75
VR 0508	Sweet potato, raw (incl. dried)	RAC	0.01	0.93	0.01	0.32	0.00	64.65	0.65	5.37	0.05	0.30	0.00	3.13	0.03
VR 0504	Tannia, raw (i.e. Tanier. Yautia)	RAC	0.01	NC	–	NC	–	NC	–	0.01	0.00	NC	–	10.74	0.11
VR 0505	Taro, raw (i.e. Dasheen. Eddoe)	RAC	0.01	NC	–	NC	–	1.93	0.02	0.84	0.01	NC	–	19.94	0.20
VR 0600	Yams, raw (incl. dried)	RAC	0.01	NC	–	NC	–	0.03	0.00	0.71	0.01	NC	–	17.57	0.18
VR 2072	Subgroup of Aquatic root and tuber vegetables	RAC	0.01	NC	–	NC	–	3.42	0.03	NC	–	NC	–	NC	–
VS 0624	Celery	RAC	2	7.68	15.36	2.85	5.70	NC	–	3.34	6.68	16.83	33.66	4.04	8.08
CM 0649 (GC 0649)	Rice, husked, dry (incl. polished, incl. flour, incl. starch, incl. oil, incl. beverages)	REP	0.01	20.96	0.21	16.04	0.16	339.67	3.40	75.51	0.76	16.86	0.17	86.13	0.86
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. flour, incl. oil, incl. beer, incl. germ, incl. starch)	RAC	0	18.51	0.00	26.18	0.00	26.04	0.00	39.99	0.00	7.36	0.00	64.58	0.00
TN 0085	Group of Tree nuts, raw (incl. processed)	RAC	0.01	8.52	0.09	8.94	0.09	15.09	0.15	9.60	0.10	14.57	0.15	26.26	0.26
SO 0495	Rape seed, raw (incl. oil)	RAC	0.077	32.68	2.52	19.91	1.53	7.83	0.60	15.69	1.21	NC	–	NC	–
SO 0702	Sunflower seed, raw (incl. oil)	RAC	0.067	23.40	1.57	29.33	1.97	1.24	0.08	13.85	0.93	6.48	0.43	6.91	0.46
SO 0691	Cotton seed, raw (incl. oil)	RAC	0.16	10.71	1.71	4.23	0.68	7.19	1.15	7.54	1.21	5.66	0.91	2.38	0.38
SO 0305	Olives for oil production, raw	RAC	0.33	0.35	0.12	0.01	0.00	0.01	0.00	0.57	0.19	0.06	0.02	NC	–

CYANTRANILIPROLE (263) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
–	Olive oil (virgin and residue oil)	PP	0.4	3.40	1.36	9.49	3.80	0.02	0.01	4.28	1.71	2.74	1.10	0.48	0.19
SB 0716	Coffee bean raw (incl. roasted, incl. instant coffee, incl. substitutes)	RAC	0.01	10.90	0.11	12.44	0.12	0.77	0.01	9.48	0.09	22.07	0.22	8.15	0.08
HH 2095	Subgroup of Herbaceous plants, raw (incl. dried)	RAC	13	2.61	33.93	2.31	30.03	8.89	115.57	3.92	50.96	1.16	15.08	2.06	26.78
HS 0190	Subgroup of seed spices (incl. processed)	RAC	19	0.25	4.75	0.26	4.94	0.10	1.90	0.16	3.04	0.49	9.31	0.11	2.09
HS 0444	Peppers, chili, dried	PP	0.7	0.11	0.08	0.21	0.15	0.36	0.25	0.21	0.15	0.25	0.18	0.15	0.11
057	Dried herbs	–	16.65	–	–	–	–	–	–	–	–	–	–	–	–
DH 1100	Hops, dry	RAC	17.2	NC	–	NC	–	0.02	0.34	0.02	0.34	NC	–	NC	–
DT 1114	Tea, green or black, fermented and dried, (including concentrates)	RAC	4.05	2.91	11.79	1.73	7.01	1.14	4.62	1.85	7.49	2.29	9.27	0.74	3.00
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.041	112.02	4.59	120.71	4.95	63.46	2.60	88.99	3.65	96.24	3.95	41.02	1.68
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.1	28.01	2.80	30.18	3.02	15.86	1.59	22.25	2.22	24.06	2.41	10.25	1.03
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.1	6.44	0.64	15.51	1.55	3.79	0.38	8.29	0.83	18.44	1.84	8.00	0.80
MO 0105	Edible offal (mammalian), raw	RAC	0.38	15.17	5.76	5.19	1.97	6.30	2.39	6.78	2.58	3.32	1.26	3.17	1.20
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.21	388.92	81.67	335.88	70.53	49.15	10.32	331.25	69.56	468.56	98.40	245.45	51.54
PM 0110	Poultry meat, raw (incl. prepared) – 90% as muscle	RAC	0.0039	66.38	0.26	48.47	0.19	21.58	0.08	78.41	0.31	48.04	0.19	76.01	0.30
PM 0110	Poultry meat, raw (incl. prepared) – 10% as fat	RAC	0.0083	7.38	0.06	5.39	0.04	2.40	0.02	8.71	0.07	5.34	0.04	8.45	0.07
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0.0083	0.10	0.00	0.10	0.00	NC	–	0.10	0.00	0.71	0.01	NC	–
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0.0321	0.33	0.01	0.72	0.02	0.27	0.01	0.35	0.01	0.80	0.03	NC	–
PE 0112	Eggs, raw, (incl. dried)	RAC	0.0426	25.84	1.10	29.53	1.26	28.05	1.19	33.19	1.41	36.44	1.55	8.89	0.38
	Total intake (µg/person) =				332.5		331.3		759.9		438.7		333.0		238.3
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (µg/person) =				1800		1800		1650		1800		1800		1800
	%ADI =				18.5%		18.4%		46.1%		24.4%		18.5%		13.2%
	Rounded %ADI =				20%		20%		50%		20%		20%		10%

CYANTRANILIPROLE (263) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets: g/person/day					Intake = daily intake: µg/person				
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
FC 0001	Group of Citrus fruit, raw (incl. citrus fruit juice, incl. kumquat commodities)	RAC	0.041	21.16	0.87	2.94	0.12	58.52	2.40	0.44	0.02	5.13	0.21
FP 0009	Group of Pome fruits, raw (incl. apple cider, excl. apple juice)	RAC	0.16	68.85	11.02	10.93	1.75	70.82	11.33	189.78	30.36	19.56	3.13
JF 0226	Apple juice. single strength (incl. concentrated)	PP	0.05	0.03	0.00	0.10	0.01	7.19	0.36	0.03	0.00	NC	–
FS 0013	Subgroup of Cherries, raw	RAC	0.93	0.01	0.01	0.01	0.01	5.96	5.54	0.01	0.01	NC	–
FS 0014	Subgroup of Plums, raw	RAC	0.07	0.07	0.00	0.01	0.00	15.56	1.09	0.01	0.00	NC	–
DF 0014	Plums, dried (prunes)	PP	0.54	0.01	0.01	0.01	0.01	0.37	0.20	0.01	0.01	NC	–
FS 2001	Subgroup of peaches, raw (incl. dried apricots)	RAC	0.34	0.02	0.01	0.01	0.00	10.76	3.66	0.01	0.00	NC	–
FB 2005	Subgroup of Caneberries, raw	RAC	1	0.01	0.01	7.30	7.30	2.29	2.29	0.01	0.01	NC	–
FB 2006	Subgroup of Bush berries, raw (including processed)	RAC	0.75	0.82	0.62	4.05	3.04	5.94	4.46	0.43	0.32	2.66	2.00
FB 0269	Grapes, raw (i.e. table grapes)	RAC	0.21	0.14	0.03	0.36	0.08	15.22	3.20	0.01	0.00	0.09	0.02
JF 0269	Grape juice (from wine grapes)	PP	0.11	0.01	0.00	0.01	0.00	0.41	0.05	0.01	0.00	NC	–
–	Graps must (from wine grapes)	PP	0.32	0.01	0.00	0.01	0.00	0.11	0.04	0.01	0.00	0.19	0.06
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.21	0.31	0.07	0.23	0.05	60.43	12.69	0.52	0.11	31.91	6.70
FB 0265	Cranberry, raw	RAC	0.012	NC	–	NC	–	0.03	0.00	NC	–	NC	–
FB 0275	Strawberry, raw	RAC	0.455	0.01	0.00	0.01	0.00	3.35	1.52	0.01	0.00	0.01	0.00
FT 0305	Table olives, raw	RAC	0.33	NC	–	NC	–	0.01	0.00	NC	–	NC	–
DM 0305	Table olives. preserved	PP	0.19	0.01	0.00	0.01	0.00	1.65	0.31	0.01	0.00	0.23	0.04
FI 0326	Avocado, raw	RAC	0.03	1.12	0.03	0.01	0.00	0.84	0.03	0.01	0.00	6.60	0.20
FI 0345	Mango, raw (incl. canned Mango, incl. mango juice)	RAC	0.01	12.25	0.12	6.83	0.07	0.76	0.01	0.01	0.00	20.12	0.20
FI 0350	Papaya, raw	RAC	0.016	6.47	0.10	0.25	0.00	0.19	0.00	0.01	0.00	26.42	0.42
FI 0355	Pomegranate, raw, (incl. processed)	RAC	0.01	5.49	0.05	27.17	0.27	NC	–	2.89	0.03	17.87	0.18
VA 0381	Garlic, raw	RAC	0.02	0.82	0.02	2.06	0.04	3.79	0.08	0.03	0.00	0.29	0.01
–	Onions, dry, raw	RAC	0.02	9.01	0.18	20.24	0.40	30.90	0.62	9.61	0.19	2.11	0.04
–	Onions. green, raw	RAC	1.3	1.43	1.86	0.05	0.07	0.20	0.26	NC	–	6.30	8.19
VB 0040	Group of Brassica vegetables (excl. Brassica leafy vegetables), raw	RAC	0.56	5.46	3.06	4.28	2.40	58.72	32.88	0.02	0.01	NC	–
VC 2039	Subgroup of Cucumbers and Squashes, raw	RAC	0.065	0.92	0.06	3.20	0.21	13.55	0.88	1.91	0.12	0.05	0.00
VC 2040	Subgroup of Melons. Pumpkins and Winter squashes	RAC	0.01	5.04	0.05	6.54	0.07	38.26	0.38	11.70	0.12	NC	–
VO 0448	Tomato, raw	RAC	0.08	12.99	1.04	4.79	0.38	58.40	4.67	0.92	0.07	0.09	0.01
–	Tomato, canned (& peeled)	PP	0.004	0.07	0.00	0.08	0.00	2.42	0.01	0.07	0.00	NC	–
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.07	0.58	0.04	0.22	0.02	2.21	0.15	0.24	0.02	3.10	0.22
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.014	0.05	0.00	0.01	0.00	0.42	0.01	0.01	0.00	0.02	0.00
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), excl. okra	RAC	0.08	8.97	0.72	14.13	1.13	25.14	2.01	0.91	0.07	NC	–
VO 2046	Subgroup of eggplants	RAC	0.08	1.31	0.10	8.26	0.66	3.95	0.32	0.01	0.00	NC	–

CYANTRANILIPROLE (263) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets: g/person/day						Intake = daily intake: µg/person			
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
VL 0053	Group of Leafy vegetables, raw	RAC	4.7	12.42	58.37	8.75	41.13	7.53	35.39	7.07	33.23	14.11	66.32
VP 2060	Subgroup of beans with pods (all commodities within this group)	RAC	0.29	NC	–	NC	–	NC	–	NC	–	NC	–
VP 2062	Subgroup of succulent beans without pods (all commodities within this group)	RAC	0.07	0.37	0.03	3.14	0.22	4.88	0.34	0.01	0.00	NC	–
VP 2063	Subgroup of succulent peas without pods	RAC	0.07	0.21	0.01	0.02	0.00	5.51	0.39	0.02	0.00	NC	–
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.01	7.11	0.07	2.33	0.02	3.76	0.04	44.70	0.45	3.27	0.03
VD 0541	Soya Bean, dry, raw (incl. paste, incl. curd, incl. oil, incl. sauce)	RAC	0.033	15.80	0.52	14.29	0.47	104.36	3.44	17.11	0.56	35.20	1.16
VR 2070	Subgroup of Root vegetables, raw	RAC	0.01	31.84	0.32	23.38	0.23	68.28	0.68	17.52	0.18	71.01	0.71
VR 0573	Arrowroot, raw	RAC	0.01	13.83	0.14	18.24	0.18	0.01	0.00	0.05	0.00	19.60	0.20
VR 0463	Cassava raw (incl. starch, incl. tapioca, incl. flour) (i.e. Manioc)	RAC	0.01	91.92	0.92	34.12	0.34	NC	–	259.92	2.60	45.48	0.45
VR 0585	Jerusalem artichoke, raw (i.e. Topinambur)	RAC	0.01	14.22	0.14	18.75	0.19	0.01	0.00	0.06	0.00	20.14	0.20
VR 0589	Potato, raw (incl. flour, incl. frozen, incl. starch, incl. tapioca)	RAC	0.02	23.96	0.48	13.56	0.27	213.41	4.27	104.35	2.09	8.56	0.17
VR 0508	Sweet potato, raw (incl. dried)	RAC	0.01	28.83	0.29	61.55	0.62	0.15	0.00	221.94	2.22	NC	–
VR 0504	Tannia, raw (i.e. Tanier. Yautia)	RAC	0.01	NC	–	NC	–	0.01	0.00	NC	–	NC	–
VR 0505	Taro, raw (i.e. Dasheen. Eddoe)	RAC	0.01	6.71	0.07	31.91	0.32	NC	–	10.73	0.11	264.31	2.64
VR 0600	Yams, raw (incl. dried)	RAC	0.01	70.93	0.71	30.62	0.31	0.07	0.00	5.65	0.06	30.85	0.31
VR 2072	Subgroup of Aquatic root and tuber vegetables	RAC	0.01	NC	–	NC	–	NC	–	NC	–	NC	–
VS 0624	Celery	RAC	2	3.66	7.32	2.65	5.30	4.84	9.68	2.47	4.94	4.94	9.88
CM 0649 (GC 0649)	Rice, husked, dry (incl. polished, incl. flour, incl. starch, incl. oil, incl. beverages)	REP	0.01	52.55	0.53	286.02	2.86	18.64	0.19	19.67	0.20	75.09	0.75
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. flour, incl. oil, incl. beer, incl. germ, incl. starch)	RAC	0	116.66	0.00	10.52	0.00	38.46	0.00	76.60	0.00	34.44	0.00
TN 0085	Group of Tree nuts, raw (incl. processed)	RAC	0.01	4.39	0.04	135.53	1.36	6.11	0.06	0.72	0.01	317.74	3.18
SO 0495	Rape seed, raw (incl. oil)	RAC	0.077	0.19	0.01	0.07	0.01	12.07	0.93	0.08	0.01	NC	–
SO 0702	Sunflower seed, raw (incl. oil)	RAC	0.067	0.94	0.06	0.22	0.01	32.01	2.14	12.12	0.81	0.48	0.03
SO 0691	Cotton seed, raw (incl. oil)	RAC	0.16	8.14	1.30	0.32	0.05	2.84	0.45	2.69	0.43	0.97	0.16
SO 0305	Olives for oil production, raw	RAC	0.33	NC	–	NC	–	0.02	0.01	NC	–	NC	–
–	Olive oil (virgin and residue oil)	PP	0.4	0.03	0.01	0.02	0.01	2.14	0.86	0.01	0.00	0.10	0.04
SB 0716	Coffee bean raw (incl. roasted, incl. instant coffee, incl. substitutes)	RAC	0.01	0.95	0.01	1.32	0.01	11.64	0.12	2.96	0.03	14.73	0.15
HH 2095	Subgroup of Herbaceous plants, raw (incl. dried)	RAC	13	1.85	24.05	1.67	21.71	2.80	36.40	1.24	16.12	2.75	35.75
HS 0190	Subgroup of seed spices (incl. processed)	RAC	19	0.02	0.38	1.51	28.69	0.23	4.37	0.01	0.19	0.05	0.95
HS 0444	Peppers, chili, dried	PP	0.7	0.58	0.41	1.27	0.89	1.21	0.85	0.12	0.08	NC	–

CYANTRANILIPROLE (263) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
057	Dried herbs	–	16.65	–	–	–	–	–	–	–	–	–	–
DH 1100	Hops, dry	RAC	17.2	NC	–	NC	–	0.04	0.69	NC	–	NC	–
DT 1114	Tea, green or black, fermented and dried, (including concentrates)	RAC	4.05	0.53	2.15	5.25	21.26	0.86	3.48	0.56	2.27	0.88	3.56
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.041	23.34	0.96	40.71	1.67	97.15	3.98	18.06	0.74	57.71	2.37
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.1	5.84	0.58	10.18	1.02	24.29	2.43	4.52	0.45	14.43	1.44
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.1	1.05	0.11	1.14	0.11	18.69	1.87	0.94	0.09	3.12	0.31
MO 0105	Edible offal (mammalian), raw	RAC	0.38	4.64	1.76	1.97	0.75	10.01	3.80	3.27	1.24	3.98	1.51
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.21	108.75	22.84	70.31	14.77	436.11	91.58	61.55	12.93	79.09	16.61
PM 0110	Poultry meat, raw (incl. prepared) – 90% as muscle	RAC	0.0039	3.53	0.01	10.83	0.04	51.36	0.20	4.53	0.02	50.00	0.20
PM 0110	Poultry meat, raw (incl. prepared) – 10% as fat	RAC	0.0083	0.39	0.00	1.20	0.01	5.71	0.05	0.50	0.00	5.56	0.05
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0.0083	NC	–	NC	–	0.32	0.00	NC	–	NC	–
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0.0321	0.10	0.00	0.70	0.02	0.97	0.03	0.10	0.00	NC	–
PE 0112	Eggs, raw, (incl. dried)	RAC	0.0426	3.84	0.16	4.41	0.19	27.25	1.16	1.13	0.05	7.39	0.31
	Total intake (µg/person) =				144.9		163.1		301.3		113.6		171.1
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (µg/person) =				1800		1800		1800		1800		1800
	%ADI =				8.0%		9.1%		16.7%		6.3%		9.5%
	Rounded %ADI =				8%		9%		20%		6%		10%

CYFLUTHRIN (157)/BETA CYFLUTHRIN (228) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets as g/person/day						Intake as µg/person/day					
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
FC 0001	Group of Citrus fruit, raw (incl. citrus fruit juice, incl. kumquat commodities)	RAC	0.06	34.91	2.09	16.51	0.99	17.23	1.03	104.48	6.27	35.57	2.13	98.49	5.91
FC 0002	Subgroup of Lemons and limes, raw (incl. lemon juice) (incl. kumquat commodities)	RAC	0.06	4.82	0.29	2.45	0.15	3.93	0.24	25.44	1.53	8.74	0.52	16.23	0.97
FC 0003	Subgroup of Mandarins, raw (incl. mandarin juice)	RAC	0.06	6.18	0.37	3.66	0.22	0.25	0.02	6.82	0.41	3.49	0.21	19.38	1.16
FC 0004	Subgroup of Oranges, sweet, sour, raw (incl. orange juice)	RAC	0.06	23.26	1.40	9.71	0.58	12.09	0.73	62.02	3.72	22.09	1.33	59.91	3.59
JF 0004	Subgroup of Oranges. juice (single strength, incl. concentrated)	PP	0.003	1.27	0.00	2.20	0.01	0.09	0.00	11.81	0.04	0.46	0.00	1.69	0.01
FC 0005	Subgroup of Pummelo and grapefruits, raw (incl. grapefruit juice)	RAC	0.06	0.66	0.04	0.69	0.04	0.96	0.06	10.20	0.61	1.25	0.08	2.97	0.18
FP 0226	Apple, raw (incl. cider, excl. juice)	RAC	0.02	13.49	0.27	26.63	0.53	15.05	0.30	16.28	0.33	6.47	0.13	47.88	0.96
JF 0226	Apple juice. single strength (incl. concentrated)	PP	0.0012	0.32	0.00	3.07	0.00	0.07	0.00	5.00	0.01	0.29	0.00	5.57	0.01
FP 0230	Pear, raw	RAC	0.02	2.16	0.04	6.24	0.12	0.05	0.00	4.07	0.08	1.16	0.02	5.34	0.11
FB 0269	Grapes, raw (i.e. table grapes)	RAC	0.1165	12.68	1.48	9.12	1.06	0.03	0.00	16.88	1.97	3.70	0.43	54.42	6.34
DF 0269	Grapes, dried (= currants. raisins and sultanas) (from table grapes)	PP	0.431	0.51	0.22	0.51	0.22	0.01	0.00	1.27	0.55	0.12	0.05	2.07	0.89
JF 0269	Grape juice (from wine grapes)	PP	0.0113	0.14	0.00	0.29	0.00	0.05	0.00	0.30	0.00	0.24	0.00	0.05	0.00
–	Graps must (from wine grapes)	PP	0.15	0.33	0.05	0.13	0.02	0.01	0.00	0.02	0.00	0.01	0.00	0.02	0.00
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.0024	0.67	0.00	12.53	0.03	2.01	0.00	1.21	0.00	3.53	0.01	4.01	0.01
FB 1235	Table Grapes, raw	RAC	0.1165	12.68	1.48	9.12	1.06	0.03	0.00	16.88	1.97	3.70	0.43	54.42	6.34
VB 0404	Cauliflower, raw	RAC	0.24	1.65	0.40	0.32	0.08	0.01	0.00	2.33	0.56	4.79	1.15	2.03	0.49
VB 0041	Cabbages. head, raw	RAC	0.01	2.73	0.03	27.92	0.28	0.55	0.01	4.47	0.04	4.27	0.04	10.25	0.10
VO 0448	Tomato, raw (incl. juice, incl. paste, incl. canned)	RAC	0.07	51.75	3.62	81.80	5.73	16.99	1.19	102.02	7.14	26.32	1.84	214.77	15.03
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.126	2.34	0.29	1.33	0.17	1.57	0.20	4.24	0.53	0.34	0.04	2.83	0.36
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.02	0.29	0.01	0.29	0.01	0.01	0.00	0.38	0.01	0.05	0.00	0.14	0.00
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), incl. okra	RAC	0.06	10.45	0.63	13.74	0.82	13.81	0.83	14.53	0.87	15.25	0.92	27.93	1.68
VO 0440	Eggplant, raw (i.e. aubergine)	RAC	0.05	5.58	0.28	4.31	0.22	0.89	0.04	9.31	0.47	13.64	0.68	20.12	1.01

CYFLUTHRIN (157)/BETA CYFLUTHRIN (228) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
VD 0541	Soya Bean, dry, raw (incl. paste, incl. curd, incl. oil, incl. sauce)	RAC	0.01	72.79	0.73	59.05	0.59	20.55	0.21	74.20	0.74	61.12	0.61	73.24	0.73
VR 0589	Potato, raw (incl. flour, incl. frozen, incl. starch, incl. tapioca)	RAC	0.01	59.74	0.60	316.14	3.16	9.78	0.10	60.26	0.60	54.12	0.54	119.82	1.20
GC 0653	Triticale, raw	RAC	0.014	NC	–	NC	–	NC	–	0.01	0.00	NC	–	NC	–
GC 0653	Triticale. flour (white flour and wholemeal flour)	PP	0.0106	NC	–	NC	–	NC	–	NC	–	0.31	0.00	NC	–
GC 0654	Wheat, raw (incl. bulgur, incl. fermented beverages, excl. germ, excl. wholemeal bread, excl. white flour products, excl. white bread)	RAC	0.014	0.01	0.00	1.12	0.02	NC	–	0.03	0.00	0.56	0.01	NC	–
GC 0654	Wheat, raw (incl. meslin)	RAC	0.014	0.01	0.00	1.12	0.02	NC	–	0.01	0.00	0.56	0.01	NC	–
CF 1210	Wheat, germ	PP	0.0108	NC	–	NC	–	0.01	0.00	0.01	0.00	0.14	0.00	0.01	0.00
CP 1212	Wheat, wholemeal bread	PP	0.0097	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.03	0.00	0.01	0.00
CF 1211	Wheat, white flour	PP	0.0049	299.27	1.47	263.32	1.29	27.93	0.14	214.18	1.05	133.47	0.65	340.03	1.67
–	Wheat, starch	PP	0.0029	0.02	0.00	NC	–	0.01	0.00	0.05	0.00	0.13	0.00	0.01	0.00
–	Wheat, gluten	PP	0.0225	0.01	0.00	0.01	0.00	0.01	0.00	0.27	0.01	0.01	0.00	0.03	0.00
SO 0495	Rape seed, raw (incl. oil)	RAC	0.05	0.93	0.05	1.16	0.06	0.49	0.02	2.53	0.13	9.32	0.47	2.02	0.10
OR 0691	Cotton seed oil, edible	PP	0.14	3.22	0.45	1.54	0.22	1.01	0.14	0.74	0.10	1.12	0.16	2.93	0.41
HS 0191	Subgroup of fruit or berry spices (incl. processed)	RAC	0.03	0.09	0.00	0.13	0.00	0.06	0.00	0.59	0.02	0.18	0.01	0.14	0.00
HS 0193	Subgroup of root or rhizome spices (incl. processed)	RAC	0.05	0.30	0.02	0.02	0.00	0.16	0.01	1.34	0.07	0.77	0.04	0.11	0.01
HS 0444	Peppers, chili, dried	PP	0.42	0.42	0.18	0.53	0.22	0.84	0.35	0.50	0.21	0.95	0.40	0.37	0.16
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.01	24.96	0.25	57.95	0.58	16.70	0.17	38.38	0.38	26.46	0.26	29.00	0.29
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.11	6.24	0.69	14.49	1.59	4.18	0.46	9.60	1.06	6.62	0.73	7.25	0.80
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.11	3.29	0.36	6.14	0.68	0.82	0.09	1.57	0.17	2.23	0.25	1.07	0.12
MO 0105	Edible offal (mammalian), raw	RAC	0.008	4.79	0.04	9.68	0.08	2.97	0.02	5.49	0.04	3.84	0.03	5.03	0.04
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.007	289.65	2.03	485.88	3.40	26.92	0.19	239.03	1.67	199.91	1.40	180.53	1.26
	Total intake (µg/person) =				19.8		24.2		6.6		33.4		15.6		51.9
	Bodyweight per region (kg bw) =				60		60		60		60		60		60

CYFLUTHRIN (157)/BETA CYFLUTHRIN (228) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day									
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
	ADI (µg/person) =				2400		2400		2400		2400		2400		2400
	%ADI =				0.8264%		1.0102%		0.2731%		1.3898%		0.6494%		2.1637%
	Rounded %ADI =				1%		1%		0%		1%		1%		2%

CYFLUTHRIN (157)/BETA CYFLUTHRIN (228) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day									
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
FC 0001	Group of Citrus fruit, raw (incl. citrus fruit juice, incl. kumquat commodities)	RAC	0.06	114.42	6.87	62.91	3.77	26.97	1.62	96.72	5.80	96.22	5.77	563.19	33.79
FC 0002	Subgroup of Lemons and limes, raw (incl. lemon juice) (incl. kumquat commodities)	RAC	0.06	10.12	0.61	15.69	0.94	2.88	0.17	12.30	0.74	22.32	1.34	6.59	0.40
FC 0003	Subgroup of Mandarins, raw (incl. mandarin juice)	RAC	0.06	12.42	0.75	14.99	0.90	16.08	0.96	10.78	0.65	9.94	0.60	NC	–
FC 0004	Subgroup of Oranges, sweet, sour, raw (incl. orange juice)	RAC	0.06	83.66	5.02	27.64	1.66	7.37	0.44	67.80	4.07	43.97	2.64	187.74	11.26
JF 0004	Subgroup of Oranges. juice (single strength, incl. concentrated)	PP	0.003	33.31	0.10	1.78	0.01	0.28	0.00	18.97	0.06	14.01	0.04	13.36	0.04
FC 0005	Subgroup of Pummelo and grapefruits, raw (incl. grapefruit juice)	RAC	0.06	8.21	0.49	4.60	0.28	0.64	0.04	5.85	0.35	19.98	1.20	368.86	22.13
FP 0226	Apple, raw (incl. cider, excl. juice)	RAC	0.02	41.14	0.82	56.49	1.13	26.64	0.53	31.58	0.63	51.94	1.04	3.05	0.06
JF 0226	Apple juice. single strength (incl. concentrated)	PP	0.0012	14.88	0.02	11.98	0.01	0.15	0.00	9.98	0.01	30.32	0.04	3.47	0.00
FP 0230	Pear, raw	RAC	0.02	8.79	0.18	8.44	0.17	12.37	0.25	9.60	0.19	10.27	0.21	0.23	0.00
FB 0269	Grapes, raw (i.e. table grapes)	RAC	0.1165	6.33	0.74	11.22	1.31	5.21	0.61	9.38	1.09	4.55	0.53	0.78	0.09
DF 0269	Grapes, dried (= currants. raisins and sultanas) (from table grapes)	PP	0.431	3.09	1.33	1.51	0.65	0.03	0.01	1.38	0.59	4.26	1.84	0.42	0.18
JF 0269	Grape juice (from wine grapes)	PP	0.0113	0.56	0.01	1.96	0.02	0.02	0.00	2.24	0.03	2.27	0.03	0.34	0.00
–	Graps must (from wine grapes)	PP	0.15	0.16	0.02	0.09	0.01	0.01	0.00	0.12	0.02	0.11	0.02	NC	–
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.0024	88.93	0.21	62.41	0.15	1.84	0.00	25.07	0.06	61.17	0.15	5.84	0.01
FB 1235	Table Grapes, raw	RAC	0.1165	6.33	0.74	11.22	1.31	5.21	0.61	9.38	1.09	4.55	0.53	0.78	0.09

CYFLUTHRIN (157)/BETA CYFLUTHRIN (228) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
VB 0404	Cauliflower, raw	RAC	0.24	5.27	1.26	5.01	1.20	NC	–	2.70	0.65	5.57	1.34	0.49	0.12
VB 0041	Cabbages. head, raw	RAC	0.01	8.97	0.09	27.12	0.27	1.44	0.01	24.96	0.25	4.55	0.05	11.23	0.11
VO 0448	Tomato, raw (incl. juice, incl. paste, incl. canned)	RAC	0.07	64.74	4.53	68.31	4.78	36.05	2.52	82.09	5.75	54.50	3.82	11.69	0.82
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.126	4.96	0.62	3.20	0.40	0.15	0.02	1.61	0.20	6.88	0.87	0.52	0.07
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.02	0.80	0.02	0.07	0.00	0.05	0.00	0.61	0.01	0.40	0.01	0.08	0.00
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), incl. okra	RAC	0.06	6.39	0.38	15.53	0.93	19.13	1.15	10.53	0.63	8.29	0.50	5.25	0.32
VO 0440	Eggplant, raw (i.e. aubergine)	RAC	0.05	1.01	0.05	1.69	0.08	21.37	1.07	3.00	0.15	1.40	0.07	NC	–
VD 0541	Soya Bean, dry, raw (incl. paste, incl. curd, incl. oil, incl. sauce)	RAC	0.01	106.33	1.06	117.78	1.18	42.12	0.42	195.70	1.96	222.52	2.23	80.47	0.80
VR 0589	Potato, raw (incl. flour, incl. frozen, incl. starch, incl. tapioca)	RAC	0.01	225.03	2.25	234.24	2.34	71.48	0.71	177.55	1.78	234.55	2.35	37.71	0.38
GC 0653	Triticale, raw	RAC	0.014	NC	–	NC	–	0.01	0.00	0.01	0.00	NC	–	NC	–
GC 0653	Triticale. flour (white flour and wholemeal flour)	PP	0.0106	0.01	0.00	0.14	0.00	0.23	0.00	NC	–	NC	–	NC	–
GC 0654	Wheat, raw (incl. bulgur, incl. fermented beverages, excl. germ, excl. wholemeal bread, excl. white flour products, excl. white bread)	RAC	0.014	NC	–	NC	–	0.02	0.00	0.83	0.01	NC	–	NC	–
GC 0654	Wheat, raw (incl. meslin)	RAC	0.014	NC	–	NC	–	NC	–	0.01	0.00	NC	–	NC	–
CF 1210	Wheat, germ	PP	0.0108	0.97	0.01	0.10	0.00	0.03	0.00	0.01	0.00	NC	–	0.04	0.00
CP 1212	Wheat, wholemeal bread	PP	0.0097	0.03	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.05	0.00	0.02	0.00
CF 1211	Wheat, white flour	PP	0.0049	182.77	0.90	187.54	0.92	103.82	0.51	180.42	0.88	164.00	0.80	118.84	0.58
–	Wheat, starch	PP	0.0029	NC	–	NC	–	0.01	0.00	0.31	0.00	NC	–	NC	–
–	Wheat, gluten	PP	0.0225	0.68	0.02	NC	–	0.01	0.00	0.01	0.00	NC	–	NC	–
SO 0495	Rape seed, raw (incl. oil)	RAC	0.05	32.68	1.63	19.91	1.00	7.83	0.39	15.69	0.78	NC	–	NC	–
OR 0691	Cotton seed oil, edible	PP	0.14	1.68	0.24	0.66	0.09	1.13	0.16	1.18	0.17	0.89	0.12	0.37	0.05

CYFLUTHRIN (157)/BETA CYFLUTHRIN (228) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets as g/person/day												
							Intake as µg/person/day									
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
HS 0191	Subgroup of fruit or berry spices (incl. processed)	RAC	0.03	0.33	0.01	0.41	0.01	0.14	0.00	0.35	0.01	0.79	0.02	0.90	0.03
HS 0193	Subgroup of root or rhizome spices (incl. processed)	RAC	0.05	0.27	0.01	0.07	0.00	0.54	0.03	0.69	0.03	0.67	0.03	0.58	0.03
HS 0444	Peppers, chili, dried	PP	0.42	0.11	0.05	0.21	0.09	0.36	0.15	0.21	0.09	0.25	0.11	0.15	0.06
MM 0095	Meat from mamMALS other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.01	112.0	1.12	120.71	1.21	63.46	0.63	88.99	0.89	96.24	0.96	41.02	0.41
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.11	28.01	3.08	30.18	3.32	15.86	1.75	22.25	2.45	24.06	2.65	10.25	1.13
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.11	6.44	0.71	15.51	1.71	3.79	0.42	8.29	0.91	18.44	2.03	8.00	0.88
MO 0105	Edible offal (mammalian), raw	RAC	0.008	15.17	0.12	5.19	0.04	6.30	0.05	6.78	0.05	3.32	0.03	3.17	0.03
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.007	388.9	2.72	335.88	2.35	49.15	0.34	331.25	2.32	468.5	3.28	245.4	1.72
	Total intake (µg/person) =				38.8		34.3		15.6		35.4		37.2		75.6
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (µg/person) =				2400		2400		2200		2400		2400		2400
	%ADI =				1.6160%		1.4273%		0.7089%		1.4733%		1.5499%		3.1500%
	Rounded %ADI =				2%		1%		1%		1%		2%		3%

CYFLUTHRIN (157)/BETA CYFLUTHRIN (228 **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets: g/person/day									
						Intake = daily intake: µg/person							
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
FC 0001	Group of Citrus fruit, raw (incl. citrus fruit juice, incl. kumquat commodities)	RAC	0.06	21.16	1.27	2.94	0.18	58.52	3.51	0.44	0.03	5.13	0.31
FC 0002	Subgroup of Lemons and limes, raw (incl. lemon juice) (incl. kumquat commodities)	RAC	0.06	18.97	1.14	0.97	0.06	6.23	0.37	0.09	0.01	3.35	0.20
FC 0003	Subgroup of Mandarins, raw (incl. mandarin juice)	RAC	0.06	0.16	0.01	0.27	0.02	9.06	0.54	0.01	0.00	0.02	0.00
FC 0004	Subgroup of Oranges, sweet, sour, raw (incl. orange juice)	RAC	0.06	1.34	0.08	1.65	0.10	40.03	2.40	0.33	0.02	1.76	0.11

CYFLUTHRIN (157)/BETA CYFLUTHRIN (228 **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
JF 0004	Subgroup of Oranges. juice (single strength, incl. concentrated)	PP	0.003	0.08	0.00	0.26	0.00	12.61	0.04	0.14	0.00	0.33	0.00
FC 0005	Subgroup of Pummelo and grapefruits, raw (incl. grapefruit juice)	RAC	0.06	0.68	0.04	0.05	0.00	3.21	0.19	0.01	0.00	NC	–
FP 0226	Apple, raw (incl. cider, excl. juice)	RAC	0.02	66.67	1.33	2.06	0.04	55.83	1.12	188.29	3.77	1.38	0.03
JF 0226	Apple juice. single strength (incl. concentrated)	PP	0.0012	0.03	0.00	0.10	0.00	7.19	0.01	0.03	0.00	NC	–
FP 0230	Pear, raw	RAC	0.02	0.07	0.00	0.14	0.00	9.45	0.19	0.01	0.00	0.14	0.00
FB 0269	Grapes, raw (i.e. table grapes)	RAC	0.1165	0.14	0.02	0.36	0.04	15.22	1.77	0.01	0.00	0.09	0.01
DF 0269	Grapes, dried (= currants. raisins and sultanas) (from table grapes)	PP	0.431	0.01	0.00	0.13	0.06	1.06	0.46	0.01	0.00	0.03	0.01
JF 0269	Grape juice (from wine grapes)	PP	0.0113	0.01	0.00	0.01	0.00	0.41	0.00	0.01	0.00	NC	–
–	Graps must (from wine grapes)	PP	0.15	0.01	0.00	0.01	0.00	0.11	0.02	0.01	0.00	0.19	0.03
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.0024	0.31	0.00	0.23	0.00	60.43	0.15	0.52	0.00	31.91	0.08
FB 1235	Table Grapes, raw	RAC	0.1165	0.14	0.02	0.36	0.04	15.22	1.77	0.01	0.00	0.09	0.01
VB 0404	Cauliflower, raw	RAC	0.24	0.01	0.00	0.01	0.00	2.73	0.66	0.01	0.00	NC	–
VB 0041	Cabbages. head, raw	RAC	0.01	3.82	0.04	2.99	0.03	49.16	0.49	0.01	0.00	NC	–
VO 0448	Tomato, raw (incl. juice, incl. paste, incl. canned)	RAC	0.07	15.50	1.09	5.78	0.40	71.52	5.01	2.00	0.14	12.50	0.88
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.126	0.58	0.07	0.22	0.03	2.21	0.28	0.24	0.03	3.10	0.39
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.02	0.05	0.00	0.01	0.00	0.42	0.01	0.01	0.00	0.02	0.00
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), incl. okra	RAC	0.06	15.20	0.91	14.23	0.85	25.14	1.51	0.91	0.05	NC	–
VO 0440	Eggplant, raw (i.e. aubergine)	RAC	0.05	1.31	0.07	8.26	0.41	3.95	0.20	0.01	0.00	NC	–
VD 0541	Soya Bean, dry, raw (incl. paste, incl. curd, incl. oil, incl. sauce)	RAC	0.01	15.80	0.16	14.29	0.14	104.36	1.04	17.11	0.17	35.20	0.35
VR 0589	Potato, raw (incl. flour, incl. frozen, incl. starch, incl. tapioca)	RAC	0.01	23.96	0.24	13.56	0.14	213.41	2.13	104.35	1.04	8.56	0.09
GC 0653	Triticale, raw	RAC	0.014	0.01	0.00	NC	–	NC	–	NC	–	NC	–
GC 0653	Triticale. flour (white flour and wholemeal flour)	PP	0.0106	NC	–	NC	–	NC	–	NC	–	NC	–
GC 0654	Wheat, raw (incl. bulgur, incl. fermented beverages, excl. germ, excl. wholemeal	RAC	0.014	0.01	0.00	NC	–	NC	–	NC	–	0.97	0.01

CYFLUTHRIN (157)/BETA CYFLUTHRIN (228 **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
	bread, excl. white flour products, excl. white bread)												
GC 0654	Wheat, raw (incl. meslin)	RAC	0.014	NC	–	NC	–	NC	–	NC	–	0.97	0.01
CF 1210	Wheat, germ	PP	0.0108	0.04	0.00	0.01	0.00	0.01	0.00	0.01	0.00	NC	–
CP 1212	Wheat, wholemeal bread	PP	0.0097	0.01	0.00	0.01	0.00	0.03	0.00	0.01	0.00	0.01	0.00
CF 1211	Wheat, white flour	PP	0.0049	43.75	0.21	85.81	0.42	206.68	1.01	19.38	0.09	92.92	0.46
–	Wheat, starch	PP	0.0029	0.01	0.00	0.02	0.00	NC	–	NC	–	NC	–
–	Wheat, gluten	PP	0.0225	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.19	0.00
SO 0495	Rape seed, raw (incl. oil)	RAC	0.05	0.19	0.01	0.07	0.00	12.07	0.60	0.08	0.00	NC	–
OR 0691	Cotton seed oil, edible	PP	0.14	1.28	0.18	0.05	0.01	0.45	0.06	0.42	0.06	0.15	0.02
HS 0191	Subgroup of fruit or berry spices (incl. processed)	RAC	0.03	0.05	0.00	1.12	0.03	0.25	0.01	0.15	0.00	0.19	0.01
HS 0193	Subgroup of root or rhizome spices (incl. processed)	RAC	0.05	0.76	0.04	0.80	0.04	0.23	0.01	0.02	0.00	0.12	0.01
HS 0444	Peppers, chili, dried	PP	0.42	0.58	0.24	1.27	0.53	1.21	0.51	0.12	0.05	NC	–
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.01	23.34	0.23	40.71	0.41	97.15	0.97	18.06	0.18	57.71	0.58
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.11	5.84	0.64	10.18	1.12	24.29	2.67	4.52	0.50	14.43	1.59
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.11	1.05	0.12	1.14	0.13	18.69	2.06	0.94	0.10	3.12	0.34
MO 0105	Edible offal (mammalian), raw	RAC	0.008	4.64	0.04	1.97	0.02	10.01	0.08	3.27	0.03	3.98	0.03
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.007	108.75	0.76	70.31	0.49	436.11	3.05	61.55	0.43	79.09	0.55
	Total intake (µg/person) =				9.0		5.7		34.9		6.7		6.1
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (µg/person) =				2400		2400		2400		2400		2400
	%ADI =				0.3735%		0.2395%		1.4545%		0.2801%		0.2542%
	Rounded %ADI =				0%		0%		1%		0%		0%

CYPRODINIL (207) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets as g/person/day						Intake as µg/person/day					
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
FP 0009	Group of Pome fruits, raw (incl. apple cider, excl. apple juice)	RAC	0.48	19.35	9.29	34.06	16.35	17.87	8.58	25.74	12.36	7.69	3.69	56.85	27.29
JF 0226	Apple juice. single strength (incl. concentrated)	PP	0.015	0.32	0.00	3.07	0.05	0.07	0.00	5.00	0.08	0.29	0.00	5.57	0.08
FS 0012	Group of Stone fruits, raw (incl. dried apricots, excl. dried plums)	RAC	0.68	11.33	7.70	23.62	16.06	0.24	0.16	11.32	7.70	2.28	1.55	33.26	22.62
DF 0014	Plums, dried (prunes)	PP	1.2	0.09	0.11	0.06	0.07	0.01	0.01	0.18	0.22	0.04	0.05	0.06	0.07
FB 2005	Subgroup of Caneberries, raw	RAC	2.2	0.42	0.92	1.05	2.31	0.01	0.02	0.02	0.04	0.02	0.04	1.24	2.73
FB 2006	Subgroup of Bush berries, raw (including processed)	RAC	2.2	0.53	1.17	1.31	2.88	0.40	0.88	1.66	3.65	0.01	0.02	0.99	2.18
FB 2007	Subgroup of Large shrub/tree berries, raw (including processed)	RAC	2.2	0.62	1.36	0.33	0.73	0.34	0.75	1.42	3.12	0.01	0.02	1.51	3.32
FB 0269	Grapes, raw (incl. must, excl. dried, excl. juice, excl. wine)	RAC	0.79	13.02	10.29	9.25	7.31	0.03	0.02	16.91	13.36	3.70	2.92	54.44	43.01
DF 0269	Grapes, dried (= currants. raisins and sultanas) (from table grapes)	PP	1.7	0.51	0.87	0.51	0.87	0.01	0.02	1.27	2.16	0.12	0.20	2.07	3.52
JF 0269	Grape juice (from wine grapes)	PP	0.12	0.14	0.02	0.29	0.03	0.05	0.01	0.30	0.04	0.24	0.03	0.05	0.01
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.062	0.67	0.04	12.53	0.78	2.01	0.12	1.21	0.08	3.53	0.22	4.01	0.25
FB 2009	Subgroup of Low growing berries, raw	RAC	2.2	0.71	1.56	2.02	4.44	0.04	0.09	1.39	3.06	0.37	0.81	2.53	5.57
FT 0336	Guava, raw	RAC	0.485	0.47	0.23	0.01	0.00	0.48	0.23	0.49	0.24	4.42	2.14	0.06	0.03
FI 0326	Avocado, raw	RAC	0.265	0.13	0.03	0.03	0.01	2.05	0.54	2.54	0.67	2.34	0.62	0.12	0.03
FI 0345	Mango, raw	RAC	0.01	10.38	0.10	0.01	0.00	7.24	0.07	6.85	0.07	19.53	0.20	4.52	0.05
FI 0350	Papaya, raw	RAC	0.02	0.35	0.01	0.01	0.00	3.05	0.06	0.80	0.02	7.28	0.15	1.00	0.02
FI 0355	Pomegranate, raw, (incl. processed)	RAC	3.3	3.40	11.22	2.10	6.93	2.65	8.75	10.89	35.94	NC	–	6.67	22.01
–	Onions, dry, raw	RAC	0.065	29.36	1.91	37.50	2.44	3.56	0.23	34.78	2.26	18.81	1.22	43.38	2.82
VA 2032	Subgroup of Green Onions	RAC	0.065	2.64	0.17	3.09	0.20	1.05	0.07	2.89	0.19	0.61	0.04	5.24	0.34
VB 0042	Subgroup of Flowerhead Brassica, raw	RAC	0.27	2.54	0.69	0.49	0.13	0.01	0.00	3.57	0.96	7.79	2.10	3.12	0.84
VB 0041	Cabbages. head, raw	RAC	0.03	2.73	0.08	27.92	0.84	0.55	0.02	4.47	0.13	4.27	0.13	10.25	0.31
VC 0045	Group of Fruiting vegetables, cucurbits, raw	RAC	0.09	53.14	4.78	86.21	7.76	6.28	0.57	92.76	8.35	15.64	1.41	155.30	13.98
VO 2045	Subgroup of tomatoes, raw (incl. processed) (Lycopersicum spp. Only)	RAC	0.24	51.75	12.42	81.80	19.63	16.99	4.08	102.02	24.48	26.32	6.32	214.77	51.54
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.48	2.34	1.12	1.33	0.64	1.57	0.75	4.24	2.04	0.34	0.16	2.83	1.36
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.036	0.29	0.01	0.29	0.01	0.01	0.00	0.38	0.01	0.05	0.00	0.14	0.01
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), incl. okra	RAC	0.24	10.45	2.51	13.74	3.30	13.81	3.31	14.53	3.49	15.25	3.66	27.93	6.70
VO 2046	Subgroup of eggplants	RAC	0.24	5.58	1.34	4.31	1.03	0.89	0.21	9.31	2.23	13.64	3.27	20.12	4.83

CYPRODINIL (207) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets as g/person/day						Intake as µg/person/day						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
VL 2050	Subgroup of Leafy greens	RAC	11	3.93	43.23	5.28	58.08	3.07	33.77	14.53	159.83	8.25	90.75	12.75	140.25
VL 0054	Subgroup of Leaves of Brassicaceae, raw	RAC	0.37	2.63	0.97	9.27	3.43	1.86	0.69	5.82	2.15	19.53	7.23	4.90	1.81
VL 2052	Subgroup of Leaves of Root and Tuber Vegetables	RAC	11	0.18	1.98	0.31	3.41	0.84	9.24	0.47	5.17	2.06	22.66	0.23	2.53
VL 2053	Subgroup of Leaves of trees. shrubs and vines	RAC	11	0.39	4.29	0.69	7.59	0.43	4.73	1.04	11.44	4.57	50.27	0.50	5.50
VL 2054	Subgroup of Leafy aquatic vegetables	RAC	11	1.21	13.31	2.15	23.65	1.33	14.63	3.24	35.64	11.36	124.96	1.56	17.16
VL 2832	Witloof chicory (sprouts)	RAC	11	0.03	0.33	0.02	0.22	0.01	0.11	0.36	3.96	0.06	0.66	0.35	3.85
VP 2060	Subgroup of beans with pods (all commodities within this group)	RAC	0.6	0.68	0.41	NC	–	NC	–	0.39	0.23	0.22	0.13	0.49	0.29
VP 0062	Beans without pods: (Phaseolus spp.) (succulent seeds), raw	RAC	0.02	1.56	0.03	0.60	0.01	0.49	0.01	1.18	0.02	0.90	0.02	7.79	0.16
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.054	2.39	0.13	1.61	0.09	10.47	0.57	1.84	0.10	12.90	0.70	7.44	0.40
VD 0523	Broad Bean, dry, raw (incl. horse–Bean, field bean) (Vicia faba)	RAC	0.054	1.27	0.07	0.01	0.00	0.12	0.01	2.49	0.13	0.23	0.01	5.54	0.30
VD 0527	Cowpea,dry, raw (Vigna sinensis. Dolichos sinensis)	RAC	0.054	0.05	0.00	NC	–	1.74	0.09	0.01	0.00	0.01	0.00	0.07	0.00
VD 0541	Soya Bean, dry, raw (incl. paste, incl. curd, incl. oil, incl. sauce)	RAC	0.085	72.79	6.19	59.05	5.02	20.55	1.75	74.20	6.31	61.12	5.20	73.24	6.23
–	Beans (dry) NES: including inter alia lablab or hyacinth bean (Dolichos spp.); jack or sword bean (Canavalia spp.); winged bean (Psophocarpus tetragonolobus); guar bean (Cyamopsis tetragonoloba); velvet bean (Stizolobium spp.); yam bean (Pachyrrhizus erosus)	RAC	0.054	1.70	0.09	0.01	0.00	3.00	0.16	1.80	0.10	1.64	0.09	1.33	0.07
VD 2066	Subgroup of dry peas, raw	RAC	0.054	9.09	0.49	3.35	0.18	1.06	0.06	9.48	0.51	15.11	0.82	10.58	0.57
VR 0577	Carrots, raw	RAC	0.195	9.51	1.85	30.78	6.00	0.37	0.07	8.75	1.71	2.80	0.55	6.10	1.19
VR 0588	Parsnip, raw	RAC	0.09	0.59	0.05	1.05	0.09	0.65	0.06	1.58	0.14	NC	–	0.76	0.07
VR 0494	Radish roots, raw	RAC	0.01	2.31	0.02	4.09	0.04	2.53	0.03	6.15	0.06	5.88	0.06	2.97	0.03
VR 0589	Potato, raw (incl. flour, incl. frozen, incl. starch, incl. tapioca)	RAC	0.01	59.74	0.60	316.14	3.16	9.78	0.10	60.26	0.60	54.12	0.54	119.82	1.20
VS 0624	Celery	RAC	8.45	2.14	18.08	3.79	32.03	2.35	19.86	5.69	48.08	0.02	0.17	2.75	23.24
VS 0620	Artichoke globe, raw	RAC	1.2	0.69	0.83	0.01	0.01	0.01	0.01	0.32	0.38	0.26	0.31	1.21	1.45
GC 0654	Wheat, raw (incl. bulgur, incl. fermented beverages, incl. white flour products, incl. white bread, excl. germ, excl. wholemeal bread)	RAC	0.07	381.15	26.68	341.54	23.91	38.34	2.68	281.87	19.73	172.65	12.09	434.06	30.38
CP 1212	Wheat, wholemeal bread	PP	0.036	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.03	0.00	0.01	0.00
CF 1211	Wheat, white flour	PP	0.019	299.27	5.69	263.32	5.00	27.93	0.53	214.18	4.07	133.47	2.54	340.03	6.46
GC 0640	Barley, raw (incl. malt extract, incl. pot&pearled,	RAC	0.58	18.98	11.01	13.35	7.74	0.42	0.24	0.67	0.39	2.30	1.33	0.86	0.50

CYPRODINIL (207) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day									
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
	incl. flour & grits, incl. malt, excl. beer)														
–	Barley beer	PP	0.0058	4.87	0.03	93.78	0.54	24.28	0.14	12.76	0.07	39.28	0.23	18.15	0.11
TN 0660	Almonds, nutmeat	RAC	0.02	1.38	0.03	0.08	0.00	0.01	0.00	1.00	0.02	0.06	0.00	0.81	0.02
TN 0662	Brazil nuts, nutmeat	RAC	0.01	0.01	0.00	0.01	0.00	0.03	0.00	0.02	0.00	0.02	0.00	0.01	0.00
TN 0295	Cashew nuts, nutmeat	RAC	0.01	0.01	0.00	0.02	0.00	0.24	0.00	0.47	0.00	0.32	0.00	0.05	0.00
TN 0664	Chestnut, raw	RAC	0.01	0.03	0.00	0.02	0.00	0.01	0.00	0.31	0.00	0.09	0.00	0.67	0.01
TN 0665	Coconut, nutmeat (incl. copra, incl. desiccated, incl. oil)	RAC	0.01	1.73	0.02	1.20	0.01	6.63	0.07	10.18	0.10	13.07	0.13	2.98	0.03
TN 0666	Hazelnuts, nutmeat	RAC	0.01	0.03	0.00	0.13	0.00	0.01	0.00	0.11	0.00	0.01	0.00	1.11	0.01
TN 0669	Macadamia nuts, nutmeat (i.e. Queensland nuts)	RAC	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.04	0.00	NC	–	0.03	0.00
TN 0672	Pecan, nutmeat	RAC	0.01	0.05	0.00	0.05	0.00	0.02	0.00	0.14	0.00	0.09	0.00	0.13	0.00
TN 0673	Pine nut, nutmeat (i.e. pignolia nuts)	RAC	0.01	0.18	0.00	0.18	0.00	0.08	0.00	0.49	0.00	0.25	0.00	0.43	0.00
TN 0678	Walnut, nutmeat	RAC	0.01	0.23	0.00	1.49	0.01	0.01	0.00	0.33	0.00	0.07	0.00	2.06	0.02
SO 0495	Rape seed, raw	RAC	0.02	0.02	0.00	NC	–	NC	–	0.01	0.00	0.75	0.02	0.01	0.00
HH 0092	Group of Herbs, raw (incl. dried)	RAC	25	1.69	42.25	1.91	47.75	1.18	29.50	3.35	83.75	0.55	13.75	1.64	41.00
HS 0444	Peppers, chili, dried	PP	2	0.42	0.84	0.53	1.06	0.84	1.68	0.50	1.00	0.95	1.90	0.37	0.74
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat)	RAC	0	31.20	0.00	72.44	0.00	20.88	0.00	47.98	0.00	33.08	0.00	36.25	0.00
MO 0105	Edible offal (mammalian), raw	RAC	0	4.79	0.00	9.68	0.00	2.97	0.00	5.49	0.00	3.84	0.00	5.03	0.00
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0	289.65	0.00	485.88	0.00	26.92	0.00	239.03	0.00	199.91	0.00	180.53	0.00
PM 0110	Poultry meat, raw (incl. prepared)	RAC	0	14.63	0.00	29.76	0.00	8.04	0.00	129.68	0.00	25.04	0.00	35.66	0.00
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0	0.12	0.00	0.12	0.00	0.11	0.00	5.37	0.00	0.24	0.00	0.10	0.00
PE 0112	Eggs, raw, (incl. dried)	RAC	0	7.84	0.00	23.08	0.00	2.88	0.00	14.89	0.00	9.81	0.00	14.83	0.00
	Total intake (µg/person) =				249.5		323.9		150.3		512.7		368.1		501.1
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (µg/person) =				1800		1800		1800		1800		1800		1800
	%ADI =				13.9%		18.0%		8.4%		28.5%		20.4%		27.8%
	Rounded %ADI =				10%		20%		8%		30%		20%		30%

CYPRODINIL (207) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
FP 0009	Group of Pome fruits, raw (incl. apple cider, excl. apple juice)	RAC	0.48	51.09	24.52	65.40	31.39	42.71	20.50	45.29	21.74	62.51	30.00	7.74	3.72
JF 0226	Apple juice. single strength (incl. concentrated)	PP	0.015	14.88	0.22	11.98	0.18	0.15	0.00	9.98	0.15	30.32	0.45	3.47	0.05
FS 0012	Group of Stone fruits, raw (incl. dried apricots, excl. dried plums)	RAC	0.68	18.18	12.36	23.83	16.20	14.27	9.70	18.52	12.59	9.35	6.36	0.11	0.07
DF 0014	Plums, dried (prunes)	PP	1.2	0.61	0.73	0.35	0.42	0.05	0.06	0.35	0.42	0.49	0.59	0.13	0.16
FB 2005	Subgroup of Caneberries, raw	RAC	2.2	0.56	1.23	1.43	3.15	0.14	0.31	1.23	2.71	1.14	2.51	0.01	0.02
FB 2006	Subgroup of Bush berries, raw (including processed)	RAC	2.2	1.31	2.88	5.50	12.10	0.01	0.02	2.57	5.65	0.82	1.80	2.15	4.73
FB 2007	Subgroup of Large shrub/tree berries, raw (including processed)	RAC	2.2	8.26	18.17	0.14	0.31	0.07	0.15	0.13	0.29	0.19	0.42	1.87	4.11
FB 0269	Grapes, raw (incl. must, excl. dried, excl. juice, excl. wine)	RAC	0.79	6.48	5.12	11.31	8.93	5.21	4.12	9.50	7.51	4.66	3.68	0.78	0.62
DF 0269	Grapes, dried (= currants. raisins and sultanas) (from table grapes)	PP	1.7	3.09	5.25	1.51	2.57	0.03	0.05	1.38	2.35	4.26	7.24	0.42	0.71
JF 0269	Grape juice (from wine grapes)	PP	0.12	0.56	0.07	1.96	0.24	0.02	0.00	2.24	0.27	2.27	0.27	0.34	0.04
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.062	88.93	5.51	62.41	3.87	1.84	0.11	25.07	1.55	61.17	3.79	5.84	0.36
FB 2009	Subgroup of Low growing berries, raw	RAC	2.2	4.55	10.01	5.66	12.45	0.02	0.04	7.85	17.27	5.86	12.89	0.05	0.11
FT 0336	Guava, raw	RAC	0.485	0.01	0.00	NC	–	0.42	0.20	NC	–	NC	–	NC	–
FI 0326	Avocado, raw	RAC	0.265	2.65	0.70	0.87	0.23	0.46	0.12	1.64	0.43	1.30	0.34	0.96	0.25
FI 0345	Mango, raw	RAC	0.01	1.80	0.02	0.63	0.01	9.73	0.10	1.07	0.01	3.52	0.04	16.44	0.16
FI 0350	Papaya, raw	RAC	0.02	0.31	0.01	0.18	0.00	1.50	0.03	0.51	0.01	0.54	0.01	1.08	0.02
FI 0355	Pomegranate, raw, (incl. processed)	RAC	3.3	7.91	26.10	9.72	32.08	7.67	25.31	5.26	17.36	9.04	29.83	14.43	47.62
–	Onions, dry, raw	RAC	0.065	19.69	1.28	29.83	1.94	24.64	1.60	31.35	2.04	9.72	0.63	12.59	0.82
VA 2032	Subgroup of Green Onions	RAC	0.065	5.57	0.36	5.15	0.33	1.77	0.12	4.28	0.28	17.34	1.13	6.48	0.42
VB 0042	Subgroup of Flowerhead Brassica, raw	RAC	0.27	9.50	2.57	6.77	1.83	NC	–	3.21	0.87	9.36	2.53	0.75	0.20
VB 0041	Cabbages. head, raw	RAC	0.03	8.97	0.27	27.12	0.81	1.44	0.04	24.96	0.75	4.55	0.14	11.23	0.34
VC 0045	Group of Fruiting vegetables, cucurbits, raw	RAC	0.09	27.81	2.50	41.93	3.77	123.30	11.10	49.47	4.45	15.95	1.44	35.99	3.24
VO 2045	Subgroup of tomatoes, raw (incl. processed) (Lycopersicum spp. Only)	RAC	0.24	64.74	15.54	68.31	16.39	36.05	8.65	82.09	19.70	54.50	13.08	11.69	2.81
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.48	4.96	2.38	3.20	1.54	0.15	0.07	1.61	0.77	6.88	3.30	0.52	0.25
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.036	0.80	0.03	0.07	0.00	0.05	0.00	0.61	0.02	0.40	0.01	0.08	0.00
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), incl. okra	RAC	0.24	6.39	1.53	15.53	3.73	19.13	4.59	10.53	2.53	8.29	1.99	5.25	1.26

CYPRODINIL (207) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
VO 2046	Subgroup of eggplants	RAC	0.24	1.01	0.24	1.69	0.41	21.37	5.13	3.00	0.72	1.40	0.34	NC	–
VL 2050	Subgroup of Leafy greens	RAC	11	18.38	202.18	18.73	206.03	82.36	905.96	25.32	278.52	17.60	193.60	7.37	81.07
VL 0054	Subgroup of Leaves of Brassicaceae, raw	RAC	0.37	0.10	0.04	NC	–	26.78	9.91	5.00	1.85	0.58	0.21	5.68	2.10
VL 2052	Subgroup of Leaves of Root and Tuber Vegetables	RAC	11	NC	–	NC	–	NC	–	NC	–	NC	–	0.33	3.63
VL 2053	Subgroup of Leaves of trees. shrubs and vines	RAC	11	NC	–	NC	–	NC	–	NC	–	NC	–	0.74	8.14
VL 2054	Subgroup of Leafy aquatic vegetables	RAC	11	0.35	3.85	3.13	34.43	3.74	41.14	1.79	19.69	NC	–	2.30	25.30
VL 2832	Witloof chicory (sprouts)	RAC	11	1.50	16.50	0.95	10.45	NC	–	1.84	20.24	0.65	7.15	0.13	1.43
VP 2060	Subgroup of beans with pods (all commodities within this group)	RAC	0.6	5.07	3.04	0.83	0.50	0.17	0.10	3.70	2.22	NC	–	NC	–
VP 0062	Beans without pods: (Phaseolus spp.) (succulent seeds), raw	RAC	0.02	2.21	0.04	5.25	0.11	4.17	0.08	1.61	0.03	16.95	0.34	0.17	0.00
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.054	1.51	0.08	1.50	0.08	1.90	0.10	5.11	0.28	1.36	0.07	23.43	1.27
VD 0523	Broad Bean, dry, raw (incl. horse–Bean, field bean) (Vicia faba)	RAC	0.054	0.02	0.00	0.01	0.00	1.16	0.06	0.40	0.02	NC	–	0.06	0.00
VD 0527	Cowpea,dry, raw (Vigna sinensis. Dolichos sinensis)	RAC	0.054	NC	–	NC	–	0.16	0.01	0.01	0.00	NC	–	NC	–
VD 0541	Soya Bean, dry, raw (incl. paste, incl. curd, incl. oil, incl. sauce)	RAC	0.085	106.33	9.04	117.78	10.01	42.12	3.58	195.70	16.63	222.52	18.91	80.47	6.84
–	Beans (dry) NES: including inter alia lablab or hyacinth bean (Dolichos spp.); jack or sword bean (Canavalia spp.); winged bean (Psophocarpus tetragonolobus); guar bean (Cyamopsis tetragonoloba); velvet bean (Stizolobium spp.); yam bean (Pachyrrhizus erosus)	RAC	0.054	0.01	0.00	NC	–	0.57	0.03	0.11	0.01	0.16	0.01	0.94	0.05
VD 2066	Subgroup of dry peas, raw	RAC	0.054	5.01	0.27	3.76	0.20	1.82	0.10	3.44	0.19	3.49	0.19	5.15	0.28
VR 0577	Carrots, raw	RAC	0.195	26.26	5.12	27.13	5.29	10.07	1.96	16.49	3.22	44.69	8.71	8.75	1.71
VR 0588	Parsnip, raw	RAC	0.09	4.42	0.40	0.06	0.01	NC	–	NC	–	NC	–	1.12	0.10
VR 0494	Radish roots, raw	RAC	0.01	3.83	0.04	11.99	0.12	NC	–	5.26	0.05	2.19	0.02	4.37	0.04
VR 0589	Potato, raw (incl. flour, incl. frozen, incl. starch, incl. tapioca)	RAC	0.01	225.03	2.25	234.24	2.34	71.48	0.71	177.55	1.78	234.55	2.35	37.71	0.38
VS 0624	Celery	RAC	8.45	7.68	64.90	2.85	24.08	NC	–	3.34	28.22	16.83	142.21	4.04	34.14
VS 0620	Artichoke globe, raw	RAC	1.2	0.98	1.18	3.65	4.38	0.07	0.08	1.67	2.00	0.26	0.31	NC	–
GC 0654	Wheat, raw (incl. bulgur, incl. fermented beverages, incl. white flour products, incl. white bread, excl. germ, excl. wholemeal	RAC	0.07	252.06	17.64	244.62	17.12	134.41	9.41	235.10	16.46	216.33	15.14	167.34	11.71

CYPRODINIL (207) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets as g/person/day											
							Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
	bread)														
CP 1212	Wheat, wholemeal bread	PP	0.036	0.03	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.05	0.00	0.02	0.00
CF 1211	Wheat, white flour	PP	0.019	182.77	3.47	187.54	3.56	103.82	1.97	180.42	3.43	164.00	3.12	118.84	2.26
GC 0640	Barley, raw (incl. malt extract, incl. pot&pearled, incl. flour & grits, incl. malt, excl. beer)	RAC	0.58	1.94	1.13	4.15	2.41	0.66	0.38	2.50	1.45	2.14	1.24	3.52	2.04
–	Barley beer	PP	0.0058	180.21	1.05	259.46	1.50	45.91	0.27	172.36	1.00	234.42	1.36	65.30	0.38
TN 0660	Almonds, nutmeat	RAC	0.02	0.81	0.02	2.21	0.04	0.03	0.00	1.02	0.02	1.47	0.03	NC	–
TN 0662	Brazil nuts, nutmeat	RAC	0.01	0.12	0.00	0.05	0.00	0.01	0.00	0.05	0.00	0.13	0.00	NC	–
TN 0295	Cashew nuts, nutmeat	RAC	0.01	0.59	0.01	0.23	0.00	0.18	0.00	0.52	0.01	1.75	0.02	2.78	0.03
TN 0664	Chestnut, raw	RAC	0.01	0.34	0.00	0.21	0.00	1.14	0.01	0.52	0.01	0.09	0.00	NC	–
TN 0665	Coconut, nutmeat (incl. copra, incl. desiccated, incl. oil)	RAC	0.01	4.13	0.04	2.73	0.03	13.15	0.13	5.85	0.06	6.92	0.07	22.24	0.22
TN 0666	Hazelnuts, nutmeat	RAC	0.01	0.45	0.00	1.12	0.01	0.02	0.00	0.34	0.00	1.63	0.02	NC	–
TN 0669	Macadamia nuts, nutmeat (i.e. Queensland nuts)	RAC	0.01	NC	–	0.40	0.00	NC	–	NC	–	NC	–	0.07	0.00
TN 0672	Pecan, nutmeat	RAC	0.01	0.38	0.00	NC	–	NC	–	0.27	0.00	NC	–	0.26	0.00
TN 0673	Pine nut, nutmeat (i.e. pignolia nuts)	RAC	0.01	0.99	0.01	0.66	0.01	0.22	0.00	0.27	0.00	1.89	0.02	0.89	0.01
TN 0678	Walnut, nutmeat	RAC	0.01	0.34	0.00	0.84	0.01	0.28	0.00	0.39	0.00	0.45	0.00	NC	–
SO 0495	Rape seed, raw	RAC	0.02	NC	–	NC	–	0.01	0.00	NC	–	NC	–	NC	–
HH 0092	Group of Herbs, raw (incl. dried)	RAC	25	2.61	65.25	2.31	57.75	8.89	222.25	3.92	98.00	1.16	29.00	2.06	51.50
HS 0444	Peppers, chili, dried	PP	2	0.11	0.22	0.21	0.42	0.36	0.72	0.21	0.42	0.25	0.50	0.15	0.30
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat)	RAC	0	140.03	0.00	150.89	0.00	79.32	0.00	111.24	0.00	120.30	0.00	51.27	0.00
MO 0105	Edible offal (mammalian), raw	RAC	0	15.17	0.00	5.19	0.00	6.30	0.00	6.78	0.00	3.32	0.00	3.17	0.00
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0	388.92	0.00	335.88	0.00	49.15	0.00	331.25	0.00	468.56	0.00	245.45	0.00
PM 0110	Poultry meat, raw (incl. prepared)	RAC	0	73.76	0.00	53.86	0.00	23.98	0.00	87.12	0.00	53.38	0.00	84.45	0.00
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0	0.33	0.00	0.72	0.00	0.27	0.00	0.35	0.00	0.80	0.00	NC	–
PE 0112	Eggs, raw, (incl. dried)	RAC	0	25.84	0.00	29.53	0.00	28.05	0.00	33.19	0.00	36.44	0.00	8.89	0.00
	Total intake (µg/person) =				537.4		535.8		1291.1		618.2		549.4		307.0
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (µg/person) =				1800		1800		1650		1800		1800		1800
	%ADI =				29.9%		29.8%		78.3%		34.3%		30.5%		17.1%
	Rounded %ADI =				30%		30%		80%		30%		30%		20%

CYPRODINIL (207) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
FP 0009	Group of Pome fruits, raw (incl. apple cider, excl. apple juice)	RAC	0.48	68.85	33.05	10.93	5.25	70.82	33.99	189.78	91.09	19.56	9.39
JF 0226	Apple juice. single strength (incl. concentrated)	PP	0.015	0.03	0.00	0.10	0.00	7.19	0.11	0.03	0.00	NC	–
FS 0012	Group of Stone fruits, raw (incl. dried apricots, excl. dried plums)	RAC	0.68	0.09	0.06	0.02	0.01	32.27	21.94	0.01	0.01	NC	–
DF 0014	Plums, dried (prunes)	PP	1.2	0.01	0.01	0.01	0.01	0.37	0.44	0.01	0.01	NC	–
FB 2005	Subgroup of Caneberries, raw	RAC	2.2	0.01	0.02	7.30	16.06	2.29	5.04	0.01	0.02	NC	–
FB 2006	Subgroup of Bush berries, raw (including processed)	RAC	2.2	0.82	1.80	4.05	8.91	5.94	13.07	0.43	0.95	2.66	5.85
FB 2007	Subgroup of Large shrub/tree berries, raw (including processed)	RAC	2.2	0.71	1.56	7.32	16.10	NC	–	0.38	0.84	2.32	5.10
FB 0269	Grapes, raw (incl. must, excl. dried, excl. juice, excl. wine)	RAC	0.79	0.14	0.11	0.36	0.28	15.33	12.11	0.01	0.01	0.28	0.22
DF 0269	Grapes, dried (= currants. raisins and sultanas) (from table grapes)	PP	1.7	0.01	0.02	0.13	0.22	1.06	1.80	0.01	0.02	0.03	0.05
JF 0269	Grape juice (from wine grapes)	PP	0.12	0.01	0.00	0.01	0.00	0.41	0.05	0.01	0.00	NC	–
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.062	0.31	0.02	0.23	0.01	60.43	3.75	0.52	0.03	31.91	1.98
FB 2009	Subgroup of Low growing berries, raw	RAC	2.2	0.01	0.02	0.01	0.02	3.37	7.41	0.01	0.02	0.01	0.02
FT 0336	Guava, raw	RAC	0.485	0.10	0.05	0.08	0.04	NC	–	0.14	0.07	3.11	1.51
FI 0326	Avocado, raw	RAC	0.265	1.12	0.30	0.01	0.00	0.84	0.22	0.01	0.00	6.60	1.75
FI 0345	Mango, raw	RAC	0.01	12.25	0.12	6.74	0.07	0.76	0.01	0.01	0.00	20.12	0.20
FI 0350	Papaya, raw	RAC	0.02	6.47	0.13	0.25	0.01	0.19	0.00	0.01	0.00	26.42	0.53
FI 0355	Pomegranate, raw, (incl. processed)	RAC	3.3	5.49	18.12	27.17	89.66	NC	–	2.89	9.54	17.87	58.97
–	Onions, dry, raw	RAC	0.065	9.01	0.59	20.24	1.32	30.90	2.01	9.61	0.62	2.11	0.14
VA 2032	Subgroup of Green Onions	RAC	0.065	1.45	0.09	1.50	0.10	1.42	0.09	0.01	0.00	6.30	0.41
VB 0042	Subgroup of Flowerhead Brassica, raw	RAC	0.27	0.02	0.01	0.02	0.01	4.86	1.31	0.01	0.00	NC	–
VB 0041	Cabbages. head, raw	RAC	0.03	3.82	0.11	2.99	0.09	49.16	1.47	0.01	0.00	NC	–
VC 0045	Group of Fruiting vegetables, cucurbits, raw	RAC	0.09	5.96	0.54	9.74	0.88	51.82	4.66	13.61	1.22	0.05	0.00
VO 2045	Subgroup of tomatoes, raw (incl. processed) (Lycopersicum spp. Only)	RAC	0.24	15.50	3.72	5.78	1.39	71.52	17.16	2.00	0.48	12.50	3.00
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.48	0.58	0.28	0.22	0.11	2.21	1.06	0.24	0.12	3.10	1.49
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.036	0.05	0.00	0.01	0.00	0.42	0.02	0.01	0.00	0.02	0.00
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), incl. okra	RAC	0.24	15.20	3.65	14.23	3.42	25.14	6.03	0.91	0.22	NC	–
VO 2046	Subgroup of eggplants	RAC	0.24	1.31	0.31	8.26	1.98	3.95	0.95	0.01	0.00	NC	–
VL 2050	Subgroup of Leafy greens	RAC	11	4.99	54.89	3.29	36.19	7.53	82.83	3.05	33.55	6.09	66.99

CYPRODINIL (207) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
VL 0054	Subgroup of Leaves of Brassicaceae, raw	RAC	0.37	3.58	1.32	2.64	0.98	NC	–	1.83	0.68	3.65	1.35
VL 2052	Subgroup of Leaves of Root and Tuber Vegetables	RAC	11	0.30	3.30	0.22	2.42	NC	–	0.20	2.20	0.41	4.51
VL 2053	Subgroup of Leaves of trees. shrubs and vines	RAC	11	0.67	7.37	0.48	5.28	NC	–	0.45	4.95	0.90	9.90
VL 2054	Subgroup of Leafy aquatic vegetables	RAC	11	2.08	22.88	1.50	16.50	0.01	0.11	1.41	15.51	2.81	30.91
VL 2832	Witloof chicory (sprouts)	RAC	11	0.02	0.22	0.01	0.11	0.01	0.11	0.01	0.11	NC	–
VP 2060	Subgroup of beans with pods (all commodities within this group)	RAC	0.6	NC	–	NC	–	NC	–	NC	–	NC	–
VP 0062	Beans without pods: (Phaseolus spp.) (succulent seeds), raw	RAC	0.02	0.30	0.01	3.13	0.06	4.11	0.08	0.01	0.00	NC	–
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.054	7.11	0.38	2.33	0.13	3.76	0.20	44.70	2.41	3.27	0.18
VD 0523	Broad Bean, dry, raw (incl. horse–Bean, field bean) (Vicia faba)	RAC	0.054	3.70	0.20	0.03	0.00	0.17	0.01	0.01	0.00	NC	–
VD 0527	Cowpea,dry, raw (Vigna sinensis. Dolichos sinensis)	RAC	0.054	12.77	0.69	0.99	0.05	0.01	0.00	4.33	0.23	NC	–
VD 0541	Soya Bean, dry, raw (incl. paste, incl. curd, incl. oil, incl. sauce)	RAC	0.085	15.80	1.34	14.29	1.21	104.36	8.87	17.11	1.45	35.20	2.99
–	Beans (dry) NES: including inter alia lablab or hyacinth bean (Dolichos spp.); jack or sword bean (Canavalia spp.); winged bean (Psophocarpus tetragonolobus); guar bean (Cyamopsis tetragonoloba); velvet bean (Stizolobium spp.); yam bean (Pachyrrhizus erosus)	RAC	0.054	2.54	0.14	1.77	0.10	0.03	0.00	0.03	0.00	3.99	0.22
VD 2066	Subgroup of dry peas, raw	RAC	0.054	4.43	0.24	11.36	0.61	4.22	0.23	9.36	0.51	1.21	0.07
VR 0577	Carrots, raw	RAC	0.195	2.07	0.40	3.00	0.59	25.29	4.93	0.05	0.01	NC	–
VR 0588	Parsnip, raw	RAC	0.09	1.02	0.09	0.74	0.07	3.50	0.32	0.69	0.06	1.37	0.12
VR 0494	Radish roots, raw	RAC	0.01	3.96	0.04	2.86	0.03	3.30	0.03	2.67	0.03	5.34	0.05
VR 0589	Potato, raw (incl. flour, incl. frozen, incl. starch, incl. tapioca)	RAC	0.01	23.96	0.24	13.56	0.14	213.41	2.13	104.35	1.04	8.56	0.09
VS 0624	Celery	RAC	8.45	3.66	30.93	2.65	22.39	4.84	40.90	2.47	20.87	4.94	41.74
VS 0620	Artichoke globe, raw	RAC	1.2	0.01	0.01	NC	–	0.08	0.10	0.01	0.01	NC	–
GC 0654	Wheat, raw (incl. bulgur, incl. fermented beverages, incl. white flour products, incl. white bread, excl. germ, excl. wholemeal bread)	RAC	0.07	57.15	4.00	110.46	7.73	272.58	19.08	25.81	1.81	132.04	9.24
CP 1212	Wheat, wholemeal bread	PP	0.036	0.01	0.00	0.01	0.00	0.03	0.00	0.01	0.00	0.01	0.00
CF 1211	Wheat, white flour	PP	0.019	43.75	0.83	85.81	1.63	206.68	3.93	19.38	0.37	92.92	1.77
GC 0640	Barley, raw (incl. malt extract, incl. pot&pearled, incl. flour & grits, incl. malt, excl. beer)	RAC	0.58	8.50	4.93	0.17	0.10	3.92	2.27	0.02	0.01	6.34	3.68

CYPRODINIL (207) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
–	Barley beer	PP	0.0058	16.25	0.09	11.36	0.07	225.21	1.31	19.49	0.11	52.17	0.30
TN 0660	Almonds, nutmeat	RAC	0.02	0.01	0.00	0.01	0.00	0.61	0.01	0.01	0.00	NC	–
TN 0662	Brazil nuts, nutmeat	RAC	0.01	0.01	0.00	0.01	0.00	0.02	0.00	0.01	0.00	NC	–
TN 0295	Cashew nuts, nutmeat	RAC	0.01	0.91	0.01	0.14	0.00	0.11	0.00	0.01	0.00	NC	–
TN 0664	Chestnut, raw	RAC	0.01	0.01	0.00	0.01	0.00	0.75	0.01	0.01	0.00	NC	–
TN 0665	Coconut, nutmeat (incl. copra, incl. desiccated, incl. oil)	RAC	0.01	2.77	0.03	134.37	1.34	2.81	0.03	0.70	0.01	317.67	3.18
TN 0666	Hazelnuts, nutmeat	RAC	0.01	0.01	0.00	0.01	0.00	0.21	0.00	0.01	0.00	NC	–
TN 0669	Macadamia nuts, nutmeat (i.e. Queensland nuts)	RAC	0.01	0.04	0.00	0.05	0.00	NC	–	0.01	0.00	0.01	0.00
TN 0672	Pecan, nutmeat	RAC	0.01	0.15	0.00	0.22	0.00	0.31	0.00	0.01	0.00	0.01	0.00
TN 0673	Pine nut, nutmeat (i.e. pignolia nuts)	RAC	0.01	0.51	0.01	0.74	0.01	0.36	0.00	0.01	0.00	0.05	0.00
TN 0678	Walnut, nutmeat	RAC	0.01	0.01	0.00	0.01	0.00	0.81	0.01	0.01	0.00	NC	–
SO 0495	Rape seed, raw	RAC	0.02	NC	–	0.01	0.00	NC	–	NC	–	NC	–
HH 0092	Group of Herbs, raw (incl. dried)	RAC	25	1.85	46.25	1.67	41.75	2.80	70.00	1.24	31.00	2.75	68.75
HS 0444	Peppers, chili, dried	PP	2	0.58	1.16	1.27	2.54	1.21	2.42	0.12	0.24	NC	–
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat)	RAC	0	29.18	0.00	50.89	0.00	121.44	0.00	22.58	0.00	72.14	0.00
MO 0105	Edible offal (mammalian), raw	RAC	0	4.64	0.00	1.97	0.00	10.01	0.00	3.27	0.00	3.98	0.00
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0	108.75	0.00	70.31	0.00	436.11	0.00	61.55	0.00	79.09	0.00
PM 0110	Poultry meat, raw (incl. prepared)	RAC	0	3.92	0.00	12.03	0.00	57.07	0.00	5.03	0.00	55.56	0.00
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0	0.10	0.00	0.70	0.00	0.97	0.00	0.10	0.00	NC	–
PE 0112	Eggs, raw, (incl. dried)	RAC	0	3.84	0.00	4.41	0.00	27.25	0.00	1.13	0.00	7.39	0.00
	Total intake (µg/person) =				246.7		288.0		374.7		222.5		336.6
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (µg/person) =				1800		1800		1800		1800		1800
	%ADI =				13.7%		16.0%		20.8%		12.4%		18.7%
	Rounded %ADI =				10%		20%		20%		10%		20%

DIFENOCONAZOLE (224) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets as g/person/day						Intake as µg/person/day						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
FC 0001	Group of Citrus fruit, raw (incl. kumquat commodities)	RAC	0.16	32.25	5.16	11.67	1.87	16.70	2.67	76.01	12.16	33.90	5.42	92.97	14.88
JF 0001	Group of Citrus fruit, juice	PP	0.002	1.30	0.00	2.37	0.00	0.22	0.00	13.88	0.03	0.75	0.00	2.63	0.01

DIFENOCONAZOLE (224) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets as g/person/day						Intake as µg/person/day					
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
FP 0009	Group of Pome fruits, raw (incl. apple juice. apple cider)	RAC	0.86	19.79	17.02	38.25	32.90	17.96	15.45	32.56	28.00	8.08	6.95	64.45	55.43
FS 0013	Subgroup of Cherries, raw	RAC	0.365	0.92	0.34	9.15	3.34	0.01	0.00	0.61	0.22	0.06	0.02	6.64	2.42
FS 0014	Subgroup of Plums, raw (incl. dried plums)	RAC	0.365	2.67	0.97	8.77	3.20	0.07	0.03	3.03	1.11	0.70	0.26	4.34	1.58
DF 0014	Plums, dried (prunes)	PP	0.94	0.09	0.08	0.06	0.06	0.01	0.01	0.18	0.17	0.04	0.04	0.06	0.06
FS 2001	Subgroup of peaches, raw (incl. dried apricots)	RAC	0.365	8.01	2.92	5.87	2.14	0.18	0.07	8.19	2.99	1.64	0.60	22.46	8.20
FB 2005	Subgroup of Caneberries, raw	RAC	0.69	0.42	0.29	1.05	0.72	0.01	0.01	0.02	0.01	0.02	0.01	1.24	0.86
FB 0020	Blueberries, raw	RAC	1	0.01	0.01	0.03	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
FB 0269	Grapes, raw (incl. must, excl. dried, excl. juice, excl. wine)	RAC	0.52	13.02	6.77	9.25	4.81	0.03	0.02	16.91	8.79	3.70	1.92	54.44	28.31
DF 0269	Grapes, dried (= currants. raisins and sultanas) (from table grapes)	PP	1.1	0.51	0.56	0.51	0.56	0.01	0.01	1.27	1.40	0.12	0.13	2.07	2.28
JF 0269	Grape juice (from wine grapes)	PP	0.24	0.14	0.03	0.29	0.07	0.05	0.01	0.30	0.07	0.24	0.06	0.05	0.01
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.094	0.67	0.06	12.53	1.18	2.01	0.19	1.21	0.11	3.53	0.33	4.01	0.38
FB 0265	Cranberry, raw	RAC	0.2	0.02	0.00	0.01	0.00	NC	–	0.03	0.01	0.01	0.00	0.01	0.00
FB 0275	Strawberry, raw	RAC	0.42	0.70	0.29	2.01	0.84	0.04	0.02	1.36	0.57	0.37	0.16	2.53	1.06
FT 0305	Table olives, raw (incl. preserved)	RAC	0.465	0.70	0.33	0.32	0.15	0.01	0.00	1.53	0.71	0.17	0.08	1.85	0.86
FT 0336	Guava, raw	RAC	0.0335	0.47	0.02	0.01	0.00	0.48	0.02	0.49	0.02	4.42	0.15	0.06	0.00
FI 0326	Avocado, raw	RAC	0.05	0.13	0.01	0.03	0.00	2.05	0.10	2.54	0.13	2.34	0.12	0.12	0.01
FI 0327	Banana, raw (incl. plantains) (incl. dried)	RAC	0.02	5.23	0.10	6.94	0.14	99.45	1.99	32.47	0.65	48.30	0.97	24.70	0.49
FI 0345	Mango, raw (incl. canned Mango, incl. mango juice)	RAC	0.03	10.48	0.31	0.01	0.00	7.24	0.22	6.87	0.21	19.98	0.60	6.25	0.19
FI 0350	Papaya, raw	RAC	0.065	0.35	0.02	0.01	0.00	3.05	0.20	0.80	0.05	7.28	0.47	1.00	0.07
FI 2540	Pitaya, raw (i.e dragon fruit or pitahaya)	RAC	0.034	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	NC	–	0.01	0.00
FI 0351	Passion fruit, raw	RAC	0.01	0.58	0.01	0.01	0.00	0.59	0.01	0.60	0.01	0.18	0.00	0.08	0.00
VA 0381	Garlic, raw	RAC	0	2.29	0.00	5.78	0.00	0.11	0.00	3.69	0.00	1.65	0.00	3.91	0.00
–	Onions, dry, raw	RAC	0.015	29.36	0.44	37.50	0.56	3.56	0.05	34.78	0.52	18.81	0.28	43.38	0.65
VA 0384	Leek, raw	RAC	0.08	0.18	0.01	1.59	0.13	0.03	0.00	0.28	0.02	0.01	0.00	3.21	0.26
–	Onions. green, raw	RAC	2.8	2.45	6.86	1.49	4.17	1.02	2.86	2.60	7.28	0.60	1.68	2.03	5.68
VB 0040	Group of Brassica vegetables (excl. Brassica leafy vegetables), raw	RAC	0.35	6.43	2.25	40.26	14.09	0.80	0.28	9.94	3.48	12.07	4.22	17.73	6.21
VC 0424	Cucumber, raw	RAC	0.04	8.01	0.32	30.66	1.23	1.45	0.06	19.84	0.79	0.27	0.01	34.92	1.40
VC 0425	Gherkin, raw	RAC	0.04	1.73	0.07	6.64	0.27	0.31	0.01	4.29	0.17	0.29	0.01	7.56	0.30
VC 0431	Squash. Summer (Courgette. Marrow. Zucchetti. Zucchini), raw	RAC	0.04	0.78	0.03	2.06	0.08	0.30	0.01	1.61	0.06	2.25	0.09	2.36	0.09
VC 0046	Melons. except watermelon, raw (Cantaloupe)	RAC	0.14	8.90	1.25	8.64	1.21	0.80	0.11	17.90	2.51	2.80	0.39	29.17	4.08
VC 0432	Watermelon, raw	RAC	0.01	28.96	0.29	25.65	0.26	1.56	0.02	39.26	0.39	4.94	0.05	66.90	0.67
VO 0448	Tomato, raw	RAC	0.14	41.73	5.84	75.65	10.59	10.66	1.49	82.87	11.60	24.75	3.47	200.93	28.13

DIFENOCONAZOLE (224) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets as g/person/day						Intake as µg/person/day					
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
–	Tomato, canned (& peeled)	PP	0.01	0.20	0.00	0.31	0.00	0.02	0.00	1.11	0.01	0.11	0.00	1.50	0.02
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.22	2.34	0.51	1.33	0.29	1.57	0.35	4.24	0.93	0.34	0.07	2.83	0.62
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.031	0.29	0.01	0.29	0.01	0.01	0.00	0.38	0.01	0.05	0.00	0.14	0.00
VO 0442	Okra, raw (i.e. Lady's Finger. Gombo)	RAC	0.14	1.97	0.28	NC	–	3.68	0.52	3.24	0.45	5.72	0.80	1.57	0.22
VO 0444	Peppers, chili, raw	RAC	0.24	3.99	0.96	7.30	1.75	2.93	0.70	5.62	1.35	NC	–	17.44	4.19
VO 0445	Peppers, sweet, raw (incl. dried)	RAC	0.14	4.49	0.63	6.44	0.90	7.21	1.01	5.68	0.80	9.52	1.33	8.92	1.25
VO 0440	Eggplant, raw (i.e. aubergine)	RAC	0.14	5.58	0.78	4.31	0.60	0.89	0.12	9.31	1.30	13.64	1.91	20.12	2.82
VL 0483	Lettuce, leaf, raw	RAC	0.41	0.53	0.22	0.36	0.15	0.16	0.07	6.21	2.55	1.90	0.78	6.05	2.48
VL 0485	Mustard greens, raw (i.e. Indian mustard, Amsoi, mustard cabbage)	RAC	1.6	0.03	0.05	0.31	0.50	0.01	0.02	0.05	0.08	0.47	0.75	0.11	0.18
VL 0494	Radish leaves, raw	RAC	1.6	0.26	0.42	0.45	0.72	0.28	0.45	0.68	1.09	NC	–	0.33	0.53
VP 2060	Subgroup of beans with pods (all commodities within this group)	RAC	0.07	0.68	0.05	NC	–	NC	–	0.39	0.03	0.22	0.02	0.49	0.03
014B	Peas with pods	–	0.07	–	–	–	–	–	–	–	–	–	–	–	–
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.011	2.39	0.03	1.61	0.02	10.47	0.12	1.84	0.02	12.90	0.14	7.44	0.08
VD 0523	Broad Bean, dry, raw (incl. horse–Bean, field bean) (Vicia faba)	RAC	0.011	1.27	0.01	0.01	0.00	0.12	0.00	2.49	0.03	0.23	0.00	5.54	0.06
VD 0527	Cowpea,dry, raw (Vigna sinensis. Dolichos sinensis)	RAC	0.011	0.05	0.00	NC	–	1.74	0.02	0.01	0.00	0.01	0.00	0.07	0.00
VD 0541	Soya Bean, dry, raw (incl. flour, incl. paste, incl. curd, incl. sauce, excl. oil)	RAC	0.01	0.63	0.01	1.09	0.01	0.40	0.00	1.40	0.01	1.68	0.02	0.48	0.00
OR 0541	Soya oil, refined	PP	0.08	12.99	1.04	10.43	0.83	3.63	0.29	13.10	1.05	10.70	0.86	13.10	1.05
–	Beans (dry) NES: including inter alia lablab or hyacinth bean (Dolichos spp.); jack or sword bean (Canavalia spp.); winged bean (Psophocarpus tetragonolobus); guar bean (Cyamopsis tetragonoloba); velvet bean (Stizolobium spp.); yam bean (Pachyrrhizus erosus)	RAC	0.011	1.70	0.02	0.01	0.00	3.00	0.03	1.80	0.02	1.64	0.02	1.33	0.01
VD 2066	Subgroup of dry peas, raw	RAC	0.028	9.09	0.25	3.35	0.09	1.06	0.03	9.48	0.27	15.11	0.42	10.58	0.30
VR 0577	Carrots, raw	RAC	0.05	9.51	0.48	30.78	1.54	0.37	0.02	8.75	0.44	2.80	0.14	6.10	0.31
VR 0578	Celeriac, raw	RAC	0.12	1.70	0.20	3.01	0.36	1.87	0.22	4.53	0.54	NC	–	2.19	0.26
VR 0494	Radish roots, raw	RAC	0.17	2.31	0.39	4.09	0.70	2.53	0.43	6.15	1.05	5.88	1.00	2.97	0.50
VR 0596	Sugar beet, raw (incl. sugar)	RAC	0.02	0.13	0.00	NC	–	0.08	0.00	0.66	0.01	0.47	0.01	88.94	1.78
VR 0589	Potato, raw (incl. flour, incl. frozen, incl. starch, incl. tapioca)	RAC	1.2	59.74	71.69	316.14	379.37	9.78	11.74	60.26	72.31	54.12	64.94	119.82	143.78
VR 0508	Sweet potato, raw (incl. dried)	RAC	1.2	0.18	0.22	0.18	0.22	42.16	50.59	1.61	1.93	3.06	3.67	6.67	8.00
VS 0624	Celery	RAC	0.14	2.14	0.30	3.79	0.53	2.35	0.33	5.69	0.80	0.02	0.00	2.75	0.39

DIFENOCONAZOLE (224) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets as g/person/day						Intake as µg/person/day					
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
VS 0621	Asparagus, raw	RAC	0.02	0.01	0.00	0.01	0.00	0.01	0.00	0.03	0.00	0.07	0.00	0.21	0.00
VS 0620	Artichoke globe, raw	RAC	0.51	0.69	0.35	0.01	0.01	0.01	0.01	0.32	0.16	0.26	0.13	1.21	0.62
GC 0654	Wheat, raw (incl. bulgur, incl. fermented beverages, incl. germ, incl. wholemeal bread, incl. white flour products, incl. white bread)	RAC	0	381.15	0.00	341.55	0.00	38.35	0.00	281.89	0.00	172.83	0.00	434.07	0.00
CM 0649 (GC 0649)	Rice, husked, dry (incl. flour, incl. oil, incl. beverages, incl. starch, excl. polished)	REP	1.1	1.26	1.39	1.58	1.74	31.05	34.16	5.43	5.97	0.90	0.99	2.18	2.40
CM 1205	Rice polished, dry	PP	0.0086	34.21	0.29	10.39	0.09	41.72	0.36	82.38	0.71	150.24	1.29	70.47	0.61
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. beer, incl. germ, incl. starch, excl. flour, excl. oil)	RAC	0.01	0.97	0.01	0.24	0.00	1.58	0.02	4.10	0.04	2.56	0.03	13.31	0.13
CF 1255	Maize, flour (white flour and wholemeal flour)	PP	0.008	22.72	0.18	35.61	0.28	87.27	0.70	34.92	0.28	46.71	0.37	49.12	0.39
OR 0645	Maize oil	PP	0.012	0.96	0.01	0.85	0.01	0.29	0.00	5.42	0.07	0.42	0.01	2.10	0.03
GC 0447	Sweet corn on the cob, raw (incl. frozen kernels, incl. canned kernels)	RAC	0.01	0.14	0.00	0.94	0.01	5.70	0.06	2.61	0.03	1.94	0.02	0.22	0.00
TN 0085	Group of Tree nuts, raw (incl. processed)	RAC	0.01	4.06	0.04	3.27	0.03	7.01	0.07	13.93	0.14	14.01	0.14	9.36	0.09
SO 0495	Rape seed, raw	RAC	0.03	0.02	0.00	NC	–	NC	–	0.01	0.00	0.75	0.02	0.01	0.00
OR 0495	Rape seed oil, edible	PP	0.002	0.35	0.00	0.44	0.00	0.19	0.00	0.97	0.00	3.28	0.01	0.77	0.00
SO 0702	Sunflower seed, raw (incl. oil)	RAC	0.01	7.40	0.07	35.86	0.36	1.15	0.01	8.76	0.09	5.45	0.05	13.62	0.14
OR 0691	Cotton seed oil, edible	PP	0.0014	3.22	0.00	1.54	0.00	1.01	0.00	0.74	0.00	1.12	0.00	2.93	0.00
SO 0697	Peanuts, nutmeat, raw (incl. roasted, incl. oil, incl. butter)	RAC	0	1.30	0.00	1.23	0.00	12.62	0.00	2.87	0.00	6.59	0.00	2.67	0.00
SO 0305	Olives for oil production, raw	RAC	0.456	1.47	0.67	0.67	0.31	NC	–	1.26	0.57	0.04	0.02	7.63	3.48
–	Olive oil (virgin and residue oil)	PP	0.7	2.17	1.52	0.13	0.09	0.05	0.04	1.32	0.92	0.10	0.07	2.76	1.93
SB 0716	Coffee bean raw (incl. roasted, incl. instant coffee, incl. substitutes)	RAC	0.01	1.36	0.01	3.59	0.04	1.44	0.01	5.18	0.05	2.02	0.02	1.70	0.02
HS 0190	Subgroup of seed spices (incl. processed)	RAC	0.16	0.51	0.08	0.03	0.00	0.01	0.00	1.82	0.29	0.28	0.04	0.29	0.05
HS 0784	Ginger. rhizome, raw incl. dried	RAC	0.13	0.25	0.03	0.01	0.00	0.16	0.02	1.16	0.15	0.59	0.08	0.01	0.00
HS 0444	Peppers, chili, dried	PP	1.1	0.42	0.46	0.53	0.58	0.84	0.92	0.50	0.55	0.95	1.05	0.37	0.41
DT 1114	Tea, green or black, fermented and dried, (including concentrates)	RAC	4.85	2.28	11.06	1.98	9.60	0.46	2.23	2.43	11.79	1.29	6.26	3.04	14.74
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.047	24.96	1.17	57.95	2.72	16.70	0.79	38.38	1.80	26.46	1.24	29.00	1.36
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.14	6.24	0.87	14.49	2.03	4.18	0.58	9.60	1.34	6.62	0.93	7.25	1.02
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.14	3.29	0.46	6.14	0.86	0.82	0.11	1.57	0.22	2.23	0.31	1.07	0.15
MO 0105	Edible offal (mammalian), raw	RAC	0.71	4.79	3.40	9.68	6.87	2.97	2.11	5.49	3.90	3.84	2.73	5.03	3.57

DIFENOCONAZOLE (224) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.011	289.65	3.19	485.88	5.34	26.92	0.30	239.03	2.63	199.91	2.20	180.53	1.99
PM 0110	Poultry meat, raw (incl. prepared)	RAC	0.0002	14.63	0.00	29.76	0.01	8.04	0.00	129.68	0.03	25.04	0.01	35.66	0.01
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0.0002	0.10	0.00	0.10	0.00	NC	–	0.10	0.00	0.10	0.00	0.10	0.00
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0.0002	0.12	0.00	0.12	0.00	0.11	0.00	5.37	0.00	0.24	0.00	0.10	0.00
PE 0112	Eggs, raw, (incl. dried)	RAC	0.011	7.84	0.09	23.08	0.25	2.88	0.03	14.89	0.16	9.81	0.11	14.83	0.16
	Total intake (µg/person) =				156.6		504.4		135.5		203.2		123.5		366.7
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (µg/person) =				600		600		600		600		600		600
	%ADI =				26.1%		84.1%		22.6%		33.9%		20.6%		61.1%
	Rounded %ADI =				30%		80%		20%		30%		20%		60%

DIFENOCONAZOLE (224) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
FC 0001	Group of Citrus fruit, raw (incl. kumquat commodities)	RAC	0.16	38.66	6.19	54.93	8.79	26.36	4.22	51.46	8.23	51.06	8.17	466.36	74.62
JF 0001	Group of Citrus fruit, juice	PP	0.002	36.84	0.07	3.75	0.01	0.30	0.00	21.62	0.04	21.82	0.04	46.67	0.09
FP 0009	Group of Pome fruits, raw (incl. apple juice, incl. apple cider)	RAC	0.86	71.38	61.39	81.73	70.29	42.91	36.90	58.89	50.65	103.85	89.31	12.48	10.73
FS 0013	Subgroup of Cherries, raw	RAC	0.365	1.40	0.51	4.21	1.54	0.04	0.01	2.93	1.07	1.50	0.55	NC	–
FS 0014	Subgroup of Plums, raw (incl. dried plums)	RAC	0.365	5.55	2.03	4.37	1.60	6.08	2.22	3.66	1.34	3.93	1.43	0.46	0.17
DF 0014	Plums, dried (prunes)	PP	0.94	0.61	0.57	0.35	0.33	0.05	0.05	0.35	0.33	0.49	0.46	0.13	0.12
FS 2001	Subgroup of peaches, raw (incl. dried apricots)	RAC	0.365	13.03	4.76	16.29	5.95	8.29	3.03	12.95	4.73	5.35	1.95	0.04	0.01
FB 2005	Subgroup of Caneberries, raw	RAC	0.69	0.56	0.39	1.43	0.99	0.14	0.10	1.23	0.85	1.14	0.79	0.01	0.01
FB 0020	Blueberries, raw	RAC	1	0.04	0.04	0.23	0.23	0.01	0.01	0.83	0.83	0.33	0.33	NC	–
FB 0269	Grapes, raw (incl. must, excl. dried, excl. juice, excl. wine)	RAC	0.52	6.48	3.37	11.31	5.88	5.21	2.71	9.50	4.94	4.66	2.42	0.78	0.41
DF 0269	Grapes, dried (= currants. raisins and sultanas) (from table grapes)	PP	1.1	3.09	3.40	1.51	1.66	0.03	0.03	1.38	1.52	4.26	4.69	0.42	0.46
JF 0269	Grape juice (from wine grapes)	PP	0.24	0.56	0.13	1.96	0.47	0.02	0.00	2.24	0.54	2.27	0.54	0.34	0.08
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.094	88.93	8.36	62.41	5.87	1.84	0.17	25.07	2.36	61.17	5.75	5.84	0.55
FB 0265	Cranberry, raw	RAC	0.2	0.06	0.01	0.01	0.00	0.01	0.00	1.22	0.24	0.11	0.02	NC	–
FB 0275	Strawberry, raw	RAC	0.42	4.49	1.89	5.66	2.38	0.02	0.01	6.63	2.78	5.75	2.42	0.05	0.02
FT 0305	Table olives, raw (incl. preserved)	RAC	0.465	2.00	0.93	2.48	1.15	0.01	0.00	1.21	0.56	1.64	0.76	0.27	0.13

DIFENOCONAZOLE (224) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
FT 0336	Guava, raw	RAC	0.0335	0.01	0.00	NC	–	0.42	0.01	NC	–	NC	–	NC	–
FI 0326	Avocado, raw	RAC	0.05	2.65	0.13	0.87	0.04	0.46	0.02	1.64	0.08	1.30	0.07	0.96	0.05
FI 0327	Banana, raw (incl. plantains) (incl. dried)	RAC	0.02	25.76	0.52	23.65	0.47	23.83	0.48	24.37	0.49	19.43	0.39	101.55	2.03
FI 0345	Mango, raw (incl. canned Mango, incl. mango juice)	RAC	0.03	1.80	0.05	0.63	0.02	10.05	0.30	1.07	0.03	3.52	0.11	16.44	0.49
FI 0350	Papaya, raw	RAC	0.065	0.31	0.02	0.18	0.01	1.50	0.10	0.51	0.03	0.54	0.04	1.08	0.07
FI 2540	Pitaya, raw (i.e dragon fruit or pitahaya)	RAC	0.034	NC	–	NC	–	0.08	0.00	NC	–	NC	–	NC	–
FI 0351	Passion fruit, raw	RAC	0.01	0.01	0.00	0.01	0.00	NC	–	NC	–	0.02	0.00	NC	–
VA 0381	Garlic, raw	RAC	0	0.98	0.00	1.49	0.00	12.88	0.00	3.74	0.00	2.05	0.00	1.14	0.00
–	Onions, dry, raw	RAC	0.015	19.69	0.30	29.83	0.45	24.64	0.37	31.35	0.47	9.72	0.15	12.59	0.19
VA 0384	Leek, raw	RAC	0.08	4.01	0.32	4.41	0.35	0.72	0.06	0.54	0.04	16.41	1.31	0.03	0.00
–	Onions. green, raw	RAC	2.8	1.55	4.34	0.74	2.07	1.05	2.94	3.74	10.47	0.94	2.63	6.45	18.06
VB 0040	Group of Brassica vegetables (excl. Brassica leafy vegetables), raw	RAC	0.35	20.71	7.25	39.81	13.93	25.06	8.77	37.93	13.28	18.12	6.34	16.74	5.86
VC 0424	Cucumber, raw	RAC	0.04	6.72	0.27	11.03	0.44	32.10	1.28	15.10	0.60	4.05	0.16	9.57	0.38
VC 0425	Gherkin, raw	RAC	0.04	0.41	0.02	5.89	0.24	NC	–	0.06	0.00	0.37	0.01	2.07	0.08
VC 0431	Squash. Summer (Courgette. Marrow. Zucchetti. Zucchini), raw	RAC	0.04	NC	–	NC	–	5.48	0.22	NC	–	NC	–	1.03	0.04
VC 0046	Melons. except watermelon, raw (Cantaloupe)	RAC	0.14	9.20	1.29	11.95	1.67	14.63	2.05	8.99	1.26	7.86	1.10	2.46	0.34
VC 0432	Watermelon, raw	RAC	0.01	4.60	0.05	9.82	0.10	68.50	0.69	13.19	0.13	1.99	0.02	14.56	0.15
VO 0448	Tomato, raw	RAC	0.14	32.13	4.50	51.27	7.18	34.92	4.89	73.37	10.27	15.15	2.12	8.88	1.24
–	Tomato, canned (& peeled)	PP	0.01	7.57	0.08	2.66	0.03	0.30	0.00	0.97	0.01	7.31	0.07	0.41	0.00
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.22	4.96	1.09	3.20	0.70	0.15	0.03	1.61	0.35	6.88	1.51	0.52	0.11
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.031	0.80	0.02	0.07	0.00	0.05	0.00	0.61	0.02	0.40	0.01	0.08	0.00
VO 0442	Okra, raw (i.e. Lady's Finger. Gombo)	RAC	0.14	NC	–	NC	–	0.04	0.01	0.17	0.02	NC	–	0.72	0.10
VO 0444	Peppers, chili, raw	RAC	0.24	5.57	1.34	14.00	3.36	8.25	1.98	5.77	1.38	6.44	1.55	2.53	0.61
VO 0445	Peppers, sweet, raw (incl. dried)	RAC	0.14	0.82	0.11	1.53	0.21	10.85	1.52	4.59	0.64	1.84	0.26	2.00	0.28
VO 0440	Eggplant, raw (i.e. aubergine)	RAC	0.14	1.01	0.14	1.69	0.24	21.37	2.99	3.00	0.42	1.40	0.20	NC	–
VL 0483	Lettuce, leaf, raw	RAC	0.41	14.50	5.95	11.76	4.82	13.14	5.39	19.50	8.00	4.81	1.97	2.23	0.91
VL 0485	Mustard greens, raw (i.e. Indian mustard, Amsoi, mustard cabbage)	RAC	1.6	NC	–	NC	–	NC	–	NC	–	NC	–	0.13	0.21
VL 0494	Radish leaves, raw	RAC	1.6	NC	–	NC	–	NC	–	3.78	6.05	NC	–	0.48	0.77
VP 2060	Subgroup of beans with pods (all commodities within this group)	RAC	0.07	5.07	0.35	0.83	0.06	0.17	0.01	3.70	0.26	NC	–	NC	–
014B	Peas with pods	–	0.07	–	–	–	–	–	–	–	–	–	–	–	–

DIFENOCONAZOLE (224) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.011	1.51	0.02	1.50	0.02	1.90	0.02	5.11	0.06	1.36	0.01	23.43	0.26
VD 0523	Broad Bean, dry, raw (incl. horse–Bean, field bean) (Vicia faba)	RAC	0.011	0.02	0.00	0.01	0.00	1.16	0.01	0.40	0.00	NC	–	0.06	0.00
VD 0527	Cowpea,dry, raw (Vigna sinensis. Dolichos sinensis)	RAC	0.011	NC	–	NC	–	0.16	0.00	0.01	0.00	NC	–	NC	–
VD 0541	Soya Bean, dry, raw (incl. flour, incl. paste, incl. curd, incl. sauce, excl. oil)	RAC	0.01	0.47	0.00	0.77	0.01	9.12	0.09	8.05	0.08	0.04	0.00	6.06	0.06
OR 0541	Soya oil, refined	PP	0.08	19.06	1.52	21.06	1.68	5.94	0.48	33.78	2.70	40.05	3.20	13.39	1.07
–	Beans (dry) NES: including inter alia lablab or hyacinth bean (Dolichos spp.); jack or sword bean (Canavalia spp.); winged bean (Psophocarpus tetragonolobus); guar bean (Cyamopsis tetragonoloba); velvet bean (Stizolobium spp.); yam bean (Pachyrrhizus erosus)	RAC	0.011	0.01	0.00	NC	–	0.57	0.01	0.11	0.00	0.16	0.00	0.94	0.01
VD 2066	Subgroup of dry peas, raw	RAC	0.028	5.01	0.14	3.76	0.11	1.82	0.05	3.44	0.10	3.49	0.10	5.15	0.14
VR 0577	Carrots, raw	RAC	0.05	26.26	1.31	27.13	1.36	10.07	0.50	16.49	0.82	44.69	2.23	8.75	0.44
VR 0578	Celeriac, raw	RAC	0.12	2.97	0.36	1.79	0.21	NC	–	0.06	0.01	16.91	2.03	3.22	0.39
VR 0494	Radish roots, raw	RAC	0.17	3.83	0.65	11.99	2.04	NC	–	5.26	0.89	2.19	0.37	4.37	0.74
VR 0596	Sugar beet, raw (incl. sugar)	RAC	0.02	0.01	0.00	NC	–	0.01	0.00	0.01	0.00	NC	–	NC	–
VR 0589	Potato, raw (incl. flour, incl. frozen, incl. starch, incl. tapioca)	RAC	1.2	225.03	270.04	234.24	281.09	71.48	85.78	177.55	213.06	234.55	281.46	37.71	45.25
VR 0508	Sweet potato, raw (incl. dried)	RAC	1.2	0.93	1.12	0.32	0.38	64.65	77.58	5.37	6.44	0.30	0.36	3.13	3.76
VS 0624	Celery	RAC	0.14	7.68	1.08	2.85	0.40	NC	–	3.34	0.47	16.83	2.36	4.04	0.57
VS 0621	Asparagus, raw	RAC	0.02	0.84	0.02	2.08	0.04	7.11	0.14	1.01	0.02	1.69	0.03	0.04	0.00
VS 0620	Artichoke globe, raw	RAC	0.51	0.98	0.50	3.65	1.86	0.07	0.04	1.67	0.85	0.26	0.13	NC	–
GC 0654	Wheat, raw (incl. bulgur, incl. fermented beverages, incl. germ, incl. wholemeal bread, incl. white flour products, incl. white bread)	RAC	0	253.07	0.00	244.73	0.00	134.44	0.00	235.10	0.00	216.39	0.00	167.40	0.00
CM 0649 (GC 0649)	Rice, husked, dry (incl. flour, incl. oil, incl. beverages, incl. starch, excl. polished)	REP	1.1	3.70	4.07	2.11	2.32	1.51	1.66	1.75	1.93	0.29	0.32	5.12	5.63
CM 1205	Rice polished, dry	PP	0.0086	13.38	0.12	10.80	0.09	262.08	2.25	57.16	0.49	12.83	0.11	62.78	0.54
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. beer, incl. germ, incl. starch, excl. flour, excl. oil)	RAC	0.01	0.10	0.00	9.93	0.10	1.71	0.02	21.57	0.22	0.33	0.00	0.05	0.00
CF 1255	Maize, flour (white flour and wholemeal flour)	PP	0.008	14.27	0.11	12.86	0.10	19.71	0.16	12.55	0.10	4.21	0.03	52.30	0.42

DIFENOCONAZOLE (224) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
OR 0645	Maize oil	PP	0.012	0.90	0.01	0.47	0.01	0.15	0.00	3.01	0.04	1.86	0.02	0.36	0.00
GC 0447	Sweet corn on the cob, raw (incl. frozen kernels, incl. canned kernels)	RAC	0.01	11.43	0.11	3.71	0.04	0.74	0.01	13.63	0.14	3.07	0.03	1.50	0.02
TN 0085	Group of Tree nuts, raw (incl. processed)	RAC	0.01	8.52	0.09	8.94	0.09	15.09	0.15	9.60	0.10	14.57	0.15	26.26	0.26
SO 0495	Rape seed, raw	RAC	0.03	NC	–	NC	–	0.01	0.00	NC	–	NC	–	NC	–
OR 0495	Rape seed oil, edible	PP	0.002	12.52	0.03	7.63	0.02	3.00	0.01	6.01	0.01	NC	–	NC	–
SO 0702	Sunflower seed, raw (incl. oil)	RAC	0.01	23.40	0.23	29.33	0.29	1.24	0.01	13.85	0.14	6.48	0.06	6.91	0.07
OR 0691	Cotton seed oil, edible	PP	0.0014	1.68	0.00	0.66	0.00	1.13	0.00	1.18	0.00	0.89	0.00	0.37	0.00
SO 0697	Peanuts, nutmeat, raw (incl. roasted, incl. oil, incl. butter)	RAC	0	5.63	0.00	2.75	0.00	9.58	0.00	5.82	0.00	13.71	0.00	1.84	0.00
SO 0305	Olives for oil production, raw	RAC	0.456	0.35	0.16	0.01	0.00	0.01	0.00	0.57	0.26	0.06	0.03	NC	–
–	Olive oil (virgin and residue oil)	PP	0.7	3.40	2.38	9.49	6.64	0.02	0.01	4.28	3.00	2.74	1.92	0.48	0.34
SB 0716	Coffee bean raw (incl. roasted, incl. instant coffee, incl. substitutes)	RAC	0.01	10.90	0.11	12.44	0.12	0.77	0.01	9.48	0.09	22.07	0.22	8.15	0.08
HS 0190	Subgroup of seed spices (incl. processed)	RAC	0.16	0.25	0.04	0.26	0.04	0.10	0.02	0.16	0.03	0.49	0.08	0.11	0.02
HS 0784	Ginger. rhizome, raw incl. dried	RAC	0.13	0.27	0.04	0.07	0.01	0.54	0.07	0.69	0.09	0.58	0.08	0.56	0.07
HS 0444	Peppers, chili, dried	PP	1.1	0.11	0.12	0.21	0.23	0.36	0.40	0.21	0.23	0.25	0.28	0.15	0.17
DT 1114	Tea, green or black, fermented and dried, (including concentrates)	RAC	4.85	2.91	14.11	1.73	8.39	1.14	5.53	1.85	8.97	2.29	11.11	0.74	3.59
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.047	112.02	5.27	120.71	5.67	63.46	2.98	88.99	4.18	96.24	4.52	41.02	1.93
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.14	28.01	3.92	30.18	4.22	15.86	2.22	22.25	3.11	24.06	3.37	10.25	1.44
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.14	6.44	0.90	15.51	2.17	3.79	0.53	8.29	1.16	18.44	2.58	8.00	1.12
MO 0105	Edible offal (mammalian), raw	RAC	0.71	15.17	10.77	5.19	3.68	6.30	4.47	6.78	4.81	3.32	2.36	3.17	2.25
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.011	388.92	4.28	335.88	3.69	49.15	0.54	331.25	3.64	468.56	5.15	245.45	2.70
PM 0110	Poultry meat, raw (incl. prepared)	RAC	0.0002	73.76	0.01	53.86	0.01	23.98	0.00	87.12	0.02	53.38	0.01	84.45	0.02
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0.0002	0.10	0.00	0.10	0.00	NC	–	0.10	0.00	0.71	0.00	NC	–
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0.0002	0.33	0.00	0.72	0.00	0.27	0.00	0.35	0.00	0.80	0.00	NC	–
PE 0112	Eggs, raw, (incl. dried)	RAC	0.011	25.84	0.28	29.53	0.32	28.05	0.31	33.19	0.37	36.44	0.40	8.89	0.10
	Total intake (µg/person) =				446.1		471.0		269.6		394.0		464.8		192.8
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (µg/person) =				600		600		550		600		600		600
	%ADI =				74.3%		78.5%		49.0%		65.7%		77.5%		32.1%

DIFENOCONAZOLE (224) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets as g/person/day											
				Intake as µg/person/day											
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
	Rounded %ADI =				70%		80%		50%		70%		80%		30%

DIFENOCONAZOLE (224) **INTERNATIONAL ESTIMATED DAILY INTAKE (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets: g/person/day									
				Intake = daily intake: µg/person									
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
FC 0001	Group of Citrus fruit, raw (incl. kumquat commodities)	RAC	0.16	20.93	3.35	2.35	0.38	30.71	4.91	0.15	0.02	4.45	0.71
JF 0001	Group of Citrus fruit, juice	PP	0.002	0.11	0.00	0.29	0.00	13.55	0.03	0.14	0.00	0.33	0.00
FP 0009	Group of Pome fruits, raw (incl. apple juice, incl. apple cider)	RAC	0.86	68.89	59.25	11.06	9.51	80.62	69.33	189.82	163.25	19.56	16.82
FS 0013	Subgroup of Cherries, raw	RAC	0.365	0.01	0.00	0.01	0.00	5.96	2.18	0.01	0.00	NC	–
FS 0014	Subgroup of Plums, raw (incl. dried plums)	RAC	0.365	0.07	0.03	0.02	0.01	16.65	6.08	0.01	0.00	NC	–
DF 0014	Plums, dried (prunes)	PP	0.94	0.01	0.01	0.01	0.01	0.37	0.35	0.01	0.01	NC	–
FS 2001	Subgroup of peaches, raw (incl. dried apricots)	RAC	0.365	0.02	0.01	0.01	0.00	10.76	3.93	0.01	0.00	NC	–
FB 2005	Subgroup of Caneberries, raw	RAC	0.69	0.01	0.01	7.30	5.04	2.29	1.58	0.01	0.01	NC	–
FB 0020	Blueberries, raw	RAC	1	NC	–	NC	–	0.20	0.20	NC	–	NC	–
FB 0269	Grapes, raw (incl. must, excl. dried, excl. juice, excl. wine)	RAC	0.52	0.14	0.07	0.36	0.19	15.33	7.97	0.01	0.01	0.28	0.15
DF 0269	Grapes, dried (= currants. raisins and sultanas) (from table grapes)	PP	1.1	0.01	0.01	0.13	0.14	1.06	1.17	0.01	0.01	0.03	0.03
JF 0269	Grape juice (from wine grapes)	PP	0.24	0.01	0.00	0.01	0.00	0.41	0.10	0.01	0.00	NC	–
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.094	0.31	0.03	0.23	0.02	60.43	5.68	0.52	0.05	31.91	3.00
FB 0265	Cranberry, raw	RAC	0.2	NC	–	NC	–	0.03	0.01	NC	–	NC	–
FB 0275	Strawberry, raw	RAC	0.42	0.01	0.00	0.01	0.00	3.35	1.41	0.01	0.00	0.01	0.00
FT 0305	Table olives, raw (incl. preserved)	RAC	0.465	0.01	0.00	0.01	0.00	1.75	0.81	0.01	0.00	0.24	0.11
FT 0336	Guava, raw	RAC	0.0335	0.10	0.00	0.08	0.00	NC	–	0.14	0.00	3.11	0.10
FI 0326	Avocado, raw	RAC	0.05	1.12	0.06	0.01	0.00	0.84	0.04	0.01	0.00	6.60	0.33
FI 0327	Banana, raw (incl. plantains) (incl. dried)	RAC	0.02	44.80	0.90	118.17	2.36	25.25	0.51	454.49	9.09	310.23	6.20
FI 0345	Mango, raw (incl. canned Mango, incl. mango juice)	RAC	0.03	12.25	0.37	6.83	0.20	0.76	0.02	0.01	0.00	20.12	0.60
FI 0350	Papaya, raw	RAC	0.065	6.47	0.42	0.25	0.02	0.19	0.01	0.01	0.00	26.42	1.72
FI 2540	Pitaya, raw (i.e dragon fruit or pitahaya)	RAC	0.034	0.01	0.00	0.01	0.00	NC	–	0.01	0.00	0.04	0.00
FI 0351	Passion fruit, raw	RAC	0.01	0.12	0.00	0.10	0.00	0.01	0.00	0.18	0.00	3.81	0.04

DIFENOCONAZOLE (224) **INTERNATIONAL ESTIMATED DAILY INTAKE (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets: g/person/day					Intake = daily intake: µg/person				
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
VA 0381	Garlic, raw	RAC	0	0.82	0.00	2.06	0.00	3.79	0.00	0.03	0.00	0.29	0.00
–	Onions, dry, raw	RAC	0.015	9.01	0.14	20.24	0.30	30.90	0.46	9.61	0.14	2.11	0.03
VA 0384	Leek, raw	RAC	0.08	0.02	0.00	1.44	0.12	1.22	0.10	0.01	0.00	NC	–
–	Onions. green, raw	RAC	2.8	1.43	4.00	0.05	0.14	0.20	0.56	NC	–	6.30	17.64
VB 0040	Group of Brassica vegetables (excl. Brassica leafy vegetables), raw	RAC	0.35	5.46	1.91	4.28	1.50	58.72	20.55	0.02	0.01	NC	–
VC 0424	Cucumber, raw	RAC	0.04	0.68	0.03	1.81	0.07	10.40	0.42	0.01	0.00	0.04	0.00
VC 0425	Gherkin, raw	RAC	0.04	0.15	0.01	0.39	0.02	3.15	0.13	0.01	0.00	0.01	0.00
VC 0431	Squash. Summer (Courgette. Marrow. Zucchetti. Zucchini), raw	RAC	0.04	0.09	0.00	1.01	0.04	NC	–	1.91	0.08	NC	–
VC 0046	Melons. except watermelon, raw (Cantaloupe)	RAC	0.14	0.19	0.03	0.10	0.01	4.98	0.70	0.01	0.00	NC	–
VC 0432	Watermelon, raw	RAC	0.01	4.29	0.04	0.30	0.00	28.70	0.29	0.01	0.00	NC	–
VO 0448	Tomato, raw	RAC	0.14	12.99	1.82	4.79	0.67	58.40	8.18	0.92	0.13	0.09	0.01
–	Tomato, canned (& peeled)	PP	0.01	0.07	0.00	0.08	0.00	2.42	0.02	0.07	0.00	NC	–
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.22	0.58	0.13	0.22	0.05	2.21	0.49	0.24	0.05	3.10	0.68
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.031	0.05	0.00	0.01	0.00	0.42	0.01	0.01	0.00	0.02	0.00
VO 0442	Okra, raw (i.e. Lady's Finger. Gombo)	RAC	0.14	6.23	0.87	0.10	0.01	NC	–	NC	–	NC	–
VO 0444	Peppers, chili, raw	RAC	0.24	3.47	0.83	3.56	0.85	16.30	3.91	0.01	0.00	NC	–
VO 0445	Peppers, sweet, raw (incl. dried)	RAC	0.14	5.49	0.77	10.57	1.48	8.84	1.24	0.91	0.13	NC	–
VO 0440	Eggplant, raw (i.e. aubergine)	RAC	0.14	1.31	0.18	8.26	1.16	3.95	0.55	0.01	0.00	NC	–
VL 0483	Lettuce, leaf, raw	RAC	0.41	0.29	0.12	0.03	0.01	6.71	2.75	0.01	0.00	NC	–
VL 0485	Mustard greens, raw (i.e. Indian mustard, Amsoi, mustard cabbage)	RAC	1.6	0.04	0.06	0.03	0.05	NC	–	0.01	0.02	NC	–
VL 0494	Radish leaves, raw	RAC	1.6	0.44	0.70	0.32	0.51	NC	–	0.30	0.48	0.59	0.94
VP 2060	Subgroup of beans with pods (all commodities within this group)	RAC	0.07	NC	–	NC	–	NC	–	NC	–	NC	–
014B	Peas with pods	–	0.07	–	–	–	–	–	–	–	–	–	–
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.011	7.11	0.08	2.33	0.03	3.76	0.04	44.70	0.49	3.27	0.04
VD 0523	Broad Bean, dry, raw (incl. horse–Bean, field bean) (Vicia faba)	RAC	0.011	3.70	0.04	0.03	0.00	0.17	0.00	0.01	0.00	NC	–
VD 0527	Cowpea,dry, raw (Vigna sinensis. Dolichos sinensis)	RAC	0.011	12.77	0.14	0.99	0.01	0.01	0.00	4.33	0.05	NC	–
VD 0541	Soya Bean, dry, raw (incl. flour, incl. paste, incl. curd, incl. sauce, excl. oil)	RAC	0.01	2.89	0.03	0.21	0.00	0.48	0.00	3.16	0.03	0.26	0.00
OR 0541	Soya oil, refined	PP	0.08	2.32	0.19	2.54	0.20	18.70	1.50	2.51	0.20	6.29	0.50
–	Beans (dry) NES: including inter alia lablab or hyacinth bean (Dolichos spp.); jack or sword bean	RAC	0.011	2.54	0.03	1.77	0.02	0.03	0.00	0.03	0.00	3.99	0.04

DIFENOCONAZOLE (224) **INTERNATIONAL ESTIMATED DAILY INTAKE (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
	(Canavalia spp.); winged bean (Psophocarpus tetragonolobus); guar bean (Cyamopsis tetragonoloba); velvet bean (Stizolobium spp.); yam bean (Pachyrrhizus erosus)												
VD 2066	Subgroup of dry peas, raw	RAC	0.028	4.43	0.12	11.36	0.32	4.22	0.12	9.36	0.26	1.21	0.03
VR 0577	Carrots, raw	RAC	0.05	2.07	0.10	3.00	0.15	25.29	1.26	0.05	0.00	NC	–
VR 0578	Celeriac, raw	RAC	0.12	2.91	0.35	2.10	0.25	7.59	0.91	1.97	0.24	3.93	0.47
VR 0494	Radish roots, raw	RAC	0.17	3.96	0.67	2.86	0.49	3.30	0.56	2.67	0.45	5.34	0.91
VR 0596	Sugar beet, raw (incl. sugar)	RAC	0.02	3.93	0.08	1.68	0.03	NC	–	NC	–	36.12	0.72
VR 0589	Potato, raw (incl. flour, incl. frozen, incl. starch, incl. tapioca)	RAC	1.2	23.96	28.75	13.56	16.27	213.41	256.09	104.35	125.22	8.56	10.27
VR 0508	Sweet potato, raw (incl. dried)	RAC	1.2	28.83	34.60	61.55	73.86	0.15	0.18	221.94	266.33	NC	–
VS 0624	Celery	RAC	0.14	3.66	0.51	2.65	0.37	4.84	0.68	2.47	0.35	4.94	0.69
VS 0621	Asparagus, raw	RAC	0.02	0.01	0.00	0.01	0.00	0.17	0.00	0.01	0.00	NC	–
VS 0620	Artichoke globe, raw	RAC	0.51	0.01	0.01	NC	–	0.08	0.04	0.01	0.01	NC	–
GC 0654	Wheat, raw (incl. bulgur, incl. fermented beverages, incl. germ, incl. wholemeal bread, incl. white flour products, incl. white bread)	RAC	0	57.20	0.00	110.47	0.00	272.62	0.00	25.82	0.00	132.04	0.00
CM 0649 (GC 0649)	Rice, husked, dry (incl. flour, incl. oil, incl. beverages, incl. starch, excl. polished)	REP	1.1	13.58	14.94	4.29	4.72	2.17	2.39	0.01	0.01	8.84	9.72
CM 1205	Rice polished, dry	PP	0.0086	30.20	0.26	218.34	1.88	12.77	0.11	15.24	0.13	51.35	0.44
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. beer, incl. germ, incl. starch, excl. flour, excl. oil)	RAC	0.01	0.58	0.01	0.52	0.01	3.26	0.03	7.96	0.08	NC	–
CF 1255	Maize, flour (white flour and wholemeal flour)	PP	0.008	94.34	0.75	8.09	0.06	28.03	0.22	55.94	0.45	28.07	0.22
OR 0645	Maize oil	PP	0.012	0.33	0.00	0.07	0.00	0.81	0.01	0.01	0.00	NC	–
GC 0447	Sweet corn on the cob, raw (incl. frozen kernels, incl. canned kernels)	RAC	0.01	3.63	0.04	20.50	0.21	8.78	0.09	0.02	0.00	0.17	0.00
TN 0085	Group of Tree nuts, raw (incl. processed)	RAC	0.01	4.39	0.04	135.53	1.36	6.11	0.06	0.72	0.01	317.74	3.18
SO 0495	Rape seed, raw	RAC	0.03	NC	–	0.01	0.00	NC	–	NC	–	NC	–
OR 0495	Rape seed oil, edible	PP	0.002	0.07	0.00	0.03	0.00	4.62	0.01	0.03	0.00	NC	–
SO 0702	Sunflower seed, raw (incl. oil)	RAC	0.01	0.94	0.01	0.22	0.00	32.01	0.32	12.12	0.12	0.48	0.00
OR 0691	Cotton seed oil, edible	PP	0.0014	1.28	0.00	0.05	0.00	0.45	0.00	0.42	0.00	0.15	0.00
SO 0697	Peanuts, nutmeat, raw (incl. roasted, incl. oil, incl. butter)	RAC	0	18.82	0.00	0.57	0.00	2.28	0.00	6.90	0.00	0.53	0.00
SO 0305	Olives for oil production, raw	RAC	0.456	NC	–	NC	–	0.02	0.01	NC	–	NC	–
–	Olive oil (virgin and residue oil)	PP	0.7	0.03	0.02	0.02	0.01	2.14	1.50	0.01	0.01	0.10	0.07
SB 0716	Coffee bean raw (incl. roasted, incl. instant coffee,	RAC	0.01	0.95	0.01	1.32	0.01	11.64	0.12	2.96	0.03	14.73	0.15

DIFENOCONAZOLE (224) **INTERNATIONAL ESTIMATED DAILY INTAKE (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
	incl. substitutes)												
HS 0190	Subgroup of seed spices (incl. processed)	RAC	0.16	0.02	0.00	1.51	0.24	0.23	0.04	0.01	0.00	0.05	0.01
HS 0784	Ginger. rhizome, raw incl. dried	RAC	0.13	0.75	0.10	0.68	0.09	0.06	0.01	0.02	0.00	0.01	0.00
HS 0444	Peppers, chili, dried	PP	1.1	0.58	0.64	1.27	1.40	1.21	1.33	0.12	0.13	NC	–
DT 1114	Tea, green or black, fermented and dried, (including concentrates)	RAC	4.85	0.53	2.57	5.25	25.46	0.86	4.17	0.56	2.72	0.88	4.27
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.047	23.34	1.10	40.71	1.91	97.15	4.57	18.06	0.85	57.71	2.71
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.14	5.84	0.82	10.18	1.42	24.29	3.40	4.52	0.63	14.43	2.02
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.14	1.05	0.15	1.14	0.16	18.69	2.62	0.94	0.13	3.12	0.44
MO 0105	Edible offal (mammalian), raw	RAC	0.71	4.64	3.29	1.97	1.40	10.01	7.11	3.27	2.32	3.98	2.83
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.011	108.75	1.20	70.31	0.77	436.11	4.80	61.55	0.68	79.09	0.87
PM 0110	Poultry meat, raw (incl. prepared)	RAC	0.0002	3.92	0.00	12.03	0.00	57.07	0.01	5.03	0.00	55.56	0.01
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0.0002	NC	–	NC	–	0.32	0.00	NC	–	NC	–
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0.0002	0.10	0.00	0.70	0.00	0.97	0.00	0.10	0.00	NC	–
PE 0112	Eggs, raw, (incl. dried)	RAC	0.011	3.84	0.04	4.41	0.05	27.25	0.30	1.13	0.01	7.39	0.08
	Total intake (µg/person) =				167.9		158.1		441.3		575.5		89.9
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (µg/person) =				600		600		600		600		600
	%ADI =				28.0%		26.3%		73.5%		95.9%		15.0%
	Rounded %ADI =				30%		30%		70%		100%		10%

DINOTEFURAN (255) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.2 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
FS 2001	Subgroup of peaches, raw	RAC	0.28	7.50	2.10	4.98	1.39	0.18	0.05	7.33	2.05	1.59	0.45	21.11	5.91
FB 0269	Grapes, raw (incl. wine, excl. must, excl. dried, excl. juice)	RAC	0.22	13.60	2.99	26.34	5.79	2.79	0.61	18.55	4.08	8.54	1.88	59.93	13.18
DF 0269	Grapes, dried (= currants. raisins and sultanas) (from table grapes)	PP	0.81	0.51	0.41	0.51	0.41	0.01	0.01	1.27	1.03	0.12	0.10	2.07	1.68
JF 0269	Grape juice (from wine grapes)	PP	0.264	0.14	0.04	0.29	0.08	0.05	0.01	0.30	0.08	0.24	0.06	0.05	0.01
FB 0265	Cranberry, raw	RAC	0.065	0.02	0.00	0.01	0.00	NC	–	0.03	0.00	0.01	0.00	0.01	0.00
FI 0345	Mango, raw	RAC	0.22	10.38	2.28	0.01	0.00	7.24	1.59	6.85	1.51	19.53	4.30	4.52	0.99

DINOTEFURAN (255) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.2 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
FI 0334	Durian, raw	RAC	0.26	0.04	0.01	0.01	0.00	0.04	0.01	0.04	0.01	NC	–	0.01	0.00
–	Onions, dry, raw	RAC	0.04	29.36	1.17	37.50	1.50	3.56	0.14	34.78	1.39	18.81	0.75	43.38	1.74
–	Onions. green, raw	RAC	0.91	2.45	2.23	1.49	1.36	1.02	0.93	2.60	2.37	0.60	0.55	2.03	1.85
VB 0040	Group of Brassica vegetables (excl. Brassica leafy vegetables), raw	RAC	0.4	6.43	2.57	40.26	16.10	0.80	0.32	9.94	3.98	12.07	4.83	17.73	7.09
VC 0045	Group of Fruiting vegetables, cucurbits, raw	RAC	0.25	53.14	13.29	86.21	21.55	6.28	1.57	92.76	23.19	15.64	3.91	155.30	38.83
VO 0050	Group of Fruiting vegetables other than cucurbits, raw, (incl. processed commodities, excl. dried chilli peppers)	RAC	0.15	67.79	10.17	99.85	14.98	31.70	4.76	125.86	18.88	55.22	8.28	262.82	39.42
VL 0053	Group of Leafy vegetables, raw	RAC	1.2	8.47	10.16	22.36	26.83	7.74	9.29	25.51	30.61	45.77	54.92	21.22	25.46
VL 0476	Endive, raw (i.e. scarole)	RAC	1.2	0.03	0.04	0.02	0.02	0.01	0.01	0.40	0.48	0.05	0.06	0.39	0.47
VL 0483	Lettuce, leaf, raw	RAC	1.2	0.53	0.64	0.36	0.43	0.16	0.19	6.21	7.45	1.90	2.28	6.05	7.26
VL 0492	Purslane, raw	RAC	1.2	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	NC	–	0.01	0.01
VL 0502	Spinach, raw	RAC	1.2	0.74	0.89	0.22	0.26	0.02	0.02	0.91	1.09	0.04	0.05	2.92	3.50
VL 0054	Subgroup of Leaves of Brassicaceae, raw	RAC	1.2	2.63	3.16	9.27	11.12	1.86	2.23	5.82	6.98	19.53	23.44	4.90	5.88
VL 0473	Watercress, raw	RAC	2.9	1.21	3.51	2.15	6.24	1.33	3.86	3.24	9.40	11.36	32.94	1.56	4.52
VS 0624	Celery	RAC	0.435	2.14	0.93	3.79	1.65	2.35	1.02	5.69	2.48	0.02	0.01	2.75	1.20
CM 0649 (GC 0649)	Rice, husked, dry (incl. oil, incl. beverages, incl. starch, excl. polished, excl. flour)	REP	3.3	1.20	3.96	1.30	4.29	31.05	102.47	4.79	15.81	0.61	2.01	2.16	7.13
CM 1205	Rice polished, dry	PP	0.132	34.21	4.52	10.39	1.37	41.72	5.51	82.38	10.87	150.24	19.83	70.47	9.30
SO 0691	Cotton seed, raw (incl. oil)	RAC	0.15	20.53	3.08	9.80	1.47	6.42	0.96	4.73	0.71	7.14	1.07	18.68	2.80
OR 0691	Cotton seed oil, edible	PP	0.0105	3.22	0.03	1.54	0.02	1.01	0.01	0.74	0.01	1.12	0.01	2.93	0.03
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat)	RAC	0.03	31.20	0.94	72.44	2.17	20.88	0.63	47.98	1.44	33.08	0.99	36.25	1.09
MO 0105	Edible offal (mammalian), raw	RAC	0.03	4.79	0.14	9.68	0.29	2.97	0.09	5.49	0.16	3.84	0.12	5.03	0.15
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.039	289.65	11.30	485.88	18.95	26.92	1.05	239.03	9.32	199.91	7.80	180.53	7.04
PM 0110	Poultry meat, raw (incl. prepared)	RAC	0	14.63	0.00	29.76	0.00	8.04	0.00	129.68	0.00	25.04	0.00	35.66	0.00
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0	0.12	0.00	0.12	0.00	0.11	0.00	5.37	0.00	0.24	0.00	0.10	0.00
PE 0112	Eggs, raw, (incl. dried)	RAC	0	7.84	0.00	23.08	0.00	2.88	0.00	14.89	0.00	9.81	0.00	14.83	0.00
	Total intake (µg/person) =				80.6		138.3		137.4		155.4		170.6		186.6
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (µg/person) =				12000		12000		12000		12000		12000		12000
	%ADI =				0.7%		1.2%		1.1%		1.3%		1.4%		1.6%
	Rounded %ADI =				1%		1%		1%		1%		1%		2%

DINOTEFURAN (255) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.2 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
FS 2001	Subgroup of peaches, raw	RAC	0.28	10.82	3.03	15.31	4.29	8.28	2.32	11.82	3.31	4.08	1.14	0.04	0.01
FB 0269	Grapes, raw (incl. wine, excl. must, excl. dried, excl. juice)	RAC	0.22	128.49	28.27	96.95	21.33	7.73	1.70	43.82	9.64	88.57	19.49	8.80	1.94
DF 0269	Grapes, dried (= currants. raisins and sultanas) (from table grapes)	PP	0.81	3.09	2.50	1.51	1.22	0.03	0.02	1.38	1.12	4.26	3.45	0.42	0.34
JF 0269	Grape juice (from wine grapes)	PP	0.264	0.56	0.15	1.96	0.52	0.02	0.01	2.24	0.59	2.27	0.60	0.34	0.09
FB 0265	Cranberry, raw	RAC	0.065	0.06	0.00	0.01	0.00	0.01	0.00	1.22	0.08	0.11	0.01	NC	–
FI 0345	Mango, raw	RAC	0.22	1.80	0.40	0.63	0.14	9.73	2.14	1.07	0.24	3.52	0.77	16.44	3.62
FI 0334	Durian, raw	RAC	0.26	NC	–	NC	–	0.55	0.14	NC	–	NC	–	NC	–
–	Onions, dry, raw	RAC	0.04	19.69	0.79	29.83	1.19	24.64	0.99	31.35	1.25	9.72	0.39	12.59	0.50
–	Onions. green, raw	RAC	0.91	1.55	1.41	0.74	0.67	1.05	0.96	3.74	3.40	0.94	0.86	6.45	5.87
VB 0040	Group of Brassica vegetables (excl. Brassica leafy vegetables), raw	RAC	0.4	20.71	8.28	39.81	15.92	25.06	10.02	37.93	15.17	18.12	7.25	16.74	6.70
VC 0045	Group of Fruiting vegetables, cucurbits, raw	RAC	0.25	27.81	6.95	41.93	10.48	123.30	30.83	49.47	12.37	15.95	3.99	35.99	9.00
VO 0050	Group of Fruiting vegetables other than cucurbits, raw, (incl. processed commodities, excl. dried chilli peppers)	RAC	0.15	72.14	10.82	85.53	12.83	76.55	11.48	95.63	14.34	64.19	9.63	16.94	2.54
VL 0053	Group of Leafy vegetables, raw	RAC	1.2	18.83	22.60	21.85	26.22	121.23	145.48	43.09	51.71	18.18	21.82	18.32	21.98
VL 0476	Endive, raw (i.e. scarole)	RAC	1.2	0.21	0.25	0.93	1.12	NC	–	0.30	0.36	2.14	2.57	0.14	0.17
VL 0483	Lettuce, leaf, raw	RAC	1.2	14.50	17.40	11.76	14.11	13.14	15.77	19.50	23.40	4.81	5.77	2.23	2.68
VL 0492	Purslane, raw	RAC	1.2	0.01	0.01	NC	–	NC	–	NC	–	NC	–	0.01	0.01
VL 0502	Spinach, raw	RAC	1.2	2.20	2.64	1.76	2.11	13.38	16.06	2.94	3.53	5.53	6.64	0.02	0.02
VL 0054	Subgroup of Leaves of Brassicaceae, raw	RAC	1.2	0.10	0.12	NC	–	26.78	32.14	5.00	6.00	0.58	0.70	5.68	6.82
VL 0473	Watercress, raw	RAC	2.9	0.35	1.02	3.13	9.08	0.32	0.93	NC	–	NC	–	2.30	6.67
VS 0624	Celery	RAC	0.435	7.68	3.34	2.85	1.24	NC	–	3.34	1.45	16.83	7.32	4.04	1.76
CM 0649 (GC 0649)	Rice, husked, dry (incl. oil, incl. beverages, incl. starch, excl. polished, excl. flour)	REP	3.3	2.43	8.02	1.62	5.35	0.58	1.91	1.69	5.58	NC	–	5.03	16.60
CM 1205	Rice polished, dry	PP	0.132	13.38	1.77	10.80	1.43	262.08	34.59	57.16	7.55	12.83	1.69	62.78	8.29
SO 0691	Cotton seed, raw (incl. oil)	RAC	0.15	10.71	1.61	4.23	0.63	7.19	1.08	7.54	1.13	5.66	0.85	2.38	0.36
OR 0691	Cotton seed oil, edible	PP	0.0105	1.68	0.02	0.66	0.01	1.13	0.01	1.18	0.01	0.89	0.01	0.37	0.00
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat)	RAC	0.03	140.03	4.20	150.89	4.53	79.32	2.38	111.24	3.34	120.30	3.61	51.27	1.54
MO 0105	Edible offal (mammalian), raw	RAC	0.03	15.17	0.46	5.19	0.16	6.30	0.19	6.78	0.20	3.32	0.10	3.17	0.10
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.039	388.92	15.17	335.88	13.10	49.15	1.92	331.25	12.92	468.56	18.27	245.45	9.57
PM 0110	Poultry meat, raw (incl. prepared)	RAC	0	73.76	0.00	53.86	0.00	23.98	0.00	87.12	0.00	53.38	0.00	84.45	0.00
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0	0.33	0.00	0.72	0.00	0.27	0.00	0.35	0.00	0.80	0.00	NC	–

DINOTEFURAN (255) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.2 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
PE 0112	Eggs, raw, (incl. dried)	RAC	0	25.84	0.00	29.53	0.00	28.05	0.00	33.19	0.00	36.44	0.00	8.89	0.00
	Total intake (µg/person) =				141.2		147.7		313.1		178.7		116.9		107.2
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (µg/person) =				12000		12000		11000		12000		12000		12000
	%ADI =				1.2%		1.2%		2.8%		1.5%		1.0%		0.9%
	Rounded %ADI =				1%		1%		3%		1%		1%		1%

DINOTEFURAN (255) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.2 mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
FS 2001	Subgroup of peaches, raw	RAC	0.28	0.02	0.01	0.01	0.00	9.93	2.78	0.01	0.00	NC	–
FB 0269	Grapes, raw (incl. wine, excl. must, excl. dried, excl. juice)	RAC	0.22	0.57	0.13	0.68	0.15	98.23	21.61	0.73	0.16	43.92	9.66
DF 0269	Grapes, dried (= currants. raisins and sultanas) (from table grapes)	PP	0.81	0.01	0.01	0.13	0.11	1.06	0.86	0.01	0.01	0.03	0.02
JF 0269	Grape juice (from wine grapes)	PP	0.264	0.01	0.00	0.01	0.00	0.41	0.11	0.01	0.00	NC	–
FB 0265	Cranberry, raw	RAC	0.065	NC	–	NC	–	0.03	0.00	NC	–	NC	–
FI 0345	Mango, raw	RAC	0.22	12.25	2.70	6.74	1.48	0.76	0.17	0.01	0.00	20.12	4.43
FI 0334	Durian, raw	RAC	0.26	0.01	0.00	0.01	0.00	NC	–	0.01	0.00	0.24	0.06
–	Onions, dry, raw	RAC	0.04	9.01	0.36	20.24	0.81	30.90	1.24	9.61	0.38	2.11	0.08
–	Onions. green, raw	RAC	0.91	1.43	1.30	0.05	0.05	0.20	0.18	NC	–	6.30	5.73
VB 0040	Group of Brassica vegetables (excl. Brassica leafy vegetables), raw	RAC	0.4	5.46	2.18	4.28	1.71	58.72	23.49	0.02	0.01	NC	–
VC 0045	Group of Fruiting vegetables, cucurbits, raw	RAC	0.25	5.96	1.49	9.74	2.44	51.82	12.96	13.61	3.40	0.05	0.01
VO 0050	Group of Fruiting vegetables other than cucurbits, raw, (incl. processed commodities, excl. dried chilli peppers)	RAC	0.15	32.01	4.80	28.27	4.24	100.61	15.09	2.91	0.44	12.50	1.88
VL 0053	Group of Leafy vegetables, raw	RAC	1.2	12.42	14.90	8.75	10.50	7.53	9.04	7.07	8.48	14.11	16.93
VL 0476	Endive, raw (i.e. scarole)	RAC	1.2	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	NC	–
VL 0483	Lettuce, leaf, raw	RAC	1.2	0.29	0.35	0.03	0.04	6.71	8.05	0.01	0.01	NC	–
VL 0492	Purslane, raw	RAC	1.2	0.01	0.01	0.01	0.01	NC	–	0.01	0.01	0.01	0.01
VL 0502	Spinach, raw	RAC	1.2	0.17	0.20	0.01	0.01	0.81	0.97	0.01	0.01	NC	–
VL 0054	Subgroup of Leaves of Brassicaceae, raw	RAC	1.2	3.58	4.30	2.64	3.17	NC	–	1.83	2.20	3.65	4.38
VL 0473	Watercress, raw	RAC	2.9	2.08	6.03	1.50	4.35	0.01	0.03	1.41	4.09	2.81	8.15

DINOTEFURAN (255) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.2 mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
VS 0624	Celery	RAC	0.435	3.66	1.59	2.65	1.15	4.84	2.11	2.47	1.07	4.94	2.15
CM 0649 (GC 0649)	Rice, husked, dry (incl. oil, incl. beverages, incl. starch, excl. polished, excl. flour)	REP	3.3	13.54	44.68	4.12	13.60	1.96	6.47	0.01	0.03	8.84	29.17
CM 1205	Rice polished, dry	PP	0.132	30.20	3.99	218.34	28.82	12.77	1.69	15.24	2.01	51.35	6.78
SO 0691	Cotton seed, raw (incl. oil)	RAC	0.15	8.14	1.22	0.32	0.05	2.84	0.43	2.69	0.40	0.97	0.15
OR 0691	Cotton seed oil, edible	PP	0.0105	1.28	0.01	0.05	0.00	0.45	0.00	0.42	0.00	0.15	0.00
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat)	RAC	0.03	29.18	0.88	50.89	1.53	121.44	3.64	22.58	0.68	72.14	2.16
MO 0105	Edible offal (mammalian), raw	RAC	0.03	4.64	0.14	1.97	0.06	10.01	0.30	3.27	0.10	3.98	0.12
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.039	108.75	4.24	70.31	2.74	436.11	17.01	61.55	2.40	79.09	3.08
PM 0110	Poultry meat, raw (incl. prepared)	RAC	0	3.92	0.00	12.03	0.00	57.07	0.00	5.03	0.00	55.56	0.00
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0	0.10	0.00	0.70	0.00	0.97	0.00	0.10	0.00	NC	–
PE 0112	Eggs, raw, (incl. dried)	RAC	0	3.84	0.00	4.41	0.00	27.25	0.00	1.13	0.00	7.39	0.00
	Total intake (µg/person) =				95.5		77.0		128.2		25.9		95.0
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (µg/person) =				12000		12000		12000		12000		12000
	%ADI =				0.8%		0.6%		1.1%		0.2%		0.8%
	Rounded %ADI =				1%		1%		1%		0%		1%

ETOXAZOLE (241) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.05 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
FC 0001	Group of Citrus fruit, raw (incl. kumquat commodities)	RAC	0.01	32.25	0.32	11.67	0.12	16.70	0.17	76.01	0.76	33.90	0.34	92.97	0.93
JF 0001	Group of Citrus fruit, juice	PP	0.005	1.30	0.01	2.37	0.01	0.22	0.00	13.88	0.07	0.75	0.00	2.63	0.01
FP 0009	Group of Pome fruits, raw (incl. apple juice, incl. apple cider)	RAC	0.01	19.79	0.20	38.25	0.38	17.96	0.18	32.56	0.33	8.08	0.08	64.45	0.64
FB 0269	Grapes, raw (incl. must, incl. wine, excl. dried, excl. juice)	RAC	0.04	13.94	0.56	26.46	1.06	2.79	0.11	18.58	0.74	8.54	0.34	59.95	2.40
DF 0269	Grapes, dried (= currants. raisins and sultanas) (from table grapes)	PP	0.044	0.51	0.02	0.51	0.02	0.01	0.00	1.27	0.06	0.12	0.01	2.07	0.09
JF 0269	Grape juice (from wine grapes)	PP	0.068	0.14	0.01	0.29	0.02	0.05	0.00	0.30	0.02	0.24	0.02	0.05	0.00
FI 0326	Avocado, raw	RAC	0.033	0.13	0.00	0.03	0.00	2.05	0.07	2.54	0.08	2.34	0.08	0.12	0.00
VC 0424	Cucumber, raw	RAC	0.01	8.01	0.08	30.66	0.31	1.45	0.01	19.84	0.20	0.27	0.00	34.92	0.35
GC 0447	Sweet corn on the cob, raw (i.e kernels plus	RAC	0.01	0.08	0.00	0.09	0.00	5.67	0.06	0.05	0.00	1.77	0.02	NC	–

ETOXAZOLE (241) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.05 mg/kg bw**

			STMR	Diets as g/person/day						Intake as µg/person/day					
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
	cob without husks)														
TN 0085	Group of Tree nuts, raw (incl. processed)	RAC	0	4.06	0.00	3.27	0.00	7.01	0.00	13.93	0.00	14.01	0.00	9.36	0.00
HH 0738	Mint, raw	RAC	4.9	0.50	2.45	0.01	0.05	NC	–	NC	–	NC	–	NC	–
DH 1100	Hops, dry	RAC	4.2	0.01	0.04	0.04	0.17	0.01	0.04	0.01	0.04	NC	–	0.01	0.04
DT 1114	Tea, green or black, fermented and dried, (including concentrates)	RAC	4.75	2.28	10.83	1.98	9.41	0.46	2.19	2.43	11.54	1.29	6.13	3.04	14.44
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.01	24.96	0.25	57.95	0.58	16.70	0.17	38.38	0.38	26.46	0.26	29.00	0.29
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.01	6.24	0.06	14.49	0.14	4.18	0.04	9.60	0.10	6.62	0.07	7.25	0.07
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.01	3.29	0.03	6.14	0.06	0.82	0.01	1.57	0.02	2.23	0.02	1.07	0.01
MO 0105	Edible offal (mammalian), raw	RAC	0.01	4.79	0.05	9.68	0.10	2.97	0.03	5.49	0.05	3.84	0.04	5.03	0.05
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.02	289.65	5.79	485.88	9.72	26.92	0.54	239.03	4.78	199.91	4.00	180.53	3.61
PM 0110	Poultry meat, raw (incl. prepared) – 90% as muscle	RAC	0	13.17	0.00	26.78	0.00	7.24	0.00	116.71	0.00	22.54	0.00	32.09	0.00
PM 0110	Poultry meat, raw (incl. prepared) – 10% as fat	RAC	0	1.46	0.00	2.98	0.00	0.80	0.00	12.97	0.00	2.50	0.00	3.57	0.00
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0	0.10	0.00	0.10	0.00	NC	–	0.10	0.00	0.10	0.00	0.10	0.00
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0	0.12	0.00	0.12	0.00	0.11	0.00	5.37	0.00	0.24	0.00	0.10	0.00
PE 0112	Eggs, raw, (incl. dried)	RAC	0	7.84	0.00	23.08	0.00	2.88	0.00	14.89	0.00	9.81	0.00	14.83	0.00
	Total intake (µg/person) =				20.7		22.1		3.6		19.2		11.4		22.9
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (µg/person) =				3000		3000		3000		3000		3000		3000
	%ADI =				0.7%		0.7%		0.1%		0.6%		0.4%		0.8%
	Rounded %ADI =				1%		1%		0%		1%		0%		1%

ETOXAZOLE (241) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.05 mg/kg bw**

			STMR	Diets as g/person/day						Intake as µg/person/day					
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
FC 0001	Group of Citrus fruit, raw (incl. kumquat commodities)	RAC	0.01	38.66	0.39	54.93	0.55	26.36	0.26	51.46	0.51	51.06	0.51	466.36	4.66
JF 0001	Group of Citrus fruit, juice	PP	0.005	36.84	0.18	3.75	0.02	0.30	0.00	21.62	0.11	21.82	0.11	46.67	0.23
FP 0009	Group of Pome fruits, raw (incl. apple juice, incl.	RAC	0.01	71.38	0.71	81.73	0.82	42.91	0.43	58.89	0.59	103.85	1.04	12.48	0.12

ETOXAZOLE (241) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.05 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
	apple cider)														
FB 0269	Grapes, raw (incl. must, incl. wine, excl. dried, excl. juice)	RAC	0.04	128.64	5.15	97.04	3.88	7.74	0.31	43.94	1.76	88.68	3.55	8.80	0.35
DF 0269	Grapes, dried (= currants. raisins and sultanas) (from table grapes)	PP	0.044	3.09	0.14	1.51	0.07	0.03	0.00	1.38	0.06	4.26	0.19	0.42	0.02
JF 0269	Grape juice (from wine grapes)	PP	0.068	0.56	0.04	1.96	0.13	0.02	0.00	2.24	0.15	2.27	0.15	0.34	0.02
FI 0326	Avocado, raw	RAC	0.033	2.65	0.09	0.87	0.03	0.46	0.02	1.64	0.05	1.30	0.04	0.96	0.03
VC 0424	Cucumber, raw	RAC	0.01	6.72	0.07	11.03	0.11	32.10	0.32	15.10	0.15	4.05	0.04	9.57	0.10
GC 0447	Sweet corn on the cob, raw (i.e kernels plus cob without husks)	RAC	0.01	4.94	0.05	0.30	0.00	0.58	0.01	5.33	0.05	0.07	0.00	NC	–
TN 0085	Group of Tree nuts, raw (incl. processed)	RAC	0	8.52	0.00	8.94	0.00	15.09	0.00	9.60	0.00	14.57	0.00	26.26	0.00
HH 0738	Mint, raw	RAC	4.9	NC	–	NC	–	NC	–	NC	–	NC	–	NC	–
DH 1100	Hops, dry	RAC	4.2	NC	–	NC	–	0.02	0.08	0.02	0.08	NC	–	NC	–
DT 1114	Tea, green or black, fermented and dried, (including concentrates)	RAC	4.75	2.91	13.82	1.73	8.22	1.14	5.42	1.85	8.79	2.29	10.88	0.74	3.52
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.01	112.02	1.12	120.71	1.21	63.46	0.63	88.99	0.89	96.24	0.96	41.02	0.41
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.01	28.01	0.28	30.18	0.30	15.86	0.16	22.25	0.22	24.06	0.24	10.25	0.10
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.01	6.44	0.06	15.51	0.16	3.79	0.04	8.29	0.08	18.44	0.18	8.00	0.08
MO 0105	Edible offal (mammalian), raw	RAC	0.01	15.17	0.15	5.19	0.05	6.30	0.06	6.78	0.07	3.32	0.03	3.17	0.03
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.02	388.92	7.78	335.88	6.72	49.15	0.98	331.25	6.63	468.56	9.37	245.45	4.91
PM 0110	Poultry meat, raw (incl. prepared) – 90% as muscle	RAC	0	66.38	0.00	48.47	0.00	21.58	0.00	78.41	0.00	48.04	0.00	76.01	0.00
PM 0110	Poultry meat, raw (incl. prepared) – 10% as fat	RAC	0	7.38	0.00	5.39	0.00	2.40	0.00	8.71	0.00	5.34	0.00	8.45	0.00
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0	0.10	0.00	0.10	0.00	NC	–	0.10	0.00	0.71	0.00	NC	–
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0	0.33	0.00	0.72	0.00	0.27	0.00	0.35	0.00	0.80	0.00	NC	–
PE 0112	Eggs, raw, (incl. dried)	RAC	0	25.84	0.00	29.53	0.00	28.05	0.00	33.19	0.00	36.44	0.00	8.89	0.00
	Total intake (µg/person) =				30.0		22.3		8.7		20.2		27.3		14.6
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (µg/person) =				3000		3000		2750		3000		3000		3000
	%ADI =				1.0%		0.7%		0.3%		0.7%		0.9%		0.5%
	Rounded %ADI =				1%		1%		0%		1%		1%		0%

ETOXAZOLE (241) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.05 mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
FC 0001	Group of Citrus fruit, raw (incl. kumquat commodities)	RAC	0.01	20.93	0.21	2.35	0.02	30.71	0.31	0.15	0.00	4.45	0.04
JF 0001	Group of Citrus fruit, juice	PP	0.005	0.11	0.00	0.29	0.00	13.55	0.07	0.14	0.00	0.33	0.00
FP 0009	Group of Pome fruits, raw (incl. apple juice, incl. apple cider)	RAC	0.01	68.89	0.69	11.06	0.11	80.62	0.81	189.82	1.90	19.56	0.20
FB 0269	Grapes, raw (incl. must, incl. wine, excl. dried, excl. juice)	RAC	0.04	0.57	0.02	0.69	0.03	98.34	3.93	0.73	0.03	44.12	1.76
DF 0269	Grapes, dried (= currants. raisins and sultanas) (from table grapes)	PP	0.044	0.01	0.00	0.13	0.01	1.06	0.05	0.01	0.00	0.03	0.00
JF 0269	Grape juice (from wine grapes)	PP	0.068	0.01	0.00	0.01	0.00	0.41	0.03	0.01	0.00	NC	–
FI 0326	Avocado, raw	RAC	0.033	1.12	0.04	0.01	0.00	0.84	0.03	0.01	0.00	6.60	0.22
VC 0424	Cucumber, raw	RAC	0.01	0.68	0.01	1.81	0.02	10.40	0.10	0.01	0.00	0.04	0.00
GC 0447	Sweet corn on the cob, raw (i.e kernels plus cob without husks)	RAC	0.01	3.61	0.04	20.45	0.20	6.00	0.06	0.01	0.00	0.17	0.00
TN 0085	Group of Tree nuts, raw (incl. processed)	RAC	0	4.39	0.00	135.53	0.00	6.11	0.00	0.72	0.00	317.74	0.00
HH 0738	Mint, raw	RAC	4.9	NC	–	NC	–	NC	–	NC	–	NC	–
DH 1100	Hops, dry	RAC	4.2	NC	–	NC	–	0.04	0.17	NC	–	NC	–
DT 1114	Tea, green or black, fermented and dried, (including concentrates)	RAC	4.75	0.53	2.52	5.25	24.94	0.86	4.09	0.56	2.66	0.88	4.18
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.01	23.34	0.23	40.71	0.41	97.15	0.97	18.06	0.18	57.71	0.58
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.01	5.84	0.06	10.18	0.10	24.29	0.24	4.52	0.05	14.43	0.14
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.01	1.05	0.01	1.14	0.01	18.69	0.19	0.94	0.01	3.12	0.03
MO 0105	Edible offal (mammalian), raw	RAC	0.01	4.64	0.05	1.97	0.02	10.01	0.10	3.27	0.03	3.98	0.04
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.02	108.75	2.18	70.31	1.41	436.11	8.72	61.55	1.23	79.09	1.58
PM 0110	Poultry meat, raw (incl. prepared) – 90% as muscle	RAC	0	3.53	0.00	10.83	0.00	51.36	0.00	4.53	0.00	50.00	0.00
PM 0110	Poultry meat, raw (incl. prepared) – 10% as fat	RAC	0	0.39	0.00	1.20	0.00	5.71	0.00	0.50	0.00	5.56	0.00
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0	NC	–	NC	–	0.32	0.00	NC	–	NC	–
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0	0.10	0.00	0.70	0.00	0.97	0.00	0.10	0.00	NC	–
PE 0112	Eggs, raw, (incl. dried)	RAC	0	3.84	0.00	4.41	0.00	27.25	0.00	1.13	0.00	7.39	0.00
	Total intake (µg/person) =				6.0		27.3		19.9		6.1		8.8
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (µg/person) =				3000		3000		3000		3000		3000

ETOXAZOLE (241) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.05 mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
	%ADI =				0.2%		0.9%		0.7%		0.2%		0.3%
	Rounded %ADI =				0%		1%		1%		0%		0%

FLUBENDIAMIDE (242) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.02 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
FP 0226	Apple, raw (incl. cider, excl. juice)	RAC	0.25	13.49	3.37	26.63	6.66	15.05	3.76	16.28	4.07	6.47	1.62	47.88	11.97
JF 0226	Apple juice. single strength (incl. concentrated)	PP	0.015	0.32	0.00	3.07	0.05	0.07	0.00	5.00	0.08	0.29	0.00	5.57	0.08
FP 0230	Pear, raw	RAC	0.25	2.16	0.54	6.24	1.56	0.05	0.01	4.07	1.02	1.16	0.29	5.34	1.34
FP 0307	Persimmon. Japanese, raw (i.e. Kaki fruit)	RAC	0.25	1.91	0.48	0.01	0.00	1.94	0.49	1.96	0.49	NC	–	0.25	0.06
FP 0231	Quince, raw	RAC	0.25	0.73	0.18	0.54	0.14	0.01	0.00	0.07	0.02	0.06	0.02	1.31	0.33
FS 0013	Subgroup of Cherries, raw	RAC	0.585	0.92	0.54	9.15	5.35	0.01	0.01	0.61	0.36	0.06	0.04	6.64	3.88
FS 0014	Subgroup of Plums, raw	RAC	0.585	2.40	1.40	8.60	5.03	0.06	0.04	2.52	1.47	0.58	0.34	4.16	2.43
DF 0014	Plums, dried (prunes)	PP	0.53	0.09	0.05	0.06	0.03	0.01	0.01	0.18	0.10	0.04	0.02	0.06	0.03
FS 2001	Subgroup of peaches, raw (incl. dried apricots)	RAC	0.585	8.01	4.69	5.87	3.43	0.18	0.11	8.19	4.79	1.64	0.96	22.46	13.14
FB 0269	Grapes, raw (i.e. table grapes)	RAC	0.42	12.68	5.33	9.12	3.83	0.03	0.01	16.88	7.09	3.70	1.55	54.42	22.86
DF 0269	Grapes, dried (= currants. raisins and sultanas) (from table grapes)	PP	0.7	0.51	0.36	0.51	0.36	0.01	0.01	1.27	0.89	0.12	0.08	2.07	1.45
JF 0269	Grape juice (from wine grapes)	PP	0.054	0.14	0.01	0.29	0.02	0.05	0.00	0.30	0.02	0.24	0.01	0.05	0.00
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.079	0.67	0.05	12.53	0.99	2.01	0.16	1.21	0.10	3.53	0.28	4.01	0.32
VB 0040	Group of Brassica vegetables (excl. Brassica leafy vegetables), raw	RAC	0.365	6.43	2.35	40.26	14.69	0.80	0.29	9.94	3.63	12.07	4.41	17.73	6.47
VC 0045	Group of Fruiting vegetables, cucurbits, raw	RAC	0.045	53.14	2.39	86.21	3.88	6.28	0.28	92.76	4.17	15.64	0.70	155.30	6.99
VO 0448	Tomato, raw	RAC	0.35	41.73	14.61	75.65	26.48	10.66	3.73	82.87	29.00	24.75	8.66	200.93	70.33
–	Tomato, canned (& peeled)	PP	0.105	0.20	0.02	0.31	0.03	0.02	0.00	1.11	0.12	0.11	0.01	1.50	0.16
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	1.4	2.34	3.28	1.33	1.86	1.57	2.20	4.24	5.94	0.34	0.48	2.83	3.96
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.17	0.29	0.05	0.29	0.05	0.01	0.00	0.38	0.06	0.05	0.01	0.14	0.02
VO 0051	Subgroup of peppers, raw (incl. dried	RAC	0.09	8.48	0.76	13.74	1.24	10.13	0.91	11.29	1.02	9.52	0.86	26.36	2.37

FLUBENDIAMIDE (242) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.02 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
	sweet peppers, excl. dried chilipeppers), excl. okra														
–	Peppers, sweet. dried	PP	0.9	0.42	0.38	0.53	0.48	0.84	0.76	0.50	0.45	0.95	0.86	0.37	0.33
VL 0483	Lettuce, leaf, raw	RAC	1.7	0.53	0.90	0.36	0.61	0.16	0.27	6.21	10.56	1.90	3.23	6.05	10.29
VP 0060	Group of Legume vegetables, raw	RAC	0.43	7.73	3.32	1.53	0.66	0.51	0.22	2.95	1.27	5.08	2.18	12.86	5.53
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.18	2.39	0.43	1.61	0.29	10.47	1.88	1.84	0.33	12.90	2.32	7.44	1.34
VD 0523	Broad Bean, dry, raw (incl. horse–Bean, field bean) (Vicia faba)	RAC	0.18	1.27	0.23	0.01	0.00	0.12	0.02	2.49	0.45	0.23	0.04	5.54	1.00
VD 0527	Cowpea,dry, raw (Vigna sinensis. Dolichos sinensis)	RAC	0.18	0.05	0.01	NC	–	1.74	0.31	0.01	0.00	0.01	0.00	0.07	0.01
VD 0541	Soya Bean, dry, raw (incl. flour, incl. paste, incl. curd, incl. sauce, excl. oil)	RAC	0.18	0.63	0.11	1.09	0.20	0.40	0.07	1.40	0.25	1.68	0.30	0.48	0.09
OR 0541	Soya oil, refined	PP	0.001	12.99	0.01	10.43	0.01	3.63	0.00	13.10	0.01	10.70	0.01	13.10	0.01
–	Soya flour	PP	0.01	0.05	0.00	0.86	0.01	0.02	0.00	1.02	0.01	0.01	0.00	0.15	0.00
VD 2066	Subgroup of dry peas, raw	RAC	0.18	9.09	1.64	3.35	0.60	1.06	0.19	9.48	1.71	15.11	2.72	10.58	1.90
VD 2067	Subgroup of dry underground pulses, raw	RAC	0.18	NC	–	NC	–	0.20	0.04	NC	–	NC	–	NC	–
VS 0624	Celery	RAC	1.7	2.14	3.64	3.79	6.44	2.35	4.00	5.69	9.67	0.02	0.03	2.75	4.68
CM 0649 (GC 0649)	Rice, husked, dry (incl. flour, incl. oil, incl. beverages, incl. starch, excl. polished)	REP	0.03	1.26	0.04	1.58	0.05	31.05	0.93	5.43	0.16	0.90	0.03	2.18	0.07
CM 1205	Rice polished, dry	PP	0.01	34.21	0.34	10.39	0.10	41.72	0.42	82.38	0.82	150.24	1.50	70.47	0.70
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. beer, incl. germ, incl. starch, excl. flour, excl. oil)	RAC	0.01	0.97	0.01	0.24	0.00	1.58	0.02	4.10	0.04	2.56	0.03	13.31	0.13
CF 1255	Maize, flour (white flour and wholemeal flour)	PP	0.021	22.72	0.48	35.61	0.75	87.27	1.83	34.92	0.73	46.71	0.98	49.12	1.03
OR 0645	Maize oil	PP	0.0045	0.96	0.00	0.85	0.00	0.29	0.00	5.42	0.02	0.42	0.00	2.10	0.01
GC 2090	Subgroup of Sweet Corns	RAC	0.01	0.14	0.00	0.94	0.01	5.70	0.06	2.61	0.03	1.94	0.02	0.22	0.00
TN 0085	Group of Tree nuts, raw (incl. processed)	RAC	0.015	4.06	0.06	3.27	0.05	7.01	0.11	13.93	0.21	14.01	0.21	9.36	0.14
OR 0691	Cotton seed oil, edible	PP	0.92	3.22	2.96	1.54	1.42	1.01	0.93	0.74	0.68	1.12	1.03	2.93	2.70
DT 1114	Tea. green or black. fermented and dried	RAC	23	2.28	52.44	1.92	44.16	0.46	10.58	2.40	55.20	1.29	29.67	3.04	69.92
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 80% as muscle	RAC	0.077	24.96	1.92	57.95	4.46	16.70	1.29	38.38	2.96	26.46	2.04	29.00	2.23

FLUBENDIAMIDE (242) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.02 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.73	6.24	4.56	14.49	10.58	4.18	3.05	9.60	7.01	6.62	4.83	7.25	5.29
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.73	3.29	2.40	6.14	4.48	0.82	0.60	1.57	1.15	2.23	1.63	1.07	0.78
MO 0105	Edible offal (mammalian), raw	RAC	0.41	4.79	1.96	9.68	3.97	2.97	1.22	5.49	2.25	3.84	1.57	5.03	2.06
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.082	289.65	23.75	485.88	39.84	26.92	2.21	239.03	19.60	199.91	16.39	180.53	14.80
	Total intake (µg/person) =				142.1		194.8		43.0		180.0		92.0		273.2
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (µg/person) =				1200		1200		1200		1200		1200		1200
	%ADI =				11.8376%		16.2373%		3.5840%		14.9991%		7.6640%		22.7705%
	Rounded %ADI =				10%		20%		4%		10%		8%		20%

FLUBENDIAMIDE (242) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.02 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
FP 0226	Apple, raw (incl. cider, excl. juice)	RAC	0.25	41.14	10.29	56.49	14.12	26.64	6.66	31.58	7.90	51.94	12.99	3.05	0.76
JF 0226	Apple juice. single strength (incl. concentrated)	PP	0.015	14.88	0.22	11.98	0.18	0.15	0.00	9.98	0.15	30.32	0.45	3.47	0.05
FP 0230	Pear, raw	RAC	0.25	8.79	2.20	8.44	2.11	12.37	3.09	9.60	2.40	10.27	2.57	0.23	0.06
FP 0307	Persimmon. Japanese, raw (i.e. Kaki fruit)	RAC	0.25	0.01	0.00	0.30	0.08	3.59	0.90	0.15	0.04	0.02	0.01	NC	–
FP 0231	Quince, raw	RAC	0.25	0.19	0.05	0.18	0.05	0.11	0.03	0.04	0.01	0.28	0.07	NC	–
FS 0013	Subgroup of Cherries, raw	RAC	0.585	1.40	0.82	4.21	2.46	0.04	0.02	2.93	1.71	1.50	0.88	NC	–
FS 0014	Subgroup of Plums, raw	RAC	0.585	3.75	2.19	3.33	1.95	5.94	3.47	2.64	1.54	2.50	1.46	0.06	0.04
DF 0014	Plums, dried (prunes)	PP	0.53	0.61	0.32	0.35	0.19	0.05	0.03	0.35	0.19	0.49	0.26	0.13	0.07
FS 2001	Subgroup of peaches, raw (incl. dried apricots)	RAC	0.585	13.03	7.62	16.29	9.53	8.29	4.85	12.95	7.58	5.35	3.13	0.04	0.02

FLUBENDIAMIDE (242) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.02 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
FB 0269	Grapes, raw (i.e. table grapes)	RAC	0.42	6.33	2.66	11.22	4.71	5.21	2.19	9.38	3.94	4.55	1.91	0.78	0.33
DF 0269	Grapes, dried (= currants. raisins and sultanas) (from table grapes)	PP	0.7	3.09	2.16	1.51	1.06	0.03	0.02	1.38	0.97	4.26	2.98	0.42	0.29
JF 0269	Grape juice (from wine grapes)	PP	0.054	0.56	0.03	1.96	0.11	0.02	0.00	2.24	0.12	2.27	0.12	0.34	0.02
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.079	88.93	7.03	62.41	4.93	1.84	0.15	25.07	1.98	61.17	4.83	5.84	0.46
VB 0040	Group of Brassica vegetables (excl. Brassica leafy vegetables), raw	RAC	0.365	20.71	7.56	39.81	14.53	25.06	9.15	37.93	13.84	18.12	6.61	16.74	6.11
VC 0045	Group of Fruiting vegetables, cucurbits, raw	RAC	0.045	27.81	1.25	41.93	1.89	123.30	5.55	49.47	2.23	15.95	0.72	35.99	1.62
VO 0448	Tomato, raw	RAC	0.35	32.13	11.25	51.27	17.94	34.92	12.22	73.37	25.68	15.15	5.30	8.88	3.11
–	Tomato, canned (& peeled)	PP	0.105	7.57	0.79	2.66	0.28	0.30	0.03	0.97	0.10	7.31	0.77	0.41	0.04
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	1.4	4.96	6.94	3.20	4.48	0.15	0.21	1.61	2.25	6.88	9.63	0.52	0.73
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.17	0.80	0.14	0.07	0.01	0.05	0.01	0.61	0.10	0.40	0.07	0.08	0.01
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), excl. okra	RAC	0.09	6.39	0.58	15.53	1.40	19.09	1.72	10.36	0.93	8.29	0.75	4.53	0.41
–	Peppers, sweet. dried	PP	0.9	0.11	0.10	0.21	0.19	0.36	0.32	0.21	0.19	0.25	0.23	0.15	0.14
VL 0483	Lettuce, leaf, raw	RAC	1.7	14.50	24.65	11.76	19.99	13.14	22.34	19.50	33.15	4.81	8.18	2.23	3.79
VP 0060	Group of Legume vegetables, raw	RAC	0.43	18.21	7.83	8.91	3.83	7.22	3.10	10.04	4.32	23.22	9.98	0.17	0.07
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.18	1.51	0.27	1.50	0.27	1.90	0.34	5.11	0.92	1.36	0.24	23.43	4.22
VD 0523	Broad Bean, dry, raw (incl. horse–Bean, field bean) (Vicia faba)	RAC	0.18	0.02	0.00	0.01	0.00	1.16	0.21	0.40	0.07	NC	–	0.06	0.01
VD 0527	Cowpea,dry, raw (Vigna sinensis. Dolichos sinensis)	RAC	0.18	NC	–	NC	–	0.16	0.03	0.01	0.00	NC	–	NC	–
VD 0541	Soya Bean, dry, raw (incl. flour, incl. paste, incl. curd, incl. sauce, excl. oil)	RAC	0.18	0.47	0.08	0.77	0.14	9.12	1.64	8.05	1.45	0.04	0.01	6.06	1.09
OR 0541	Soya oil, refined	PP	0.001	19.06	0.02	21.06	0.02	5.94	0.01	33.78	0.03	40.05	0.04	13.39	0.01

FLUBENDIAMIDE (242) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.02 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
–	Soya flour	PP	0.01	0.22	0.00	0.27	0.00	0.29	0.00	0.17	0.00	NC	–	NC	–
VD 2066	Subgroup of dry peas, raw	RAC	0.18	5.01	0.90	3.76	0.68	1.82	0.33	3.44	0.62	3.49	0.63	5.15	0.93
VD 2067	Subgroup of dry underground pulses, raw	RAC	0.18	NC	–	NC	–	NC	–	NC	–	NC	–	NC	–
VS 0624	Celery	RAC	1.7	7.68	13.06	2.85	4.85	NC	–	3.34	5.68	16.83	28.61	4.04	6.87
CM 0649 (GC 0649)	Rice, husked, dry (incl. flour, incl. oil, incl. beverages, incl. starch, excl. polished)	REP	0.03	3.70	0.11	2.11	0.06	1.51	0.05	1.75	0.05	0.29	0.01	5.12	0.15
CM 1205	Rice polished, dry	PP	0.01	13.38	0.13	10.80	0.11	262.08	2.62	57.16	0.57	12.83	0.13	62.78	0.63
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. beer, incl. germ, incl. starch, excl. flour, excl. oil)	RAC	0.01	0.10	0.00	9.93	0.10	1.71	0.02	21.57	0.22	0.33	0.00	0.05	0.00
CF 1255	Maize, flour (white flour and wholemeal flour)	PP	0.021	14.27	0.30	12.86	0.27	19.71	0.41	12.55	0.26	4.21	0.09	52.30	1.10
OR 0645	Maize oil	PP	0.0045	0.90	0.00	0.47	0.00	0.15	0.00	3.01	0.01	1.86	0.01	0.36	0.00
GC 2090	Subgroup of Sweet Corns	RAC	0.01	11.43	0.11	3.71	0.04	0.74	0.01	13.63	0.14	3.07	0.03	1.50	0.02
TN 0085	Group of Tree nuts, raw (incl. processed)	RAC	0.015	8.52	0.13	8.94	0.13	15.09	0.23	9.60	0.14	14.57	0.22	26.26	0.39
OR 0691	Cotton seed oil, edible	PP	0.92	1.68	1.55	0.66	0.61	1.13	1.04	1.18	1.09	0.89	0.82	0.37	0.34
DT 1114	Tea. green or black. fermented and dried	RAC	23	2.71	62.33	0.82	18.86	1.14	26.22	1.59	36.57	1.82	41.86	0.53	12.19
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 80% as muscle	RAC	0.077	112.02	8.63	120.71	9.29	63.46	4.89	88.99	6.85	96.24	7.41	41.02	3.16
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.73	28.01	20.44	30.18	22.03	15.86	11.58	22.25	16.24	24.06	17.56	10.25	7.49
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.73	6.44	4.70	15.51	11.32	3.79	2.77	8.29	6.05	18.44	13.46	8.00	5.84
MO	Edible offal (mammalian), raw	RAC	0.41	15.17	6.22	5.19	2.13	6.30	2.58	6.78	2.78	3.32	1.36	3.17	1.30

FLUBENDIAMIDE (242) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.02 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
0105															
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.082	388.92	31.89	335.88	27.54	49.15	4.03	331.25	27.16	468.56	38.42	245.45	20.13
	Total intake (µg/person) =				247.6		204.5		135.1		218.2		224.8		84.0
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (µg/person) =				1200		1200		1100		1200		1200		1200
	%ADI =				20.6305%		17.0384%		12.2780%		18.1861%		18.7341%		6.9991%
	Rounded %ADI =				20%		20%		10%		20%		20%		7%

FLUBENDIAMIDE (242) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.02 mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
FP 0226	Apple, raw (incl. cider, excl. juice)	RAC	0.25	66.67	16.67	2.06	0.52	55.83	13.96	188.29	47.07	1.38	0.35
JF 0226	Apple juice. single strength (incl. concentrated)	PP	0.015	0.03	0.00	0.10	0.00	7.19	0.11	0.03	0.00	NC	–
FP 0230	Pear, raw	RAC	0.25	0.07	0.02	0.14	0.04	9.45	2.36	0.01	0.00	0.14	0.04
FP 0307	Persimmon. Japanese, raw (i.e. Kaki fruit)	RAC	0.25	0.41	0.10	0.32	0.08	0.02	0.01	0.58	0.15	12.51	3.13
FP 0231	Quince, raw	RAC	0.25	NC	–	NC	–	0.65	0.16	NC	–	NC	–
FS 0013	Subgroup of Cherries, raw	RAC	0.585	0.01	0.01	0.01	0.01	5.96	3.49	0.01	0.01	NC	–
FS 0014	Subgroup of Plums, raw	RAC	0.585	0.07	0.04	0.01	0.01	15.56	9.10	0.01	0.01	NC	–
DF 0014	Plums, dried (prunes)	PP	0.53	0.01	0.01	0.01	0.01	0.37	0.20	0.01	0.01	NC	–
FS 2001	Subgroup of peaches, raw (incl. dried apricots)	RAC	0.585	0.02	0.01	0.01	0.01	10.76	6.29	0.01	0.01	NC	–
FB 0269	Grapes, raw (i.e. table grapes)	RAC	0.42	0.14	0.06	0.36	0.15	15.22	6.39	0.01	0.00	0.09	0.04
DF 0269	Grapes, dried (= currants. raisins and sultanas) (from table grapes)	PP	0.7	0.01	0.01	0.13	0.09	1.06	0.74	0.01	0.01	0.03	0.02
JF 0269	Grape juice (from wine grapes)	PP	0.054	0.01	0.00	0.01	0.00	0.41	0.02	0.01	0.00	NC	–
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.079	0.31	0.02	0.23	0.02	60.43	4.77	0.52	0.04	31.91	2.52
VB 0040	Group of Brassica vegetables (excl. Brassica leafy vegetables), raw	RAC	0.365	5.46	1.99	4.28	1.56	58.72	21.43	0.02	0.01	NC	–
VC 0045	Group of Fruiting vegetables, cucurbits, raw	RAC	0.045	5.96	0.27	9.74	0.44	51.82	2.33	13.61	0.61	0.05	0.00
VO 0448	Tomato, raw	RAC	0.35	12.99	4.55	4.79	1.68	58.40	20.44	0.92	0.32	0.09	0.03

FLUBENDIAMIDE (242) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.02 mg/kg bw**

			STMR	Diets: g/person/day						Intake = daily intake: µg/person			
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
–	Tomato, canned (& peeled)	PP	0.105	0.07	0.01	0.08	0.01	2.42	0.25	0.07	0.01	NC	–
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	1.4	0.58	0.81	0.22	0.31	2.21	3.09	0.24	0.34	3.10	4.34
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.17	0.05	0.01	0.01	0.00	0.42	0.07	0.01	0.00	0.02	0.00
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), excl. okra	RAC	0.09	8.97	0.81	14.13	1.27	25.14	2.26	0.91	0.08	NC	–
–	Peppers, sweet. dried	PP	0.9	0.58	0.52	1.27	1.14	1.21	1.09	0.12	0.11	NC	–
VL 0483	Lettuce, leaf, raw	RAC	1.7	0.29	0.49	0.03	0.05	6.71	11.41	0.01	0.02	NC	–
VP 0060	Group of Legume vegetables, raw	RAC	0.43	0.58	0.25	3.16	1.36	10.38	4.46	0.04	0.02	NC	–
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.18	7.11	1.28	2.33	0.42	3.76	0.68	44.70	8.05	3.27	0.59
VD 0523	Broad Bean, dry, raw (incl. horse–Bean, field bean) (Vicia faba)	RAC	0.18	3.70	0.67	0.03	0.01	0.17	0.03	0.01	0.00	NC	–
VD 0527	Cowpea,dry, raw (Vigna sinensis. Dolichos sinensis)	RAC	0.18	12.77	2.30	0.99	0.18	0.01	0.00	4.33	0.78	NC	–
VD 0541	Soya Bean, dry, raw (incl. flour, incl. paste, incl. curd, incl. sauce, excl. oil)	RAC	0.18	2.89	0.52	0.21	0.04	0.48	0.09	3.16	0.57	0.26	0.05
OR 0541	Soya oil, refined	PP	0.001	2.32	0.00	2.54	0.00	18.70	0.02	2.51	0.00	6.29	0.01
–	Soya flour	PP	0.01	0.11	0.00	0.08	0.00	0.07	0.00	0.01	0.00	0.03	0.00
VD 2066	Subgroup of dry peas, raw	RAC	0.18	4.43	0.80	11.36	2.04	4.22	0.76	9.36	1.68	1.21	0.22
VD 2067	Subgroup of dry underground pulses, raw	RAC	0.18	0.20	0.04	NC	–	NC	–	NC	–	NC	–
VS 0624	Celery	RAC	1.7	3.66	6.22	2.65	4.51	4.84	8.23	2.47	4.20	4.94	8.40
CM 0649 (GC 0649)	Rice, husked, dry (incl. flour, incl. oil, incl. beverages, incl. starch, excl. polished)	REP	0.03	13.58	0.41	4.29	0.13	2.17	0.07	0.01	0.00	8.84	0.27
CM 1205	Rice polished, dry	PP	0.01	30.20	0.30	218.34	2.18	12.77	0.13	15.24	0.15	51.35	0.51
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. beer. germ. starch, excl. flour. oil)	RAC	0.01	0.58	0.01	0.52	0.01	3.26	0.03	7.96	0.08	NC	–
CF 1255	Maize, flour (white flour and wholemeal flour)	PP	0.021	94.34	1.98	8.09	0.17	28.03	0.59	55.94	1.17	28.07	0.59
OR 0645	Maize oil	PP	0.0045	0.33	0.00	0.07	0.00	0.81	0.00	0.01	0.00	NC	–
GC 2090	Subgroup of Sweet Corns	RAC	0.01	3.63	0.04	20.50	0.21	8.78	0.09	0.02	0.00	0.17	0.00
TN 0085	Group of Tree nuts, raw (incl. processed)	RAC	0.015	4.39	0.07	135.53	2.03	6.11	0.09	0.72	0.01	317.74	4.77
OR 0691	Cotton seed oil, edible	PP	0.92	1.28	1.18	0.05	0.05	0.45	0.41	0.42	0.39	0.15	0.14
DT 1114	Tea. green or black. fermented and dried	RAC	23	0.53	12.19	5.25	120.75	0.63	14.49	0.56	12.88	0.82	18.86
MM 0095	Meat from mammals other than marine	RAC	0.077	23.34	1.80	40.71	3.13	97.15	7.48	18.06	1.39	57.71	4.44

FLUBENDIAMIDE (242) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.02 mg/kg bw**

			STMR	Diets: g/person/day							Intake = daily intake: µg/person		
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
	mammals, raw (incl. prepared meat) –80% as muscle												
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.73	5.84	4.26	10.18	7.43	24.29	17.73	4.52	3.30	14.43	10.53
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.73	1.05	0.77	1.14	0.83	18.69	13.64	0.94	0.69	3.12	2.28
MO 0105	Edible offal (mammalian), raw	RAC	0.41	4.64	1.90	1.97	0.81	10.01	4.10	3.27	1.34	3.98	1.63
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.082	108.75	8.92	70.31	5.77	436.11	35.76	61.55	5.05	79.09	6.49
	Total intake (µg/person) =				72.3		159.4		218.9		90.5		70.2
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (µg/person) =				1200		1200		1200		1200		1200
	%ADI =				6.0237%		13.2850%		18.2396%		7.5446%		5.8523%
	Rounded %ADI =				6%		10%		20%		8%		6%

FLUDIOXONIL (211) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.4 mg/kg bw**

			STMR	Diets as g/person/day							Intake as µg/person/day					
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
FC 0001	Group of Citrus fruit, raw (incl. kumquat commodities)	RAC	0.41	32.25	13.22	11.67	4.78	16.70	6.85	76.01	31.16	33.90	13.90	92.97	38.12
JF 0001	Group of Citrus fruit, juice	PP	0.64	1.30	0.83	2.37	1.52	0.22	0.14	13.88	8.88	0.75	0.48	2.63	1.68
FP 0009	Group of Pome fruits, raw (incl. apple cider, excl. apple juice)	RAC	2.1	19.35	40.64	34.06	71.53	17.87	37.53	25.74	54.05	7.69	16.15	56.85	119.39
JF 0226	Apple juice. single strength (incl. concentrated)	PP	0.17	0.32	0.05	3.07	0.52	0.07	0.01	5.00	0.85	0.29	0.05	5.57	0.95
FS 0012	Group of Stone fruits, raw (incl. dried apricots, excl. dried plums)	RAC	0.8	11.33	9.06	23.62	18.90	0.24	0.19	11.32	9.06	2.28	1.82	33.26	26.61
DF 0014	Plums, dried (prunes)	PP	0.96	0.09	0.09	0.06	0.06	0.01	0.01	0.18	0.17	0.04	0.04	0.06	0.06
FB 0264	Blackberries, raw	RAC	1	0.35	0.35	0.11	0.11	0.01	0.01	0.02	0.02	0.01	0.01	1.23	1.23
FB 0266	Dewberries, incl. boysen– & loganberry, raw	RAC	1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
FB 0272	Raspberries, red, black, raw	RAC	1	0.07	0.07	0.93	0.93	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
FB 0020	Blueberries, raw	RAC	0.6	0.01	0.01	0.03	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
FB 0021	Currants. Black. Red. White, raw	RAC	0.62	0.02	0.01	0.74	0.46	0.01	0.01	0.03	0.02	0.01	0.01	0.01	0.01
FB 0269	Grapes, raw (incl. must, excl. dried, excl. juice, excl. wine)	RAC	0.28	13.02	3.65	9.25	2.59	0.03	0.01	16.91	4.73	3.70	1.04	54.44	15.24

FLUDIOXONIL (211) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.4 mg/kg bw**

			STMR	Diets as g/person/day						Intake as µg/person/day					
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
DF 0269	Grapes, dried (= currants. raisins and sultanas) (from table grapes)	PP	0.31	0.51	0.16	0.51	0.16	0.01	0.00	1.27	0.39	0.12	0.04	2.07	0.64
JF 0269	Grape juice (from wine grapes)	PP	0.26	0.14	0.04	0.29	0.08	0.05	0.01	0.30	0.08	0.24	0.06	0.05	0.01
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.08	0.67	0.05	12.53	1.00	2.01	0.16	1.21	0.10	3.53	0.28	4.01	0.32
FB 0275	Strawberry, raw	RAC	0.27	0.70	0.19	2.01	0.54	0.04	0.01	1.36	0.37	0.37	0.10	2.53	0.68
FT 0336	Guava, raw	RAC	0.125	0.47	0.06	0.01	0.00	0.48	0.06	0.49	0.06	4.42	0.55	0.06	0.01
FI 0326	Avocado, raw	RAC	0.01	0.13	0.00	0.03	0.00	2.05	0.02	2.54	0.03	2.34	0.02	0.12	0.00
FI 0327	Banana, raw (incl. plantains) (incl. dried)	RAC	0.013	5.23	0.07	6.94	0.09	99.45	1.29	32.47	0.42	48.30	0.63	24.70	0.32
FI 0345	Mango, raw (incl. canned Mango, incl. mango juice)	RAC	0.04	10.48	0.42	0.01	0.00	7.24	0.29	6.87	0.27	19.98	0.80	6.25	0.25
FI 0350	Papaya, raw	RAC	0.15	0.35	0.05	0.01	0.00	3.05	0.46	0.80	0.12	7.28	1.09	1.00	0.15
FI 0355	Pomegranate, raw, (incl. processed)	RAC	1.75	3.40	5.95	2.10	3.68	2.65	4.64	10.89	19.06	NC	–	6.67	11.67
FI 0353	Pineapple, raw (incl. canned Pineapple, incl. pineapple juice, incl. dried pineapple)	RAC	2	0.61	1.22	1.56	3.12	7.89	15.78	9.36	18.72	8.76	17.52	1.30	2.60
FI 0341	Kiwifruit, raw	RAC	7.2	0.03	0.22	0.36	2.59	0.01	0.07	1.17	8.42	0.06	0.43	0.69	4.97
VA 2031	Subgroup of bulb onions	RAC	0.04	31.65	1.27	43.28	1.73	3.68	0.15	38.48	1.54	20.46	0.82	47.29	1.89
VA 2032	Subgroup of Green Onions	RAC	0.14	2.64	0.37	3.09	0.43	1.05	0.15	2.89	0.40	0.61	0.09	5.24	0.73
VB 0400	Broccoli, raw	RAC	0.23	0.88	0.20	0.17	0.04	0.01	0.00	1.25	0.29	3.00	0.69	1.09	0.25
VB 0041	Cabbages. head, raw	RAC	0.24	2.73	0.66	27.92	6.70	0.55	0.13	4.47	1.07	4.27	1.02	10.25	2.46
VC 0045	Group of Fruiting vegetables, cucurbits, raw	RAC	0.065	53.14	3.45	86.21	5.60	6.28	0.41	92.76	6.03	15.64	1.02	155.30	10.09
VC 0046	Melons. except watermelon, raw (Cantaloupe)	RAC	0.02	8.90	0.18	8.64	0.17	0.80	0.02	17.90	0.36	2.80	0.06	29.17	0.58
VC 0432	Watermelon, raw	RAC	0.02	28.96	0.58	25.65	0.51	1.56	0.03	39.26	0.79	4.94	0.10	66.90	1.34
VO 0448	Tomato, raw (incl. canned, excl. juice, excl. paste)	RAC	0.605	42.04	25.43	76.13	46.06	10.69	6.47	84.59	51.18	24.92	15.08	203.27	122.98
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.028	2.34	0.07	1.33	0.04	1.57	0.04	4.24	0.12	0.34	0.01	2.83	0.08
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.026	0.29	0.01	0.29	0.01	0.01	0.00	0.38	0.01	0.05	0.00	0.14	0.00
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), excl. okra	RAC	0.18	8.48	1.53	13.74	2.47	10.13	1.82	11.29	2.03	9.52	1.71	26.36	4.74
VO 2046	Subgroup of eggplants	RAC	0.13	5.58	0.73	4.31	0.56	0.89	0.12	9.31	1.21	13.64	1.77	20.12	2.62
VL 0483	Lettuce, leaf, raw	RAC	8.3	0.53	4.40	0.36	2.99	0.16	1.33	6.21	51.54	1.90	15.77	6.05	50.22
VL 0502	Spinach, raw	RAC	5.8	0.74	4.29	0.22	1.28	0.02	0.12	0.91	5.28	0.04	0.23	2.92	16.94
VL 0401	Broccoli, Chinese, raw (i.e. kailan)	RAC	1.2	0.42	0.50	0.08	0.10	0.01	0.01	0.60	0.72	NC	–	0.52	0.62
VL 0472	Cress. garden, raw	RAC	1.2	0.06	0.07	0.10	0.12	0.06	0.07	0.15	0.18	NC	–	0.07	0.08
VL 0480	Kale (Borecole. Collards), raw	RAC	1.2	0.57	0.68	5.77	6.92	0.11	0.13	0.92	1.10	5.25	6.30	2.12	2.54
VL 0485	Mustard greens, raw (i.e. Indian mustard, Amsoi, mustard cabbage)	RAC	1.2	0.03	0.04	0.31	0.37	0.01	0.01	0.05	0.06	0.47	0.56	0.11	0.13
VL 0494	Radish leaves, raw	RAC	3.8	0.26	0.99	0.45	1.71	0.28	1.06	0.68	2.58	NC	–	0.33	1.25

FLUDIOXONIL (211) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.4 mg/kg bw**

			STMR	Diets as g/person/day						Intake as µg/person/day					
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
VL 0495	Rape greens, raw	RAC	1.2	0.03	0.04	0.31	0.37	0.01	0.01	0.05	0.06	NC	–	0.11	0.13
VL 0496	Rucola, raw (i.e. Arrugula. Rocket salad. Roquette)	RAC	1.2	1.27	1.52	2.25	2.70	1.39	1.67	3.38	4.06	13.81	16.57	1.63	1.96
VL 0473	Watercress, raw	RAC	1.2	1.21	1.45	2.15	2.58	1.33	1.60	3.24	3.89	11.36	13.63	1.56	1.87
VP 2060	Subgroup of beans with pods (all commodities within this group)	RAC	0.055	0.68	0.04	NC	–	NC	–	0.39	0.02	0.22	0.01	0.49	0.03
VP 0062	Beans without pods: (Phaseolus spp.) (succulent seeds), raw	RAC	0.02	1.56	0.03	0.60	0.01	0.49	0.01	1.18	0.02	0.90	0.02	7.79	0.16
VP 0064	Peas without pods (Pisum spp) (succulent seeds)	RAC	0.02	1.97	0.04	0.51	0.01	0.02	0.00	0.79	0.02	3.68	0.07	3.80	0.08
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.029	2.39	0.07	1.61	0.05	10.47	0.30	1.84	0.05	12.90	0.37	7.44	0.22
VD 0523	Broad Bean, dry, raw (incl. horse–Bean, field bean) (Vicia faba)	RAC	0.029	1.27	0.04	0.01	0.00	0.12	0.00	2.49	0.07	0.23	0.01	5.54	0.16
VD 0527	Cowpea,dry, raw (Vigna sinensis. Dolichos sinensis)	RAC	0.029	0.05	0.00	NC	–	1.74	0.05	0.01	0.00	0.01	0.00	0.07	0.00
VD 0541	Soya Bean, dry, raw (incl. paste, incl. curd, incl. oil, incl. sauce)	RAC	0.01	72.79	0.73	59.05	0.59	20.55	0.21	74.20	0.74	61.12	0.61	73.24	0.73
–	Beans (dry) NES: including inter alia lablab or hyacinth bean (Dolichos spp.); jack or sword bean (Canavalia spp.); winged bean (Psophocarpus tetragonolobus); guar bean (Cyamopsis tetragonoloba); velvet bean (Stizolobium spp.); yam bean (Pachyrrhizus erosus)	RAC	0.029	1.70	0.05	0.01	0.00	3.00	0.09	1.80	0.05	1.64	0.05	1.33	0.04
VD 2066	Subgroup of dry peas, raw	RAC	0.11	9.09	1.00	3.35	0.37	1.06	0.12	9.48	1.04	15.11	1.66	10.58	1.16
VR 0577	Carrots, raw	RAC	0.19	9.51	1.81	30.78	5.85	0.37	0.07	8.75	1.66	2.80	0.53	6.10	1.16
VR 0494	Radish roots, raw	RAC	0.06	2.31	0.14	4.09	0.25	2.53	0.15	6.15	0.37	5.88	0.35	2.97	0.18
VR 0596	Sugar beet, raw	RAC	1.1	NC	–	NC	–	NC	–	NC	–	0.01	0.01	NC	–
–	Sugar beet. sugar	PP	0.11	0.02	0.00	NC	–	0.01	0.00	0.09	0.01	0.07	0.01	12.63	1.39
VR 0589	Potato, raw (incl. flour, incl. frozen, incl. starch, incl. tapioca)	RAC	1.4	59.74	83.64	316.14	442.60	9.78	13.69	60.26	84.36	54.12	75.77	119.82	167.75
VR 0508	Sweet potato, raw (incl. dried)	RAC	3.5	0.18	0.63	0.18	0.63	42.16	147.56	1.61	5.64	3.06	10.71	6.67	23.35
VR 0600	Yams, raw (incl. dried)	RAC	3.5	0.02	0.07	NC	–	90.40	316.40	6.45	22.58	0.74	2.59	0.65	2.28
VS 0624	Celery	RAC	4.55	2.14	9.74	3.79	17.24	2.35	10.69	5.69	25.89	0.02	0.09	2.75	12.51
GC 0080	Group of Cereal grains, raw, (incl. processed) (incl. sweet corn)	RAC	0.02	484.43	9.69	464.63	9.29	262.36	5.25	486.81	9.74	469.62	9.39	614.04	12.28
GC 0447	Sweet corn on the cob, raw (incl. frozen kernels, incl. canned kernels)	RAC	0.01	0.14	0.00	0.94	0.01	5.70	0.06	2.61	0.03	1.94	0.02	0.22	0.00
TN 0660	Almonds, nutmeat	RAC	0.01	1.38	0.01	0.08	0.00	0.01	0.00	1.00	0.01	0.06	0.00	0.81	0.01
TN 0662	Brazil nuts, nutmeat	RAC	0.01	0.01	0.00	0.01	0.00	0.03	0.00	0.02	0.00	0.02	0.00	0.01	0.00

FLUDIOXONIL (211) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.4 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
TN 0295	Cashew nuts, nutmeat	RAC	0.01	0.01	0.00	0.02	0.00	0.24	0.00	0.47	0.00	0.32	0.00	0.05	0.00
TN 0664	Chestnut, raw	RAC	0.01	0.03	0.00	0.02	0.00	0.01	0.00	0.31	0.00	0.09	0.00	0.67	0.01
TN 0665	Coconut, nutmeat (incl. copra, incl. desiccated, incl. oil)	RAC	0.01	1.73	0.02	1.20	0.01	6.63	0.07	10.18	0.10	13.07	0.13	2.98	0.03
TN 0666	Hazelnuts, nutmeat	RAC	0.01	0.03	0.00	0.13	0.00	0.01	0.00	0.11	0.00	0.01	0.00	1.11	0.01
TN 0669	Macadamia nuts, nutmeat (i.e. Queensland nuts)	RAC	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.04	0.00	NC	–	0.03	0.00
TN 0672	Pecan, nutmeat	RAC	0.01	0.05	0.00	0.05	0.00	0.02	0.00	0.14	0.00	0.09	0.00	0.13	0.00
TN 0673	Pine nut, nutmeat (i.e. pignolia nuts)	RAC	0.01	0.18	0.00	0.18	0.00	0.08	0.00	0.49	0.00	0.25	0.00	0.43	0.00
TN 0675	Pistachio nut, nutmeat	RAC	0.05	0.41	0.02	0.07	0.00	0.01	0.00	0.85	0.04	0.02	0.00	1.08	0.05
TN 0678	Walnut, nutmeat	RAC	0.01	0.23	0.00	1.49	0.01	0.01	0.00	0.33	0.00	0.07	0.00	2.06	0.02
SO 0495	Rape seed, raw (incl. oil)	RAC	0.02	0.93	0.02	1.16	0.02	0.49	0.01	2.53	0.05	9.32	0.19	2.02	0.04
SO 0691	Cotton seed, raw (incl. oil)	RAC	0.05	20.53	1.03	9.80	0.49	6.42	0.32	4.73	0.24	7.14	0.36	18.68	0.93
HH 0092	Group of Herbs, raw (incl. dried)	RAC	16.5	1.69	27.89	1.91	31.52	1.18	19.47	3.35	55.28	0.55	9.08	1.64	27.06
HS 0444	Peppers, chili, dried	PP	1.2	0.42	0.50	0.53	0.64	0.84	1.01	0.50	0.60	0.95	1.14	0.37	0.44
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.006	24.96	0.15	57.95	0.35	16.70	0.10	38.38	0.23	26.46	0.16	29.00	0.17
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.006	6.24	0.04	14.49	0.09	4.18	0.03	9.60	0.06	6.62	0.04	7.25	0.04
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.006	3.29	0.02	6.14	0.04	0.82	0.00	1.57	0.01	2.23	0.01	1.07	0.01
MO 0105	Edible offal (mammalian), raw	RAC	0.037	4.79	0.18	9.68	0.36	2.97	0.11	5.49	0.20	3.84	0.14	5.03	0.19
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.4	289.65	115.86	485.88	194.35	26.92	10.77	239.03	95.61	199.91	79.96	180.53	72.21
PM 0110	Poultry meat, raw (incl. prepared)	RAC	0	14.63	0.00	29.76	0.00	8.04	0.00	129.68	0.00	25.04	0.00	35.66	0.00
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0	0.10	0.00	0.10	0.00	NC	–	0.10	0.00	0.10	0.00	0.10	0.00
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0.028	0.12	0.00	0.12	0.00	0.11	0.00	5.37	0.15	0.24	0.01	0.10	0.00
PE 0112	Eggs, raw, (incl. dried)	RAC	0.01	7.84	0.08	23.08	0.23	2.88	0.03	14.89	0.15	9.81	0.10	14.83	0.15
	Total intake (µg/person) =				378.4		901.2		609.5		596.6		324.1		773.3
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (µg/person) =				24000		24000		24000		24000		24000		24000
	%ADI =				1.6%		3.8%		2.5%		2.5%		1.4%		3.2%
	Rounded %ADI =				2%		4%		3%		2%		1%		3%

FLUDIOXONIL (211) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.4 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
FC 0001	Group of Citrus fruit, raw (incl. kumquat commodities)	RAC	0.41	38.66	15.85	54.93	22.52	26.36	10.81	51.46	21.10	51.06	20.93	466.36	191.21
JF 0001	Group of Citrus fruit, juice	PP	0.64	36.84	23.58	3.75	2.40	0.30	0.19	21.62	13.84	21.82	13.96	46.67	29.87
FP 0009	Group of Pome fruits, raw (incl. apple cider, excl. apple juice)	RAC	2.1	51.09	107.29	65.40	137.34	42.71	89.69	45.29	95.11	62.51	131.27	7.74	16.25
JF 0226	Apple juice. single strength (incl. concentrated)	PP	0.17	14.88	2.53	11.98	2.04	0.15	0.03	9.98	1.70	30.32	5.15	3.47	0.59
FS 0012	Group of Stone fruits, raw (incl. dried apricots, excl. dried plums)	RAC	0.8	18.18	14.54	23.83	19.06	14.27	11.42	18.52	14.82	9.35	7.48	0.11	0.09
DF 0014	Plums, dried (prunes)	PP	0.96	0.61	0.59	0.35	0.34	0.05	0.05	0.35	0.34	0.49	0.47	0.13	0.12
FB 0264	Blackberries, raw	RAC	1	0.09	0.09	0.52	0.52	0.14	0.14	0.24	0.24	NC	–	0.01	0.01
FB 0266	Dewberries, incl. boysen– & loganberry, raw	RAC	1	0.01	0.01	NC	–	0.01	0.01	0.01	0.01	NC	–	0.01	0.01
FB 0272	Raspberries, red, black, raw	RAC	1	0.47	0.47	0.91	0.91	0.01	0.01	0.99	0.99	1.14	1.14	NC	–
FB 0020	Blueberries, raw	RAC	0.6	0.04	0.02	0.23	0.14	0.01	0.01	0.83	0.50	0.33	0.20	NC	–
FB 0021	Currants. Black. Red. White, raw	RAC	0.62	0.48	0.30	4.23	2.62	NC	–	1.51	0.94	0.49	0.30	NC	–
FB 0269	Grapes, raw (incl. must, excl. dried, excl. juice, excl. wine)	RAC	0.28	6.48	1.81	11.31	3.17	5.21	1.46	9.50	2.66	4.66	1.30	0.78	0.22
DF 0269	Grapes, dried (= currants. raisins and sultanas) (from table grapes)	PP	0.31	3.09	0.96	1.51	0.47	0.03	0.01	1.38	0.43	4.26	1.32	0.42	0.13
JF 0269	Grape juice (from wine grapes)	PP	0.26	0.56	0.15	1.96	0.51	0.02	0.01	2.24	0.58	2.27	0.59	0.34	0.09
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.08	88.93	7.11	62.41	4.99	1.84	0.15	25.07	2.01	61.17	4.89	5.84	0.47
FB 0275	Strawberry, raw	RAC	0.27	4.49	1.21	5.66	1.53	0.02	0.01	6.63	1.79	5.75	1.55	0.05	0.01
FT 0336	Guava, raw	RAC	0.125	0.01	0.00	NC	–	0.42	0.05	NC	–	NC	–	NC	–
FI 0326	Avocado, raw	RAC	0.01	2.65	0.03	0.87	0.01	0.46	0.00	1.64	0.02	1.30	0.01	0.96	0.01
FI 0327	Banana, raw (incl. plantains) (incl. dried)	RAC	0.013	25.76	0.33	23.65	0.31	23.83	0.31	24.37	0.32	19.43	0.25	101.55	1.32
FI 0345	Mango, raw (incl. canned Mango, incl. mango juice)	RAC	0.04	1.80	0.07	0.63	0.03	10.05	0.40	1.07	0.04	3.52	0.14	16.44	0.66
FI 0350	Papaya, raw	RAC	0.15	0.31	0.05	0.18	0.03	1.50	0.23	0.51	0.08	0.54	0.08	1.08	0.16
FI 0355	Pomegranate, raw, (incl. processed)	RAC	1.75	7.91	13.84	9.72	17.01	7.67	13.42	5.26	9.21	9.04	15.82	14.43	25.25
FI 0353	Pineapple, raw (incl. canned Pineapple, incl. pineapple juice, incl. dried pineapple)	RAC	2	13.13	26.26	11.13	22.26	6.94	13.88	14.36	28.72	36.74	73.48	18.81	37.62
FI 0341	Kiwifruit, raw	RAC	7.2	2.46	17.71	3.62	26.06	0.04	0.29	1.48	10.66	7.43	53.50	0.03	0.22
VA 2031	Subgroup of bulb onions	RAC	0.04	20.67	0.83	31.32	1.25	37.52	1.50	35.08	1.40	11.77	0.47	13.74	0.55
VA 2032	Subgroup of Green Onions	RAC	0.14	5.57	0.78	5.15	0.72	1.77	0.25	4.28	0.60	17.34	2.43	6.48	0.91
VB 0400	Broccoli, raw	RAC	0.23	4.24	0.98	1.76	0.40	NC	–	0.51	0.12	3.79	0.87	0.26	0.06
VB 0041	Cabbages. head, raw	RAC	0.24	8.97	2.15	27.12	6.51	1.44	0.35	24.96	5.99	4.55	1.09	11.23	2.70
VC 0045	Group of Fruiting vegetables, cucurbits, raw	RAC	0.065	27.81	1.81	41.93	2.73	123.30	8.01	49.47	3.22	15.95	1.04	35.99	2.34
VC 0046	Melons. except watermelon, raw (Cantaloupe)	RAC	0.02	9.20	0.18	11.95	0.24	14.63	0.29	8.99	0.18	7.86	0.16	2.46	0.05
VC 0432	Watermelon, raw	RAC	0.02	4.60	0.09	9.82	0.20	68.50	1.37	13.19	0.26	1.99	0.04	14.56	0.29

FLUDIOXONIL (211) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.4 mg/kg bw**

			STMR	Diets as g/person/day						Intake as µg/person/day					
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
VO 0448	Tomato, raw (incl. canned, excl. juice, excl. paste)	RAC	0.605	43.88	26.55	55.41	33.52	35.38	21.40	74.88	45.30	26.50	16.03	9.51	5.75
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.028	4.96	0.14	3.20	0.09	0.15	0.00	1.61	0.05	6.88	0.19	0.52	0.01
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.026	0.80	0.02	0.07	0.00	0.05	0.00	0.61	0.02	0.40	0.01	0.08	0.00
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), excl. okra	RAC	0.18	6.39	1.15	15.53	2.80	19.09	3.44	10.36	1.86	8.29	1.49	4.53	0.82
VO 2046	Subgroup of eggplants	RAC	0.13	1.01	0.13	1.69	0.22	21.37	2.78	3.00	0.39	1.40	0.18	NC	–
VL 0483	Lettuce, leaf, raw	RAC	8.3	14.50	120.35	11.76	97.61	13.14	109.06	19.50	161.85	4.81	39.92	2.23	18.51
VL 0502	Spinach, raw	RAC	5.8	2.20	12.76	1.76	10.21	13.38	77.60	2.94	17.05	5.53	32.07	0.02	0.12
VL 0401	Broccoli, Chinese, raw (i.e. kailan)	RAC	1.2	NC	–	NC	–	9.03	10.84	NC	–	NC	–	0.12	0.14
VL 0472	Cress. garden, raw	RAC	1.2	0.10	0.12	NC	–	1.27	1.52	0.13	0.16	0.21	0.25	0.10	0.12
VL 0480	Kale (Borecole. Collards), raw	RAC	1.2	NC	–	NC	–	14.54	17.45	NC	–	NC	–	2.32	2.78
VL 0485	Mustard greens, raw (i.e. Indian mustard, Amsoi, mustard cabbage)	RAC	1.2	NC	–	NC	–	NC	–	NC	–	NC	–	0.13	0.16
VL 0494	Radish leaves, raw	RAC	3.8	NC	–	NC	–	NC	–	3.78	14.36	NC	–	0.48	1.82
VL 0495	Rape greens, raw	RAC	1.2	NC	–	NC	–	1.93	2.32	NC	–	NC	–	0.12	0.14
VL 0496	Rucola, raw (i.e. Arrugula. Rocket salad. Roquette)	RAC	1.2	NC	–	NC	–	NC	–	1.09	1.31	0.38	0.46	2.40	2.88
VL 0473	Watercress, raw	RAC	1.2	0.35	0.42	3.13	3.76	0.32	0.38	NC	–	NC	–	2.30	2.76
VP 2060	Subgroup of beans with pods (all commodities within this group)	RAC	0.055	5.07	0.28	0.83	0.05	0.17	0.01	3.70	0.20	NC	–	NC	–
VP 0062	Beans without pods: (Phaseolus spp.) (succulent seeds), raw	RAC	0.02	2.21	0.04	5.25	0.11	4.17	0.08	1.61	0.03	16.95	0.34	0.17	0.00
VP 0064	Peas without pods (Pisum spp) (succulent seeds)	RAC	0.02	10.72	0.21	1.99	0.04	2.72	0.05	4.26	0.09	4.23	0.08	NC	–
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.029	1.51	0.04	1.50	0.04	1.90	0.06	5.11	0.15	1.36	0.04	23.43	0.68
VD 0523	Broad Bean, dry, raw (incl. horse–Bean, field bean) (Vicia faba)	RAC	0.029	0.02	0.00	0.01	0.00	1.16	0.03	0.40	0.01	NC	–	0.06	0.00
VD 0527	Cowpea,dry, raw (Vigna sinensis. Dolichos sinensis)	RAC	0.029	NC	–	NC	–	0.16	0.00	0.01	0.00	NC	–	NC	–
VD 0541	Soya Bean, dry, raw (incl. paste, incl. curd, incl. oil, incl. sauce)	RAC	0.01	106.33	1.06	117.78	1.18	42.12	0.42	195.70	1.96	222.52	2.23	80.47	0.80
–	Beans (dry) NES: including inter alia lablab or hyacinth bean (Dolichos spp.); jack or sword bean (Canavalia spp.); winged bean (Psophocarpus tetragonolobus); guar bean (Cyamopsis tetragonoloba); velvet bean (Stizolobium spp.); yam bean (Pachyrrhizus erosus)	RAC	0.029	0.01	0.00	NC	–	0.57	0.02	0.11	0.00	0.16	0.00	0.94	0.03
VD 2066	Subgroup of dry peas, raw	RAC	0.11	5.01	0.55	3.76	0.41	1.82	0.20	3.44	0.38	3.49	0.38	5.15	0.57
VR 0577	Carrots, raw	RAC	0.19	26.26	4.99	27.13	5.15	10.07	1.91	16.49	3.13	44.69	8.49	8.75	1.66
VR 0494	Radish roots, raw	RAC	0.06	3.83	0.23	11.99	0.72	NC	–	5.26	0.32	2.19	0.13	4.37	0.26

FLUDIOXONIL (211) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.4 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
VR 0596	Sugar beet, raw	RAC	1.1	0.01	0.01	NC	–	0.01	0.01	0.01	0.01	NC	–	NC	–
–	Sugar beet. sugar	PP	0.11	0.01	0.00	NC	–	0.01	0.00	NC	–	NC	–	NC	–
VR 0589	Potato, raw (incl. flour, incl. frozen, incl. starch, incl. tapioca)	RAC	1.4	225.03	315.04	234.24	327.94	71.48	100.07	177.55	248.57	234.55	328.37	37.71	52.79
VR 0508	Sweet potato, raw (incl. dried)	RAC	3.5	0.93	3.26	0.32	1.12	64.65	226.28	5.37	18.80	0.30	1.05	3.13	10.96
VR 0600	Yams, raw (incl. dried)	RAC	3.5	NC	–	NC	–	0.03	0.11	0.71	2.49	NC	–	17.57	61.50
VS 0624	Celery	RAC	4.55	7.68	34.94	2.85	12.97	NC	–	3.34	15.20	16.83	76.58	4.04	18.38
GC 0080	Group of Cereal grains, raw, (incl. processed) (incl. sweet corn)	RAC	0.02	345.63	6.91	386.16	7.72	514.33	10.29	402.72	8.05	295.30	5.91	359.97	7.20
GC 0447	Sweet corn on the cob, raw (incl. frozen kernels, incl. canned kernels)	RAC	0.01	11.43	0.11	3.71	0.04	0.74	0.01	13.63	0.14	3.07	0.03	1.50	0.02
TN 0660	Almonds, nutmeat	RAC	0.01	0.81	0.01	2.21	0.02	0.03	0.00	1.02	0.01	1.47	0.01	NC	–
TN 0662	Brazil nuts, nutmeat	RAC	0.01	0.12	0.00	0.05	0.00	0.01	0.00	0.05	0.00	0.13	0.00	NC	–
TN 0295	Cashew nuts, nutmeat	RAC	0.01	0.59	0.01	0.23	0.00	0.18	0.00	0.52	0.01	1.75	0.02	2.78	0.03
TN 0664	Chestnut, raw	RAC	0.01	0.34	0.00	0.21	0.00	1.14	0.01	0.52	0.01	0.09	0.00	NC	–
TN 0665	Coconut, nutmeat (incl. copra, incl. desiccated, incl. oil)	RAC	0.01	4.13	0.04	2.73	0.03	13.15	0.13	5.85	0.06	6.92	0.07	22.24	0.22
TN 0666	Hazelnuts, nutmeat	RAC	0.01	0.45	0.00	1.12	0.01	0.02	0.00	0.34	0.00	1.63	0.02	NC	–
TN 0669	Macadamia nuts, nutmeat (i.e. Queensland nuts)	RAC	0.01	NC	–	0.40	0.00	NC	–	NC	–	NC	–	0.07	0.00
TN 0672	Pecan, nutmeat	RAC	0.01	0.38	0.00	NC	–	NC	–	0.27	0.00	NC	–	0.26	0.00
TN 0673	Pine nut, nutmeat (i.e. pignolia nuts)	RAC	0.01	0.99	0.01	0.66	0.01	0.22	0.00	0.27	0.00	1.89	0.02	0.89	0.01
TN 0675	Pistachio nut, nutmeat	RAC	0.05	0.35	0.02	0.48	0.02	0.07	0.00	0.39	0.02	0.23	0.01	0.02	0.00
TN 0678	Walnut, nutmeat	RAC	0.01	0.34	0.00	0.84	0.01	0.28	0.00	0.39	0.00	0.45	0.00	NC	–
SO 0495	Rape seed, raw (incl. oil)	RAC	0.02	32.68	0.65	19.91	0.40	7.83	0.16	15.69	0.31	NC	–	NC	–
SO 0691	Cotton seed, raw (incl. oil)	RAC	0.05	10.71	0.54	4.23	0.21	7.19	0.36	7.54	0.38	5.66	0.28	2.38	0.12
HH 0092	Group of Herbs, raw (incl. dried)	RAC	16.5	2.61	43.07	2.31	38.12	8.89	146.69	3.92	64.68	1.16	19.14	2.06	33.99
HS 0444	Peppers, chili, dried	PP	1.2	0.11	0.13	0.21	0.25	0.36	0.43	0.21	0.25	0.25	0.30	0.15	0.18
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.006	112.02	0.67	120.71	0.72	63.46	0.38	88.99	0.53	96.24	0.58	41.02	0.25
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.006	28.01	0.17	30.18	0.18	15.86	0.10	22.25	0.13	24.06	0.14	10.25	0.06
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.006	6.44	0.04	15.51	0.09	3.79	0.02	8.29	0.05	18.44	0.11	8.00	0.05
MO 0105	Edible offal (mammalian), raw	RAC	0.037	15.17	0.56	5.19	0.19	6.30	0.23	6.78	0.25	3.32	0.12	3.17	0.12
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.4	388.92	155.57	335.88	134.35	49.15	19.66	331.25	132.50	468.56	187.42	245.45	98.18
PM 0110	Poultry meat, raw (incl. prepared)	RAC	0	73.76	0.00	53.86	0.00	23.98	0.00	87.12	0.00	53.38	0.00	84.45	0.00
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0	0.10	0.00	0.10	0.00	NC	–	0.10	0.00	0.71	0.00	NC	–

FLUDIOXONIL (211) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.4 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0.028	0.33	0.01	0.72	0.02	0.27	0.01	0.35	0.01	0.80	0.02	NC	–
PE 0112	Eggs, raw, (incl. dried)	RAC	0.01	25.84	0.26	29.53	0.30	28.05	0.28	33.19	0.33	36.44	0.36	8.89	0.09
	Total intake (µg/person) =				972.7		956.9		909.1		959.2		1062.8		635.4
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (µg/person) =				24000		24000		22000		24000		24000		24000
	%ADI =				4.1%		4.0%		4.1%		4.0%		4.4%		2.6%
	Rounded %ADI =				4%		4%		4%		4%		4%		3%

FLUDIOXONIL (211) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.4 mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
FC 0001	Group of Citrus fruit, raw (incl. kumquat commodities)	RAC	0.41	20.93	8.58	2.35	0.96	30.71	12.59	0.15	0.06	4.45	1.82
JF 0001	Group of Citrus fruit, juice	PP	0.64	0.11	0.07	0.29	0.19	13.55	8.67	0.14	0.09	0.33	0.21
FP 0009	Group of Pome fruits, raw (incl. apple cider, excl. apple juice)	RAC	2.1	68.85	144.59	10.93	22.95	70.82	148.72	189.78	398.54	19.56	41.08
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.17	0.03	0.01	0.10	0.02	7.19	1.22	0.03	0.01	NC	–
FS 0012	Group of Stone fruits, raw (incl. dried apricots, excl. dried plums)	RAC	0.8	0.09	0.07	0.02	0.02	32.27	25.82	0.01	0.01	NC	–
DF 0014	Plums, dried (prunes)	PP	0.96	0.01	0.01	0.01	0.01	0.37	0.36	0.01	0.01	NC	–
FB 0264	Blackberries, raw	RAC	1	0.01	0.01	7.29	7.29	0.25	0.25	0.01	0.01	NC	–
FB 0266	Dewberries, incl. boysen– & loganberry, raw	RAC	1	0.01	0.01	0.01	0.01	NC	–	0.01	0.01	NC	–
FB 0272	Raspberries, red, black, raw	RAC	1	0.01	0.01	0.01	0.01	2.04	2.04	0.01	0.01	NC	–
FB 0020	Blueberries, raw	RAC	0.6	NC	–	NC	–	0.20	0.12	NC	–	NC	–
FB 0021	Currants, Black, Red, White, raw	RAC	0.62	0.01	0.01	NC	–	0.74	0.46	NC	–	NC	–
FB 0269	Grapes, raw (incl. must, excl. dried, excl. juice, excl. wine)	RAC	0.28	0.14	0.04	0.36	0.10	15.33	4.29	0.01	0.00	0.28	0.08
DF 0269	Grapes, dried (= currants, raisins and sultanas) (from table grapes)	PP	0.31	0.01	0.00	0.13	0.04	1.06	0.33	0.01	0.00	0.03	0.01
JF 0269	Grape juice (from wine grapes)	PP	0.26	0.01	0.00	0.01	0.00	0.41	0.11	0.01	0.00	NC	–
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.08	0.31	0.02	0.23	0.02	60.43	4.83	0.52	0.04	31.91	2.55
FB 0275	Strawberry, raw	RAC	0.27	0.01	0.00	0.01	0.00	3.35	0.90	0.01	0.00	0.01	0.00
FT 0336	Guava, raw	RAC	0.125	0.10	0.01	0.08	0.01	NC	–	0.14	0.02	3.11	0.39
FI 0326	Avocado, raw	RAC	0.01	1.12	0.01	0.01	0.00	0.84	0.01	0.01	0.00	6.60	0.07
FI 0327	Banana, raw (incl. plantains) (incl. dried)	RAC	0.013	44.80	0.58	118.17	1.54	25.25	0.33	454.49	5.91	310.23	4.03

FLUDIOXONIL (211) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.4 mg/kg bw**

			STMR	Diets: g/person/day					Intake = daily intake: µg/person				
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
FI 0345	Mango, raw (incl. canned mango, incl. mango juice)	RAC	0.04	12.25	0.49	6.83	0.27	0.76	0.03	0.01	0.00	20.12	0.80
FI 0350	Papaya, raw	RAC	0.15	6.47	0.97	0.25	0.04	0.19	0.03	0.01	0.00	26.42	3.96
FI 0355	Pomegranate, raw, (incl. processed)	RAC	1.75	5.49	9.61	27.17	47.55	NC	–	2.89	5.06	17.87	31.27
FI 0353	Pineapple, raw (incl. canned Pineapple, incl. pineapple juice, incl. dried pineapple)	RAC	2	8.51	17.02	6.27	12.54	6.89	13.78	0.18	0.36	24.94	49.88
FI 0341	Kiwifruit, raw	RAC	7.2	0.01	0.07	0.01	0.07	2.00	14.40	0.01	0.07	NC	–
VA 2031	Subgroup of bulb onions	RAC	0.04	9.83	0.39	22.30	0.89	34.69	1.39	9.65	0.39	2.39	0.10
VA 2032	Subgroup of Green Onions	RAC	0.14	1.45	0.20	1.50	0.21	1.42	0.20	0.01	0.00	6.30	0.88
VB 0400	Broccoli, raw	RAC	0.23	0.01	0.00	0.01	0.00	2.13	0.49	0.01	0.00	NC	–
VB 0041	Cabbages, head, raw	RAC	0.24	3.82	0.92	2.99	0.72	49.16	11.80	0.01	0.00	NC	–
VC 0045	Group of Fruiting vegetables, cucurbits, raw	RAC	0.065	5.96	0.39	9.74	0.63	51.82	3.37	13.61	0.88	0.05	0.00
VC 0046	Melons, except watermelon, raw (Cantaloupe)	RAC	0.02	0.19	0.00	0.10	0.00	4.98	0.10	0.01	0.00	NC	–
VC 0432	Watermelon, raw	RAC	0.02	4.29	0.09	0.30	0.01	28.70	0.57	0.01	0.00	NC	–
VO 0448	Tomato, raw (incl. canned, excl. juice, excl. paste)	RAC	0.605	13.10	7.93	4.90	2.96	62.16	37.61	1.04	0.63	0.09	0.05
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.028	0.58	0.02	0.22	0.01	2.21	0.06	0.24	0.01	3.10	0.09
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.026	0.05	0.00	0.01	0.00	0.42	0.01	0.01	0.00	0.02	0.00
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), excl. okra	RAC	0.18	8.97	1.61	14.13	2.54	25.14	4.53	0.91	0.16	NC	–
VO 2046	Subgroup of eggplants	RAC	0.13	1.31	0.17	8.26	1.07	3.95	0.51	0.01	0.00	NC	–
VL 0483	Lettuce, leaf, raw	RAC	8.3	0.29	2.41	0.03	0.25	6.71	55.69	0.01	0.08	NC	–
VL 0502	Spinach, raw	RAC	5.8	0.17	0.99	0.01	0.06	0.81	4.70	0.01	0.06	NC	–
VL 0401	Broccoli, Chinese, raw (i.e. kailan)	RAC	1.2	0.01	0.01	0.01	0.01	NC	–	0.01	0.01	NC	–
VL 0472	Cress, garden, raw	RAC	1.2	0.09	0.11	0.07	0.08	NC	–	0.06	0.07	0.13	0.16
VL 0480	Kale (Borecole, Collards), raw	RAC	1.2	0.79	0.95	0.62	0.74	NC	–	0.01	0.01	NC	–
VL 0485	Mustard greens, raw (i.e. Indian mustard, Amsoi, mustard cabbage)	RAC	1.2	0.04	0.05	0.03	0.04	NC	–	0.01	0.01	NC	–
VL 0494	Radish leaves, raw	RAC	3.8	0.44	1.67	0.32	1.22	NC	–	0.30	1.14	0.59	2.24
VL 0495	Rape greens, raw	RAC	1.2	0.04	0.05	0.03	0.04	NC	–	0.01	0.01	NC	–
VL 0496	Rucola, raw (i.e. Arrugula, Rocket salad, Roquette)	RAC	1.2	2.17	2.60	1.57	1.88	NC	–	1.47	1.76	2.93	3.52
VL 0473	Watercress, raw	RAC	1.2	2.08	2.50	1.50	1.80	0.01	0.01	1.41	1.69	2.81	3.37
VP 2060	Subgroup of beans with pods (all commodities within this group)	RAC	0.055	NC	–	NC	–	NC	–	NC	–	NC	–
VP 0062	Beans without pods: (Phaseolus spp.) (succulent seeds), raw	RAC	0.02	0.30	0.01	3.13	0.06	4.11	0.08	0.01	0.00	NC	–
VP 0064	Peas without pods (Pisum spp) (succulent seeds)	RAC	0.02	0.21	0.00	0.02	0.00	5.51	0.11	0.02	0.00	NC	–
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.029	7.11	0.21	2.33	0.07	3.76	0.11	44.70	1.30	3.27	0.09
VD 0523	Broad bean, dry, raw (incl. horse–bean, field bean)	RAC	0.029	3.70	0.11	0.03	0.00	0.17	0.00	0.01	0.00	NC	–

FLUDIOXONIL (211) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.4 mg/kg bw**

			STMR	Diets: g/person/day					Intake = daily intake: µg/person				
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
	(Vicia faba)												
VD 0527	Cowpea, dry, raw (Vigna sinensis, Dolichos sinensis)	RAC	0.029	12.77	0.37	0.99	0.03	0.01	0.00	4.33	0.13	NC	–
VD 0541	Soya bean, dry, raw (incl. paste, incl. curd, incl. oil, incl. sauce)	RAC	0.01	15.80	0.16	14.29	0.14	104.36	1.04	17.11	0.17	35.20	0.35
–	Beans (dry) NES: including inter alia lablab or hyacinth bean (Dolichos spp.); jack or sword bean (Canavalia spp.); winged bean (Psophocarpus tetragonolobus); guar bean (Cyamopsis tetragonoloba); velvet bean (Stizolobium spp.); yam bean (Pachyrrhizus erosus)	RAC	0.029	2.54	0.07	1.77	0.05	0.03	0.00	0.03	0.00	3.99	0.12
VD 2066	Subgroup of dry peas, raw	RAC	0.11	4.43	0.49	11.36	1.25	4.22	0.46	9.36	1.03	1.21	0.13
VR 0577	Carrots, raw	RAC	0.19	2.07	0.39	3.00	0.57	25.29	4.81	0.05	0.01	NC	–
VR 0494	Radish roots, raw	RAC	0.06	3.96	0.24	2.86	0.17	3.30	0.20	2.67	0.16	5.34	0.32
VR 0596	Sugar beet, raw	RAC	1.1	0.01	0.01	NC	–	NC	–	NC	–	NC	–
–	Sugar beet, sugar	PP	0.11	0.56	0.06	0.24	0.03	NC	–	NC	–	5.13	0.56
VR 0589	Potato, raw (incl. flour, incl. frozen, incl. starch, incl. tapioca)	RAC	1.4	23.96	33.54	13.56	18.98	213.41	298.77	104.35	146.09	8.56	11.98
VR 0508	Sweet potato, raw (incl. dried)	RAC	3.5	28.83	100.91	61.55	215.43	0.15	0.53	221.94	776.79	NC	–
VR 0600	Yams, raw (incl. dried)	RAC	3.5	70.93	248.26	30.62	107.17	0.07	0.25	5.65	19.78	30.85	107.98
VS 0624	Celery	RAC	4.55	3.66	16.65	2.65	12.06	4.84	22.02	2.47	11.24	4.94	22.48
GC 0080	Group of Cereal grains, raw, (incl. processed) (incl. sweet corn)	RAC	0.02	407.04	8.14	417.04	8.34	402.79	8.06	195.30	3.91	263.26	5.27
GC 0447	Sweet corn on the cob, raw (incl. frozen kernels, incl. canned kernels)	RAC	0.01	3.63	0.04	20.50	0.21	8.78	0.09	0.02	0.00	0.17	0.00
TN 0660	Almonds, nutmeat	RAC	0.01	0.01	0.00	0.01	0.00	0.61	0.01	0.01	0.00	NC	–
TN 0662	Brazil nuts, nutmeat	RAC	0.01	0.01	0.00	0.01	0.00	0.02	0.00	0.01	0.00	NC	–
TN 0295	Cashew nuts, nutmeat	RAC	0.01	0.91	0.01	0.14	0.00	0.11	0.00	0.01	0.00	NC	–
TN 0664	Chestnut, raw	RAC	0.01	0.01	0.00	0.01	0.00	0.75	0.01	0.01	0.00	NC	–
TN 0665	Coconut, nutmeat (incl. copra, incl. desiccated, incl. oil)	RAC	0.01	2.77	0.03	134.37	1.34	2.81	0.03	0.70	0.01	317.67	3.18
TN 0666	Hazelnuts, nutmeat	RAC	0.01	0.01	0.00	0.01	0.00	0.21	0.00	0.01	0.00	NC	–
TN 0669	Macadamia nuts, nutmeat (i.e. Queensland nuts)	RAC	0.01	0.04	0.00	0.05	0.00	NC	–	0.01	0.00	0.01	0.00
TN 0672	Pecan, nutmeat	RAC	0.01	0.15	0.00	0.22	0.00	0.31	0.00	0.01	0.00	0.01	0.00
TN 0673	Pine nut, nutmeat (i.e. pignolia nuts)	RAC	0.01	0.51	0.01	0.74	0.01	0.36	0.00	0.01	0.00	0.05	0.00
TN 0675	Pistachio nut, nutmeat	RAC	0.05	0.01	0.00	0.01	0.00	0.15	0.01	0.01	0.00	NC	–
TN 0678	Walnut, nutmeat	RAC	0.01	0.01	0.00	0.01	0.00	0.81	0.01	0.01	0.00	NC	–
SO 0495	Rape seed, raw (incl. oil)	RAC	0.02	0.19	0.00	0.07	0.00	12.07	0.24	0.08	0.00	NC	–
SO 0691	Cotton seed, raw (incl. oil)	RAC	0.05	8.14	0.41	0.32	0.02	2.84	0.14	2.69	0.13	0.97	0.05

FLUDIOXONIL (211) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.4 mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
HH 0092	Group of Herbs, raw (incl. dried)	RAC	16.5	1.85	30.53	1.67	27.56	2.80	46.20	1.24	20.46	2.75	45.38
HS 0444	Peppers, chili, dried	PP	1.2	0.58	0.70	1.27	1.52	1.21	1.45	0.12	0.14	NC	–
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.006	23.34	0.14	40.71	0.24	97.15	0.58	18.06	0.11	57.71	0.35
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.006	5.84	0.04	10.18	0.06	24.29	0.15	4.52	0.03	14.43	0.09
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.006	1.05	0.01	1.14	0.01	18.69	0.11	0.94	0.01	3.12	0.02
MO 0105	Edible offal (mammalian), raw	RAC	0.037	4.64	0.17	1.97	0.07	10.01	0.37	3.27	0.12	3.98	0.15
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.4	108.75	43.50	70.31	28.12	436.11	174.44	61.55	24.62	79.09	31.64
PM 0110	Poultry meat, raw (incl. prepared)	RAC	0	3.92	0.00	12.03	0.00	57.07	0.00	5.03	0.00	55.56	0.00
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0	NC	–	NC	–	0.32	0.00	NC	–	NC	–
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0.028	0.10	0.00	0.70	0.02	0.97	0.03	0.10	0.00	NC	–
PE 0112	Eggs, raw, (incl. dried)	RAC	0.01	3.84	0.04	4.41	0.04	27.25	0.27	1.13	0.01	7.39	0.07
	Total intake (µg/person) =				690.5		532.4		920.9		1423.4		376.8
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (µg/person) =				24000		24000		24000		24000		24000
	%ADI =				2.9%		2.2%		3.8%		5.9%		1.6%
	Rounded %ADI =				3%		2%		4%		6%		2%

FLUOPYRAM (243) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
FC 0002	Subgroup of Lemons and limes, raw (incl. lemon juice) (incl. kumquat commodities)	RAC	0.325	4.82	1.57	2.45	0.80	3.93	1.28	25.44	8.27	8.74	2.84	16.23	5.27
FC 0003	Subgroup of Mandarins, raw (incl. mandarin juice)	RAC	0.15	6.18	0.93	3.66	0.55	0.25	0.04	6.82	1.02	3.49	0.52	19.38	2.91
FC 0004	Subgroup of Oranges, sweet, sour, raw	RAC	0.15	20.66	3.10	5.23	0.78	11.90	1.79	37.90	5.69	21.16	3.17	56.46	8.47
JF 0004	Subgroup of Oranges, juice (single strength, incl. concentrated)	PP	0.0015	1.27	0.00	2.20	0.00	0.09	0.00	11.81	0.02	0.46	0.00	1.69	0.00
FC 0005	Subgroup of Pummelo and grapefruits, raw (incl. grapefruit juice)	RAC	0.14	0.66	0.09	0.69	0.10	0.96	0.13	10.20	1.43	1.25	0.18	2.97	0.42
FP 0009	Group of Pome fruits, raw (incl. apple cider, excl. apple juice)	RAC	0.135	19.35	2.61	34.06	4.60	17.87	2.41	25.74	3.47	7.69	1.04	56.85	7.67
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.01	0.32	0.00	3.07	0.03	0.07	0.00	5.00	0.05	0.29	0.00	5.57	0.06
FS 0013	Subgroup of Cherries, raw	RAC	0.57	0.92	0.52	9.15	5.22	0.01	0.01	0.61	0.35	0.06	0.03	6.64	3.78

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FS 0014	Subgroup of Plums, raw	RAC	0.13	2.40	0.31	8.60	1.12	0.06	0.01	2.52	0.33	0.58	0.08	4.16	0.54
DF 0014	Plums, dried (prunes)	PP	0.14	0.09	0.01	0.06	0.01	0.01	0.00	0.18	0.03	0.04	0.01	0.06	0.01
FS 2001	Subgroup of peaches, raw (incl. dried apricots)	RAC	0.22	8.01	1.76	5.87	1.29	0.18	0.04	8.19	1.80	1.64	0.36	22.46	4.94
FB 2005	Subgroup of Caneberries, raw	RAC	0.83	0.42	0.35	1.05	0.87	0.01	0.01	0.02	0.02	0.02	0.02	1.24	1.03
FB 2006	Subgroup of Bush berries, raw (including processed)	RAC	1.15	0.53	0.61	1.31	1.51	0.40	0.46	1.66	1.91	0.01	0.01	0.99	1.14
FB 0269	Grapes, raw (incl. must, excl. dried, excl. juice, excl. wine)	RAC	0.58	13.02	7.55	9.25	5.37	0.03	0.02	16.91	9.81	3.70	2.15	54.44	31.58
DF 0269	Grapes, dried (= currants, raisins and sultanas) (from table grapes)	PP	1.68	0.51	0.86	0.51	0.86	0.01	0.02	1.27	2.13	0.12	0.20	2.07	3.48
JF 0269	Grape juice (from wine grapes)	PP	0.012	0.14	0.00	0.29	0.00	0.05	0.00	0.30	0.00	0.24	0.00	0.05	0.00
–	Graps must (from wine grapes)	PP	0.1	0.33	0.03	0.13	0.01	0.01	0.00	0.02	0.00	0.01	0.00	0.02	0.00
FB 0275	Strawberry, raw	RAC	0.025	0.70	0.02	2.01	0.05	0.04	0.00	1.36	0.03	0.37	0.01	2.53	0.06
FI 0327	Banana, raw (incl. plantains) (incl. dried)	RAC	0.175	5.23	0.92	6.94	1.21	99.45	17.40	32.47	5.68	48.30	8.45	24.70	4.32
FI 0345	Mango, raw (incl. canned mango, incl. mango juice)	RAC	0.02	10.48	0.21	0.01	0.00	7.24	0.14	6.87	0.14	19.98	0.40	6.25	0.13
FI 0350	Papaya, raw	RAC	0.21	0.35	0.07	0.01	0.00	3.05	0.64	0.80	0.17	7.28	1.53	1.00	0.21
FI 0353	Pineapple, raw (incl. canned Pineapple, incl. pineapple juice, incl. dried pineapple)	RAC	0.01	0.61	0.01	1.56	0.02	7.89	0.08	9.36	0.09	8.76	0.09	1.30	0.01
VA 0381	Garlic, raw	RAC	0.01	2.29	0.02	5.78	0.06	0.11	0.00	3.69	0.04	1.65	0.02	3.91	0.04
–	Onions, dry, raw	RAC	0.12	29.36	3.52	37.50	4.50	3.56	0.43	34.78	4.17	18.81	2.26	43.38	5.21
VA 0384	Leek, raw	RAC	0.01	0.18	0.00	1.59	0.02	0.03	0.00	0.28	0.00	0.01	0.00	3.21	0.03
–	Onions, green, raw	RAC	5.1	2.45	12.50	1.49	7.60	1.02	5.20	2.60	13.26	0.60	3.06	2.03	10.35
VB 0400	Broccoli, raw	RAC	0.05	0.88	0.04	0.17	0.01	0.01	0.00	1.25	0.06	3.00	0.15	1.09	0.05
VB 0404	Cauliflower, raw	RAC	0.01	1.65	0.02	0.32	0.00	0.01	0.00	2.33	0.02	4.79	0.05	2.03	0.02
VB 0402	Brussels sprouts, raw	RAC	0.06	0.63	0.04	6.41	0.38	0.13	0.01	1.03	0.06	NC	–	2.35	0.14
VB 0041	Cabbages, head, raw	RAC	0.01	2.73	0.03	27.92	0.28	0.55	0.01	4.47	0.04	4.27	0.04	10.25	0.10
VC 0424	Cucumber, raw	RAC	0.11	8.01	0.88	30.66	3.37	1.45	0.16	19.84	2.18	0.27	0.03	34.92	3.84
VC 0431	Squash, Summer (Courgette, Marrow, Zucchetti, Zucchini), raw	RAC	0.081	0.78	0.06	2.06	0.17	0.30	0.02	1.61	0.13	2.25	0.18	2.36	0.19
VC 0046	Melons, except watermelon, raw (Cantaloupe)	RAC	0.14	8.90	1.25	8.64	1.21	0.80	0.11	17.90	2.51	2.80	0.39	29.17	4.08
VC 0432	Watermelon, raw	RAC	0.14	28.96	4.05	25.65	3.59	1.56	0.22	39.26	5.50	4.94	0.69	66.90	9.37
VO 0448	Tomato, raw	RAC	0.11	41.73	4.59	75.65	8.32	10.66	1.17	82.87	9.12	24.75	2.72	200.93	22.10
–	Tomato, canned (& peeled)	PP	0.023	0.20	0.00	0.31	0.01	0.02	0.00	1.11	0.03	0.11	0.00	1.50	0.03
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.051	2.34	0.12	1.33	0.07	1.57	0.08	4.24	0.22	0.34	0.02	2.83	0.14
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.04	0.29	0.01	0.29	0.01	0.01	0.00	0.38	0.02	0.05	0.00	0.14	0.01

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Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), excl. okra	RAC	0.14	8.48	1.19	13.74	1.92	10.13	1.42	11.29	1.58	9.52	1.33	26.36	3.69
VO 0440	Eggplant, raw (i.e. aubergine)	RAC	0.11	5.58	0.61	4.31	0.47	0.89	0.10	9.31	1.02	13.64	1.50	20.12	2.21
VL 0483	Lettuce, leaf, raw	RAC	2.2	0.53	1.17	0.36	0.79	0.16	0.35	6.21	13.66	1.90	4.18	6.05	13.31
VL 2832	Witloof chicory (sprouts)	RAC	0.02	0.03	0.00	0.02	0.00	0.01	0.00	0.36	0.01	0.06	0.00	0.35	0.01
VP 0061	Beans with pods (Phaseolus spp): (immature pods + succulent seeds)	RAC	0.2	0.68	0.14	NC	–	NC	–	0.39	0.08	0.22	0.04	0.49	0.10
VP 2062	Subgroup of succulent beans without pods (all commodities within this group)	RAC	0.03	5.07	0.15	1.02	0.03	0.49	0.01	1.78	0.05	1.19	0.04	8.57	0.26
VP 2063	Subgroup of succulent peas without pods	RAC	0.03	1.97	0.06	0.51	0.02	0.02	0.00	0.79	0.02	3.68	0.11	3.80	0.11
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.014	2.39	0.03	1.61	0.02	10.47	0.15	1.84	0.03	12.90	0.18	7.44	0.10
VD 0523	Broad bean, dry, raw (incl. horse–bean, field bean) (Vicia faba)	RAC	0.014	1.27	0.02	0.01	0.00	0.12	0.00	2.49	0.03	0.23	0.00	5.54	0.08
VD 0527	Cowpea, dry, raw (Vigna sinensis, Dolichos sinensis)	RAC	0.014	0.05	0.00	NC	–	1.74	0.02	0.01	0.00	0.01	0.00	0.07	0.00
VD 0541	Soya bean, dry, raw (incl. flour, incl. paste, incl. curd, incl. sauce, excl. oil)	RAC	0.0205	0.63	0.01	1.09	0.02	0.40	0.01	1.40	0.03	1.68	0.03	0.48	0.01
OR 0541	Soya oil, refined	PP	0.00041	12.99	0.01	10.43	0.00	3.63	0.00	13.10	0.01	10.70	0.00	13.10	0.01
–	Beans (dry) NES: including inter alia lablab or hyacinth bean (Dolichos spp.); jack or sword bean (Canavalia spp.); winged bean (Psophocarpus tetragonolobus); guar bean (Cyamopsis tetragonoloba); velvet bean (Stizolobium spp.); yam bean (Pachyrrhizus erosus)	RAC	0.014	1.70	0.02	0.01	0.00	3.00	0.04	1.80	0.03	1.64	0.02	1.33	0.02
VD 2066	Subgroup of dry peas, raw	RAC	0.058	9.09	0.53	3.35	0.19	1.06	0.06	9.48	0.55	15.11	0.88	10.58	0.61
VR 0577	Carrots, raw	RAC	0.09	9.51	0.86	30.78	2.77	0.37	0.03	8.75	0.79	2.80	0.25	6.10	0.55
VR 0494	Radish roots, raw	RAC	0.069	2.31	0.16	4.09	0.28	2.53	0.17	6.15	0.42	5.88	0.41	2.97	0.20
VR 0596	Sugar beet, raw	RAC	0.01	NC	–	NC	–	NC	–	NC	–	0.01	0.00	NC	–
VR 0589	Potato, raw	RAC	0.021	59.07	1.24	313.97	6.59	9.23	0.19	48.16	1.01	52.38	1.10	117.43	2.47
VS 0621	Asparagus, raw	RAC	0	0.01	0.00	0.01	0.00	0.01	0.00	0.03	0.00	0.07	0.00	0.21	0.00
VS 0620	Artichoke globe, raw	RAC	0.13	0.69	0.09	0.01	0.00	0.01	0.00	0.32	0.04	0.26	0.03	1.21	0.16
GC 0650	Rye, raw (incl. flour)	RAC	0.035	0.13	0.00	19.38	0.68	0.10	0.00	0.12	0.00	0.03	0.00	2.15	0.08
GC 0653	Triticale, raw (incl. flour)	RAC	0.035	NC	–	NC	–	NC	–	0.01	0.00	0.39	0.01	NC	–
GC 0654	Wheat, raw (incl. meslin)	RAC	0.035	0.01	0.00	1.12	0.04	NC	–	0.01	0.00	0.56	0.02	NC	–
–	Wheat, bulgur	PP	0.035	NC	–	NC	–	NC	–	0.03	0.00	NC	–	NC	–
CF 1210	Wheat, germ	PP	0.084	NC	–	NC	–	0.01	0.00	0.01	0.00	0.14	0.01	0.01	0.00
CP 1212	Wheat, wholemeal bread	PP	0.035	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.03	0.00	0.01	0.00

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Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
CP 1211	Wheat, white bread	PP	0.035	0.25	0.01	0.63	0.02	0.12	0.00	0.43	0.02	1.39	0.05	0.22	0.01
–	Wheat, Fermented Beverages (Korean jakju and takju)	PP	0.035	NC	–	NC	–	NC	–	NC	–	NC	–	NC	–
CF 1211	Wheat, white flour (incl. white flour products: starch, gluten, macaroni, pastry)	PP	0.0042	301.24	1.27	268.64	1.13	30.21	0.13	222.51	0.93	134.73	0.57	343.12	1.44
GC 0640	Barley, raw (incl. malt extract, incl. pot&pearled, incl. flour & grits, incl. beer, incl. malt)	RAC	0.041	19.91	0.82	31.16	1.28	5.04	0.21	3.10	0.13	9.77	0.40	4.31	0.18
GC 0641	Buckwheat, raw	RAC	0.041	NC	–	0.01	0.00	0.01	0.00	0.01	0.00	0.07	0.00	0.09	0.00
GC 0647	Oats, raw (incl. rolled)	RAC	0.041	0.05	0.00	7.05	0.29	0.10	0.00	1.71	0.07	0.96	0.04	0.04	0.00
CM 0649 (GC 0649)	Rice, husked, dry (incl. polished, incl. flour, incl. beverages, incl. starch, excl. oil)	REP	0.178	45.37	8.08	14.99	2.67	84.88	15.11	111.73	19.89	194.40	34.60	93.12	16.58
CM 1205	Rice polished, dry	PP	0.0676	34.21	2.31	10.39	0.70	41.72	2.82	82.38	5.57	150.24	10.16	70.47	4.76
GC 0651	Sorghum, raw (incl. flour, incl. beer) (i.e. Chicken corn, Dari seed, Durra, Feterita)	RAC	0.18	4.34	0.78	0.01	0.00	16.25	2.93	15.82	2.85	10.97	1.97	2.92	0.53
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. beer, incl. germ, incl. starch, excl. flour, excl. oil)	RAC	0.01	0.97	0.01	0.24	0.00	1.58	0.02	4.10	0.04	2.56	0.03	13.31	0.13
CF 1255	Maize, flour (white flour and wholemeal flour)	PP	0.0085	22.72	0.19	35.61	0.30	87.27	0.74	34.92	0.30	46.71	0.40	49.12	0.42
–	Maize starch	PP	0.0036	0.08	0.00	NC	–	0.01	0.00	2.29	0.01	0.08	0.00	0.11	0.00
OR 0645	Maize oil	PP	0.0058	0.96	0.01	0.85	0.00	0.29	0.00	5.42	0.03	0.42	0.00	2.10	0.01
GC 2090	Subgroup of Sweet Corns	RAC	0.01	0.14	0.00	0.94	0.01	5.70	0.06	2.61	0.03	1.94	0.02	0.22	0.00
TN 0085	Group of Tree nuts, raw (incl. processed)	RAC	0.01	4.06	0.04	3.27	0.03	7.01	0.07	13.93	0.14	14.01	0.14	9.36	0.09
SO 0495	Rape seed, raw	RAC	0.33	0.02	0.01	NC	–	NC	–	0.01	0.00	0.75	0.25	0.01	0.00
OR 0495	Rape seed oil, edible	PP	0.23	0.35	0.08	0.44	0.10	0.19	0.04	0.97	0.22	3.28	0.75	0.77	0.18
SO 0702	Sunflower seed, raw	RAC	0.066	0.09	0.01	0.33	0.02	0.09	0.01	0.24	0.02	0.02	0.00	0.01	0.00
OR 0702	Sunflower seed oil, edible	PP	0.00066	2.97	0.00	14.42	0.01	0.43	0.00	3.46	0.00	2.20	0.00	5.53	0.00
SO 0691	Cotton seed, raw (incl. oil)	RAC	0.0585	20.53	1.20	9.80	0.57	6.42	0.38	4.73	0.28	7.14	0.42	18.68	1.09
SO 0697	Peanuts, nutmeat, raw (incl. roasted, excl. oil, excl. butter)	RAC	0.033	0.46	0.02	1.21	0.04	6.64	0.22	2.52	0.08	1.25	0.04	1.83	0.06
OR 0697	Peanut oil, edible	PP	0.00033	0.36	0.00	0.01	0.00	2.57	0.00	0.07	0.00	2.29	0.00	0.36	0.00
–	Peanut butter	PP	0.0073	0.01	0.00	0.01	0.00	0.01	0.00	0.19	0.00	0.01	0.00	0.01	0.00
SB 0716	Coffee bean raw (incl. roasted, incl. instant coffee, incl. substitutes)	RAC	0.01	1.36	0.01	3.59	0.04	1.44	0.01	5.18	0.05	2.02	0.02	1.70	0.02
HH 0722	Basil leaves, raw (incl. dried)	RAC	19	0.14	2.66	0.26	4.94	0.16	3.04	0.38	7.22	NC	–	0.19	3.61
HH 0738	Mint, raw	RAC	0.087	0.50	0.04	0.01	0.00	NC	–	NC	–	NC	–	NC	–
HS 0444	Peppers, chili, dried	PP	1.4	0.42	0.59	0.53	0.74	0.84	1.18	0.50	0.70	0.95	1.33	0.37	0.52
DH 1100	Hops, dry	RAC	10.35	0.01	0.10	0.04	0.41	0.01	0.10	0.01	0.10	NC	–	0.01	0.10

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MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.51	24.96	12.73	57.95	29.56	16.70	8.52	38.38	19.58	26.46	13.50	29.00	14.79
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.6	6.24	3.74	14.49	8.69	4.18	2.51	9.60	5.76	6.62	3.97	7.25	4.35
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.6	3.29	1.97	6.14	3.68	0.82	0.49	1.57	0.94	2.23	1.34	1.07	0.64
MO 0105	Edible offal (mammalian), raw	RAC	3.8	4.79	18.20	9.68	36.78	2.97	11.29	5.49	20.86	3.84	14.59	5.03	19.11
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.48	289.65	139.03	485.88	233.22	26.92	12.92	239.03	114.73	199.91	95.96	180.53	86.65
PM 0110	Poultry meat, raw (incl. prepared) – 90% as muscle	RAC	0.19	13.17	2.50	26.78	5.09	7.24	1.37	116.71	22.18	22.54	4.28	32.09	6.10
PM 0110	Poultry meat, raw (incl. prepared) – 10% as fat	RAC	0.28	1.46	0.41	2.98	0.83	0.80	0.23	12.97	3.63	2.50	0.70	3.57	1.00
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0.28	0.10	0.03	0.10	0.03	NC	–	0.10	0.03	0.10	0.03	0.10	0.03
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0.88	0.12	0.11	0.12	0.11	0.11	0.10	5.37	4.73	0.24	0.21	0.10	0.09
PE 0112	Eggs, raw, (incl. dried)	RAC	0.46	7.84	3.61	23.08	10.62	2.88	1.32	14.89	6.85	9.81	4.51	14.83	6.82
	Total intake (µg/person) =				255.5		409.8		100.3		337.1		231.1		325.0
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (µg/person) =				600		600		600		600		600		600
	%ADI =				42.6%		68.3%		16.7%		56.2%		38.5%		54.2%
	Rounded %ADI =				40%		70%		20%		60%		40%		50%

FLUOPYRAM (243) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
FC 0002	Subgroup of Lemons and limes, raw (incl. lemon juice) (incl. kumquat commodities)	RAC	0.325	10.12	3.29	15.69	5.10	2.88	0.94	12.30	4.00	22.32	7.25	6.59	2.14
FC 0003	Subgroup of Mandarins, raw (incl. mandarin juice)	RAC	0.15	12.42	1.86	14.99	2.25	16.08	2.41	10.78	1.62	9.94	1.49	NC	–
FC 0004	Subgroup of Oranges, sweet, sour, raw	RAC	0.15	15.68	2.35	24.00	3.60	6.80	1.02	29.09	4.36	15.39	2.31	160.47	24.07
JF 0004	Subgroup of Oranges, juice (single strength, incl. concentrated)	PP	0.0015	33.31	0.05	1.78	0.00	0.28	0.00	18.97	0.03	14.01	0.02	13.36	0.02
FC 0005	Subgroup of Pummelo and grapefruits, raw (incl. grapefruit juice)	RAC	0.14	8.21	1.15	4.60	0.64	0.64	0.09	5.85	0.82	19.98	2.80	368.86	51.64
FP 0009	Group of Pome fruits, raw (incl. apple cider, excl. apple juice)	RAC	0.135	51.09	6.90	65.40	8.83	42.71	5.77	45.29	6.11	62.51	8.44	7.74	1.04
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.01	14.88	0.15	11.98	0.12	0.15	0.00	9.98	0.10	30.32	0.30	3.47	0.03
FS 0013	Subgroup of Cherries, raw	RAC	0.57	1.40	0.80	4.21	2.40	0.04	0.02	2.93	1.67	1.50	0.86	NC	–

FLUOPYRAM (243) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets as g/person/day											
					Intake as µg/person/day										
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
FS 0014	Subgroup of Plums, raw	RAC	0.13	3.75	0.49	3.33	0.43	5.94	0.77	2.64	0.34	2.50	0.33	0.06	0.01
DF 0014	Plums, dried (prunes)	PP	0.14	0.61	0.09	0.35	0.05	0.05	0.01	0.35	0.05	0.49	0.07	0.13	0.02
FS 2001	Subgroup of peaches, raw (incl. dried apricots)	RAC	0.22	13.03	2.87	16.29	3.58	8.29	1.82	12.95	2.85	5.35	1.18	0.04	0.01
FB 2005	Subgroup of Caneberries, raw	RAC	0.83	0.56	0.46	1.43	1.19	0.14	0.12	1.23	1.02	1.14	0.95	0.01	0.01
FB 2006	Subgroup of Bush berries, raw (including processed)	RAC	1.15	1.31	1.51	5.50	6.33	0.01	0.01	2.57	2.96	0.82	0.94	2.15	2.47
FB 0269	Grapes, raw (incl. must, excl. dried, excl. juice, excl. wine)	RAC	0.58	6.48	3.76	11.31	6.56	5.21	3.02	9.50	5.51	4.66	2.70	0.78	0.45
DF 0269	Grapes, dried (= currants, raisins and sultanas) (from table grapes)	PP	1.68	3.09	5.19	1.51	2.54	0.03	0.05	1.38	2.32	4.26	7.16	0.42	0.71
JF 0269	Grape juice (from wine grapes)	PP	0.012	0.56	0.01	1.96	0.02	0.02	0.00	2.24	0.03	2.27	0.03	0.34	0.00
–	Graps must (from wine grapes)	PP	0.1	0.16	0.02	0.09	0.01	0.01	0.00	0.12	0.01	0.11	0.01	NC	–
FB 0275	Strawberry, raw	RAC	0.025	4.49	0.11	5.66	0.14	0.02	0.00	6.63	0.17	5.75	0.14	0.05	0.00
FI 0327	Banana, raw (incl. plantains) (incl. dried)	RAC	0.175	25.76	4.51	23.65	4.14	23.83	4.17	24.37	4.26	19.43	3.40	101.55	17.77
FI 0345	Mango, raw (incl. canned mango, incl. mango juice)	RAC	0.02	1.80	0.04	0.63	0.01	10.05	0.20	1.07	0.02	3.52	0.07	16.44	0.33
FI 0350	Papaya, raw	RAC	0.21	0.31	0.07	0.18	0.04	1.50	0.32	0.51	0.11	0.54	0.11	1.08	0.23
FI 0353	Pineapple, raw (incl. canned Pineapple, incl. pineapple juice, incl. dried pineapple)	RAC	0.01	13.13	0.13	11.13	0.11	6.94	0.07	14.36	0.14	36.74	0.37	18.81	0.19
VA 0381	Garlic, raw	RAC	0.01	0.98	0.01	1.49	0.01	12.88	0.13	3.74	0.04	2.05	0.02	1.14	0.01
–	Onions, dry, raw	RAC	0.12	19.69	2.36	29.83	3.58	24.64	2.96	31.35	3.76	9.72	1.17	12.59	1.51
VA 0384	Leek, raw	RAC	0.01	4.01	0.04	4.41	0.04	0.72	0.01	0.54	0.01	16.41	0.16	0.03	0.00
–	Onions, green, raw	RAC	5.1	1.55	7.91	0.74	3.77	1.05	5.36	3.74	19.07	0.94	4.79	6.45	32.90
VB 0400	Broccoli, raw	RAC	0.05	4.24	0.21	1.76	0.09	NC	–	0.51	0.03	3.79	0.19	0.26	0.01
VB 0404	Cauliflower, raw	RAC	0.01	5.27	0.05	5.01	0.05	NC	–	2.70	0.03	5.57	0.06	0.49	0.00
VB 0402	Brussels sprouts, raw	RAC	0.06	2.24	0.13	2.67	0.16	6.23	0.37	0.32	0.02	4.19	0.25	2.58	0.15
VB 0041	Cabbages, head, raw	RAC	0.01	8.97	0.09	27.12	0.27	1.44	0.01	24.96	0.25	4.55	0.05	11.23	0.11
VC 0424	Cucumber, raw	RAC	0.11	6.72	0.74	11.03	1.21	32.10	3.53	15.10	1.66	4.05	0.45	9.57	1.05
VC 0431	Squash, Summer (Courgette, Marrow, Zucchetti, Zucchini), raw	RAC	0.081	NC	–	NC	–	5.48	0.44	NC	–	NC	–	1.03	0.08
VC 0046	Melons, except watermelon, raw (Cantaloupe)	RAC	0.14	9.20	1.29	11.95	1.67	14.63	2.05	8.99	1.26	7.86	1.10	2.46	0.34
VC 0432	Watermelon, raw	RAC	0.14	4.60	0.64	9.82	1.37	68.50	9.59	13.19	1.85	1.99	0.28	14.56	2.04
VO 0448	Tomato, raw	RAC	0.11	32.13	3.53	51.27	5.64	34.92	3.84	73.37	8.07	15.15	1.67	8.88	0.98
–	Tomato, canned (& peeled)	PP	0.023	7.57	0.17	2.66	0.06	0.30	0.01	0.97	0.02	7.31	0.17	0.41	0.01
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.051	4.96	0.25	3.20	0.16	0.15	0.01	1.61	0.08	6.88	0.35	0.52	0.03
JF 0448	Tomato, juice (single strength, incl.	PP	0.04	0.80	0.03	0.07	0.00	0.05	0.00	0.61	0.02	0.40	0.02	0.08	0.00

FLUOPYRAM (243) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets as g/person/day						Intake as µg/person/day					
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
	concentrated)														
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), excl. okra	RAC	0.14	6.39	0.89	15.53	2.17	19.09	2.67	10.36	1.45	8.29	1.16	4.53	0.63
VO 0440	Eggplant, raw (i.e. aubergine)	RAC	0.11	1.01	0.11	1.69	0.19	21.37	2.35	3.00	0.33	1.40	0.15	NC	–
VL 0483	Lettuce, leaf, raw	RAC	2.2	14.50	31.90	11.76	25.87	13.14	28.91	19.50	42.90	4.81	10.58	2.23	4.91
VL 2832	Witloof chicory (sprouts)	RAC	0.02	1.50	0.03	0.95	0.02	NC	–	1.84	0.04	0.65	0.01	0.13	0.00
VP 0061	Beans with pods (Phaseolus spp): (immature pods + succulent seeds)	RAC	0.2	5.07	1.01	0.83	0.17	0.17	0.03	3.70	0.74	NC	–	NC	–
VP 2062	Subgroup of succulent beans without pods (all commodities within this group)	RAC	0.03	2.42	0.07	6.09	0.18	4.33	0.13	2.09	0.06	18.99	0.57	0.17	0.01
VP 2063	Subgroup of succulent peas without pods	RAC	0.03	10.72	0.32	1.99	0.06	2.72	0.08	4.26	0.13	4.23	0.13	NC	–
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.014	1.51	0.02	1.50	0.02	1.90	0.03	5.11	0.07	1.36	0.02	23.43	0.33
VD 0523	Broad bean, dry, raw (incl. horse–bean, field bean) (Vicia faba)	RAC	0.014	0.02	0.00	0.01	0.00	1.16	0.02	0.40	0.01	NC	–	0.06	0.00
VD 0527	Cowpea, dry, raw (Vigna sinensis, Dolichos sinensis)	RAC	0.014	NC	–	NC	–	0.16	0.00	0.01	0.00	NC	–	NC	–
VD 0541	Soya bean, dry, raw (incl. flour, incl. paste, incl. curd, incl. sauce, excl. oil)	RAC	0.0205	0.47	0.01	0.77	0.02	9.12	0.19	8.05	0.17	0.04	0.00	6.06	0.12
OR 0541	Soya oil, refined	PP	0.00041	19.06	0.01	21.06	0.01	5.94	0.00	33.78	0.01	40.05	0.02	13.39	0.01
–	Beans (dry) NES: including inter alia lablab or hyacinth bean (Dolichos spp.); jack or sword bean (Canavalia spp.); winged bean (Psophocarpus tetragonolobus); guar bean (Cyamopsis tetragonoloba); velvet bean (Stizolobium spp.); yam bean (Pachyrrhizus erosus)	RAC	0.014	0.01	0.00	NC	–	0.57	0.01	0.11	0.00	0.16	0.00	0.94	0.01
VD 2066	Subgroup of dry peas, raw	RAC	0.058	5.01	0.29	3.76	0.22	1.82	0.11	3.44	0.20	3.49	0.20	5.15	0.30
VR 0577	Carrots, raw	RAC	0.09	26.26	2.36	27.13	2.44	10.07	0.91	16.49	1.48	44.69	4.02	8.75	0.79
VR 0494	Radish roots, raw	RAC	0.069	3.83	0.26	11.99	0.83	NC	–	5.26	0.36	2.19	0.15	4.37	0.30
VR 0596	Sugar beet, raw	RAC	0.01	0.01	0.00	NC	–	0.01	0.00	0.01	0.00	NC	–	NC	–
VR 0589	Potato, raw	RAC	0.021	202.90	4.26	215.82	4.53	69.98	1.47	166.61	3.50	214.41	4.50	25.32	0.53
VS 0621	Asparagus, raw	RAC	0	0.84	0.00	2.08	0.00	7.11	0.00	1.01	0.00	1.69	0.00	0.04	0.00
VS 0620	Artichoke globe, raw	RAC	0.13	0.98	0.13	3.65	0.47	0.07	0.01	1.67	0.22	0.26	0.03	NC	–
GC 0650	Rye, raw (incl. flour)	RAC	0.035	3.21	0.11	35.38	1.24	0.21	0.01	6.50	0.23	1.49	0.05	NC	–
GC 0653	Triticale, raw (incl. flour)	RAC	0.035	0.01	0.00	0.17	0.01	0.29	0.01	0.01	0.00	NC	–	NC	–
GC 0654	Wheat, raw (incl. meslin)	RAC	0.035	NC	–	NC	–	NC	–	0.01	0.00	NC	–	NC	–
–	Wheat, bulgur	PP	0.035	NC	–	NC	–	0.01	0.00	NC	–	NC	–	NC	–

FLUOPYRAM (243) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day									
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
CF 1210	Wheat, germ	PP	0.084	0.97	0.08	0.10	0.01	0.03	0.00	0.01	0.00	NC	–	0.04	0.00
CP 1212	Wheat, wholemeal bread	PP	0.035	0.03	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.05	0.00	0.02	0.00
CP 1211	Wheat, white bread	PP	0.035	1.30	0.05	0.46	0.02	0.06	0.00	0.22	0.01	2.44	0.09	0.77	0.03
–	Wheat, Fermented Beverages (Korean jakju and takju)	PP	0.035	NC	–	NC	–	NC	–	4.36	0.15	NC	–	NC	–
CF 1211	Wheat, white flour (incl. white flour products: starch, gluten, macaroni, pastry)	PP	0.0042	198.08	0.83	193.03	0.81	106.24	0.45	185.09	0.78	168.67	0.71	131.59	0.55
GC 0640	Barley, raw (incl. malt extract, incl. pot&pearled, incl. flour & grits, incl. beer, incl. malt)	RAC	0.041	36.18	1.48	53.45	2.19	9.39	0.38	35.25	1.45	46.68	1.91	15.92	0.65
GC 0641	Buckwheat, raw	RAC	0.041	0.01	0.00	0.03	0.00	0.01	0.00	0.01	0.00	NC	–	NC	–
GC 0647	Oats, raw (incl. rolled)	RAC	0.041	7.50	0.31	6.26	0.26	0.15	0.01	4.87	0.20	3.16	0.13	2.98	0.12
CM 0649 (GC 0649)	Rice, husked, dry (incl. polished, incl. flour, incl. beverages, incl. starch, excl. oil)	REP	0.178	20.96	3.73	16.04	2.86	339.52	60.43	75.41	13.42	16.86	3.00	86.13	15.33
CM 1205	Rice polished, dry	PP	0.0676	13.38	0.90	10.80	0.73	262.08	17.72	57.16	3.86	12.83	0.87	62.78	4.24
GC 0651	Sorghum, raw (incl. flour, incl. beer) (i.e. Chicken corn, Dari seed, Durra, Feterita)	RAC	0.18	NC	–	NC	–	1.44	0.26	1.15	0.21	NC	–	7.12	1.28
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. beer, incl. germ, incl. starch, excl. flour, excl. oil)	RAC	0.01	0.10	0.00	9.93	0.10	1.71	0.02	21.57	0.22	0.33	0.00	0.05	0.00
CF 1255	Maize, flour (white flour and wholemeal flour)	PP	0.0085	14.27	0.12	12.86	0.11	19.71	0.17	12.55	0.11	4.21	0.04	52.30	0.44
–	Maize starch	PP	0.0036	NC	–	NC	–	0.19	0.00	7.13	0.03	NC	–	NC	–
OR 0645	Maize oil	PP	0.0058	0.90	0.01	0.47	0.00	0.15	0.00	3.01	0.02	1.86	0.01	0.36	0.00
GC 2090	Subgroup of Sweet Corns	RAC	0.01	11.43	0.11	3.71	0.04	0.74	0.01	13.63	0.14	3.07	0.03	1.50	0.02
TN 0085	Group of Tree nuts, raw (incl. processed)	RAC	0.01	8.52	0.09	8.94	0.09	15.09	0.15	9.60	0.10	14.57	0.15	26.26	0.26
SO 0495	Rape seed, raw	RAC	0.33	NC	–	NC	–	0.01	0.00	NC	–	NC	–	NC	–
OR 0495	Rape seed oil, edible	PP	0.23	12.52	2.88	7.63	1.75	3.00	0.69	6.01	1.38	NC	–	NC	–
SO 0702	Sunflower seed, raw	RAC	0.066	0.01	0.00	1.32	0.09	0.03	0.00	1.17	0.08	NC	–	0.02	0.00
OR 0702	Sunflower seed oil, edible	PP	0.00066	9.50	0.01	11.37	0.01	0.49	0.00	5.15	0.00	2.63	0.00	2.80	0.00
SO 0691	Cotton seed, raw (incl. oil)	RAC	0.0585	10.71	0.63	4.23	0.25	7.19	0.42	7.54	0.44	5.66	0.33	2.38	0.14
SO 0697	Peanuts, nutmeat, raw (incl. roasted, excl. oil, excl. butter)	RAC	0.033	3.19	0.11	2.19	0.07	5.36	0.18	4.82	0.16	1.40	0.05	1.06	0.03
OR 0697	Peanut oil, edible	PP	0.00033	1.02	0.00	0.23	0.00	1.81	0.00	0.42	0.00	5.23	0.00	0.01	0.00
–	Peanut butter	PP	0.0073	0.07	0.00	0.04	0.00	0.01	0.00	0.03	0.00	0.15	0.00	0.75	0.01
SB 0716	Coffee bean raw (incl. roasted, incl. instant coffee, incl. substitutes)	RAC	0.01	10.90	0.11	12.44	0.12	0.77	0.01	9.48	0.09	22.07	0.22	8.15	0.08

FLUOPYRAM (243) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets as g/person/day											
				Intake as µg/person/day											
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
HH 0722	Basil leaves, raw (incl. dried)	RAC	19	0.52	9.88	0.05	0.95	3.23	61.37	0.18	3.42	0.12	2.28	0.27	5.13
HH 0738	Mint, raw	RAC	0.087	NC	–	NC	–	NC	–	NC	–	NC	–	NC	–
HS 0444	Peppers, chili, dried	PP	1.4	0.11	0.15	0.21	0.29	0.36	0.50	0.21	0.29	0.25	0.35	0.15	0.21
DH 1100	Hops, dry	RAC	10.35	NC	–	NC	–	0.02	0.21	0.02	0.21	NC	–	NC	–
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.51	112.02	57.13	120.71	61.56	63.46	32.36	88.99	45.39	96.24	49.08	41.02	20.92
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.6	28.01	16.80	30.18	18.11	15.86	9.52	22.25	13.35	24.06	14.44	10.25	6.15
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.6	6.44	3.86	15.51	9.31	3.79	2.27	8.29	4.97	18.44	11.06	8.00	4.80
MO 0105	Edible offal (mammalian), raw	RAC	3.8	15.17	57.65	5.19	19.72	6.30	23.94	6.78	25.76	3.32	12.62	3.17	12.05
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.48	388.92	186.68	335.88	161.22	49.15	23.59	331.25	159.00	468.56	224.91	245.45	117.82
PM 0110	Poultry meat, raw (incl. prepared) – 90% as muscle	RAC	0.19	66.38	12.61	48.47	9.21	21.58	4.10	78.41	14.90	48.04	9.13	76.01	14.44
PM 0110	Poultry meat, raw (incl. prepared) – 10% as fat	RAC	0.28	7.38	2.07	5.39	1.51	2.40	0.67	8.71	2.44	5.34	1.49	8.45	2.36
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0.28	0.10	0.03	0.10	0.03	NC	–	0.10	0.03	0.71	0.20	NC	–
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0.88	0.33	0.29	0.72	0.63	0.27	0.24	0.35	0.31	0.80	0.70	NC	–
PE 0112	Eggs, raw, (incl. dried)	RAC	0.46	25.84	11.89	29.53	13.58	28.05	12.90	33.19	15.27	36.44	16.76	8.89	4.09
	Total intake (µg/person) =				465.5		410.3		338.6		434.7		423.8		359.5
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (µg/person) =				600		600		550		600		600		600
	%ADI =				77.6%		68.4%		61.6%		72.5%		70.6%		59.9%
	Rounded %ADI =				80%		70%		60%		70%		70%		60%

FLUOPYRAM (243) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets: g/person/day									
				Intake = daily intake: µg/person									
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
FC 0002	Subgroup of Lemons and limes, raw (incl. lemon juice) (incl. kumquat commodities)	RAC	0.325	18.97	6.17	0.97	0.32	6.23	2.02	0.09	0.03	3.35	1.09
FC 0003	Subgroup of Mandarins, raw (incl. mandarin juice)	RAC	0.15	0.16	0.02	0.27	0.04	9.06	1.36	0.01	0.00	0.02	0.00
FC 0004	Subgroup of Oranges, sweet, sour, raw	RAC	0.15	1.18	0.18	1.11	0.17	14.28	2.14	0.05	0.01	1.08	0.16
JF 0004	Subgroup of Oranges, juice (single strength, incl. concentrated)	PP	0.0015	0.08	0.00	0.26	0.00	12.61	0.02	0.14	0.00	0.33	0.00

FLUOPYRAM (243) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets: g/person/day					Intake = daily intake: µg/person				
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
FC 0005	Subgroup of Pummelo and grapefruits, raw (incl. grapefruit juice)	RAC	0.14	0.68	0.10	0.05	0.01	3.21	0.45	0.01	0.00	NC	–
FP 0009	Group of Pome fruits, raw (incl. apple cider, excl. apple juice)	RAC	0.135	68.85	9.29	10.93	1.48	70.82	9.56	189.78	25.62	19.56	2.64
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.01	0.03	0.00	0.10	0.00	7.19	0.07	0.03	0.00	NC	–
FS 0013	Subgroup of Cherries, raw	RAC	0.57	0.01	0.01	0.01	0.01	5.96	3.40	0.01	0.01	NC	–
FS 0014	Subgroup of Plums, raw	RAC	0.13	0.07	0.01	0.01	0.00	15.56	2.02	0.01	0.00	NC	–
DF 0014	Plums, dried (prunes)	PP	0.14	0.01	0.00	0.01	0.00	0.37	0.05	0.01	0.00	NC	–
FS 2001	Subgroup of peaches, raw (incl. dried apricots)	RAC	0.22	0.02	0.00	0.01	0.00	10.76	2.37	0.01	0.00	NC	–
FB 2005	Subgroup of Caneberries, raw	RAC	0.83	0.01	0.01	7.30	6.06	2.29	1.90	0.01	0.01	NC	–
FB 2006	Subgroup of Bush berries, raw (including processed)	RAC	1.15	0.82	0.94	4.05	4.66	5.94	6.83	0.43	0.49	2.66	3.06
FB 0269	Grapes, raw (incl. must, excl. dried, excl. juice, excl. wine)	RAC	0.58	0.14	0.08	0.36	0.21	15.33	8.89	0.01	0.01	0.28	0.16
DF 0269	Grapes, dried (= currants, raisins and sultanas) (from table grapes)	PP	1.68	0.01	0.02	0.13	0.22	1.06	1.78	0.01	0.02	0.03	0.05
JF 0269	Grape juice (from wine grapes)	PP	0.012	0.01	0.00	0.01	0.00	0.41	0.00	0.01	0.00	NC	–
–	Graps must (from wine grapes)	PP	0.1	0.01	0.00	0.01	0.00	0.11	0.01	0.01	0.00	0.19	0.02
FB 0275	Strawberry, raw	RAC	0.025	0.01	0.00	0.01	0.00	3.35	0.08	0.01	0.00	0.01	0.00
FI 0327	Banana, raw (incl. plantains) (incl. dried)	RAC	0.175	44.80	7.84	118.17	20.68	25.25	4.42	454.49	79.54	310.23	54.29
FI 0345	Mango, raw (incl. canned mango, incl. mango juice)	RAC	0.02	12.25	0.25	6.83	0.14	0.76	0.02	0.01	0.00	20.12	0.40
FI 0350	Papaya, raw	RAC	0.21	6.47	1.36	0.25	0.05	0.19	0.04	0.01	0.00	26.42	5.55
FI 0353	Pineapple, raw (incl. canned Pineapple, incl. pineapple juice, incl. dried pineapple)	RAC	0.01	8.51	0.09	6.27	0.06	6.89	0.07	0.18	0.00	24.94	0.25
VA 0381	Garlic, raw	RAC	0.01	0.82	0.01	2.06	0.02	3.79	0.04	0.03	0.00	0.29	0.00
–	Onions, dry, raw	RAC	0.12	9.01	1.08	20.24	2.43	30.90	3.71	9.61	1.15	2.11	0.25
VA 0384	Leek, raw	RAC	0.01	0.02	0.00	1.44	0.01	1.22	0.01	0.01	0.00	NC	–
–	Onions, green, raw	RAC	5.1	1.43	7.29	0.05	0.26	0.20	1.02	NC	–	6.30	32.13
VB 0400	Broccoli, raw	RAC	0.05	0.01	0.00	0.01	0.00	2.13	0.11	0.01	0.00	NC	–
VB 0404	Cauliflower, raw	RAC	0.01	0.01	0.00	0.01	0.00	2.73	0.03	0.01	0.00	NC	–
VB 0402	Brussels sprouts, raw	RAC	0.06	0.88	0.05	0.69	0.04	2.89	0.17	0.01	0.00	NC	–
VB 0041	Cabbages, head, raw	RAC	0.01	3.82	0.04	2.99	0.03	49.16	0.49	0.01	0.00	NC	–
VC 0424	Cucumber, raw	RAC	0.11	0.68	0.07	1.81	0.20	10.40	1.14	0.01	0.00	0.04	0.00
VC 0431	Squash, Summer (Courgette, Marrow, Zucchetti, Zucchini), raw	RAC	0.081	0.09	0.01	1.01	0.08	NC	–	1.91	0.15	NC	–
VC 0046	Melons, except watermelon, raw (Cantaloupe)	RAC	0.14	0.19	0.03	0.10	0.01	4.98	0.70	0.01	0.00	NC	–
VC 0432	Watermelon, raw	RAC	0.14	4.29	0.60	0.30	0.04	28.70	4.02	0.01	0.00	NC	–
VO 0448	Tomato, raw	RAC	0.11	12.99	1.43	4.79	0.53	58.40	6.42	0.92	0.10	0.09	0.01

FLUOPYRAM (243) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets: g/person/day						Intake = daily intake: µg/person			
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
–	Tomato, canned (& peeled)	PP	0.023	0.07	0.00	0.08	0.00	2.42	0.06	0.07	0.00	NC	–
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.051	0.58	0.03	0.22	0.01	2.21	0.11	0.24	0.01	3.10	0.16
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.04	0.05	0.00	0.01	0.00	0.42	0.02	0.01	0.00	0.02	0.00
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), excl. okra	RAC	0.14	8.97	1.26	14.13	1.98	25.14	3.52	0.91	0.13	NC	–
VO 0440	Eggplant, raw (i.e. aubergine)	RAC	0.11	1.31	0.14	8.26	0.91	3.95	0.43	0.01	0.00	NC	–
VL 0483	Lettuce, leaf, raw	RAC	2.2	0.29	0.64	0.03	0.07	6.71	14.76	0.01	0.02	NC	–
VL 2832	Witloof chicory (sprouts)	RAC	0.02	0.02	0.00	0.01	0.00	0.01	0.00	0.01	0.00	NC	–
VP 0061	Beans with pods (Phaseolus spp): (immature pods + succulent seeds)	RAC	0.2	NC	–	NC	–	NC	–	NC	–	NC	–
VP 2062	Subgroup of succulent beans without pods (all commodities within this group)	RAC	0.03	0.37	0.01	3.14	0.09	4.88	0.15	0.01	0.00	NC	–
VP 2063	Subgroup of succulent peas without pods	RAC	0.03	0.21	0.01	0.02	0.00	5.51	0.17	0.02	0.00	NC	–
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.014	7.11	0.10	2.33	0.03	3.76	0.05	44.70	0.63	3.27	0.05
VD 0523	Broad bean, dry, raw (incl. horse–bean, field bean) (Vicia faba)	RAC	0.014	3.70	0.05	0.03	0.00	0.17	0.00	0.01	0.00	NC	–
VD 0527	Cowpea, dry, raw (Vigna sinensis, Dolichos sinensis)	RAC	0.014	12.77	0.18	0.99	0.01	0.01	0.00	4.33	0.06	NC	–
VD 0541	Soya bean, dry, raw (incl. flour, incl. paste, incl. curd, incl. sauce, excl. oil)	RAC	0.0205	2.89	0.06	0.21	0.00	0.48	0.01	3.16	0.06	0.26	0.01
OR 0541	Soya oil, refined	PP	0.00041	2.32	0.00	2.54	0.00	18.70	0.01	2.51	0.00	6.29	0.00
–	Beans (dry) NES: including inter alia lablab or hyacinth bean (Dolichos spp.); jack or sword bean (Canavalia spp.); winged bean (Psophocarpus tetragonolobus); guar bean (Cyamopsis tetragonoloba); velvet bean (Stizolobium spp.); yam bean (Pachyrrhizus erosus)	RAC	0.014	2.54	0.04	1.77	0.02	0.03	0.00	0.03	0.00	3.99	0.06
VD 2066	Subgroup of dry peas, raw	RAC	0.058	4.43	0.26	11.36	0.66	4.22	0.24	9.36	0.54	1.21	0.07
VR 0577	Carrots, raw	RAC	0.09	2.07	0.19	3.00	0.27	25.29	2.28	0.05	0.00	NC	–
VR 0494	Radish roots, raw	RAC	0.069	3.96	0.27	2.86	0.20	3.30	0.23	2.67	0.18	5.34	0.37
VR 0596	Sugar beet, raw	RAC	0.01	0.01	0.00	NC	–	NC	–	NC	–	NC	–
VR 0589	Potato, raw	RAC	0.021	22.45	0.47	10.47	0.22	193.10	4.06	98.00	2.06	8.03	0.17
VS 0621	Asparagus, raw	RAC	0	0.01	0.00	0.01	0.00	0.17	0.00	0.01	0.00	NC	–
VS 0620	Artichoke globe, raw	RAC	0.13	0.01	0.00	NC	–	0.08	0.01	0.01	0.00	NC	–
GC 0650	Rye, raw (incl. flour)	RAC	0.035	0.03	0.00	0.01	0.00	13.95	0.49	0.01	0.00	0.88	0.03
GC 0653	Triticale, raw (incl. flour)	RAC	0.035	0.01	0.00	NC	–	NC	–	NC	–	NC	–
GC 0654	Wheat, raw (incl. meslin)	RAC	0.035	NC	–	NC	–	NC	–	NC	–	0.97	0.03
–	Wheat, bulgur	PP	0.035	0.01	0.00	NC	–	NC	–	NC	–	NC	–
CF 1210	Wheat, germ	PP	0.084	0.04	0.00	0.01	0.00	0.01	0.00	0.01	0.00	NC	–

FLUOPYRAM (243) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets: g/person/day						Intake = daily intake: µg/person			
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
CP 1212	Wheat, wholemeal bread	PP	0.035	0.01	0.00	0.01	0.00	0.03	0.00	0.01	0.00	0.01	0.00
CP 1211	Wheat, white bread	PP	0.035	0.43	0.02	0.41	0.01	1.56	0.05	0.11	0.00	0.07	0.00
–	Wheat, Fermented Beverages (Korean jakju and takju)	PP	0.035	NC	–	NC	–	NC	–	NC	–	NC	–
CF 1211	Wheat, white flour (incl. white flour products: starch, gluten, macaroni, pastry)	PP	0.0042	44.78	0.19	86.96	0.37	214.05	0.90	20.31	0.09	103.60	0.44
GC 0640	Barley, raw (incl. malt extract, incl. pot&pearled, incl. flour & grits, incl. beer, incl. malt)	RAC	0.041	11.58	0.47	2.33	0.10	46.71	1.92	3.72	0.15	16.26	0.67
GC 0641	Buckwheat, raw	RAC	0.041	0.04	0.00	2.82	0.12	0.01	0.00	0.01	0.00	NC	–
GC 0647	Oats, raw (incl. rolled)	RAC	0.041	0.37	0.02	0.07	0.00	2.79	0.11	0.10	0.00	NC	–
CM 0649 (GC 0649)	Rice, husked, dry (incl. polished, incl. flour, incl. beverages, incl. starch, excl. oil)	REP	0.178	52.55	9.35	285.42	50.80	18.64	3.32	19.67	3.50	75.09	13.37
CM 1205	Rice polished, dry	PP	0.0676	30.20	2.04	218.34	14.76	12.77	0.86	15.24	1.03	51.35	3.47
GC 0651	Sorghum, raw (incl. flour, incl. beer) (i.e. Chicken corn, Dari seed, Durra, Feterita)	RAC	0.18	89.16	16.05	2.02	0.36	NC	–	35.38	6.37	NC	–
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. beer, incl. germ, incl. starch, excl. flour, excl. oil)	RAC	0.01	0.58	0.01	0.52	0.01	3.26	0.03	7.96	0.08	NC	–
CF 1255	Maize, flour (white flour and wholemeal flour)	PP	0.0085	94.34	0.80	8.09	0.07	28.03	0.24	55.94	0.48	28.07	0.24
–	Maize starch	PP	0.0036	0.02	0.00	0.01	0.00	NC	–	NC	–	NC	–
OR 0645	Maize oil	PP	0.0058	0.33	0.00	0.07	0.00	0.81	0.00	0.01	0.00	NC	–
GC 2090	Subgroup of Sweet Corns	RAC	0.01	3.63	0.04	20.50	0.21	8.78	0.09	0.02	0.00	0.17	0.00
TN 0085	Group of Tree nuts, raw (incl. processed)	RAC	0.01	4.39	0.04	135.53	1.36	6.11	0.06	0.72	0.01	317.74	3.18
SO 0495	Rape seed, raw	RAC	0.33	NC	–	0.01	0.00	NC	–	NC	–	NC	–
OR 0495	Rape seed oil, edible	PP	0.23	0.07	0.02	0.03	0.01	4.62	1.06	0.03	0.01	NC	–
SO 0702	Sunflower seed, raw	RAC	0.066	0.02	0.00	0.01	0.00	0.03	0.00	2.23	0.15	NC	–
OR 0702	Sunflower seed oil, edible	PP	0.00066	0.37	0.00	0.09	0.00	12.98	0.01	4.01	0.00	0.20	0.00
SO 0691	Cotton seed, raw (incl. oil)	RAC	0.0585	8.14	0.48	0.32	0.02	2.84	0.17	2.69	0.16	0.97	0.06
SO 0697	Peanuts, nutmeat, raw (incl. roasted, excl. oil, excl. butter)	RAC	0.033	7.14	0.24	0.42	0.01	1.83	0.06	6.22	0.21	0.53	0.02
OR 0697	Peanut oil, edible	PP	0.00033	5.02	0.00	0.05	0.00	0.17	0.00	0.29	0.00	NC	–
–	Peanut butter	PP	0.0073	0.01	0.00	0.03	0.00	0.05	0.00	NC	–	NC	–
SB 0716	Coffee bean raw (incl. roasted, incl. instant coffee, incl. substitutes)	RAC	0.01	0.95	0.01	1.32	0.01	11.64	0.12	2.96	0.03	14.73	0.15
HH 0722	Basil leaves, raw (incl. dried)	RAC	19	0.25	4.75	0.18	3.42	0.13	2.47	0.17	3.23	0.33	6.27
HH 0738	Mint, raw	RAC	0.087	NC	–	NC	–	NC	–	NC	–	NC	–
HS 0444	Peppers, chili, dried	PP	1.4	0.58	0.81	1.27	1.78	1.21	1.69	0.12	0.17	NC	–
DH 1100	Hops, dry	RAC	10.35	NC	–	NC	–	0.04	0.41	NC	–	NC	–
MM 0095	Meat from mammals other than marine mammals,	RAC	0.51	23.34	11.91	40.71	20.76	97.15	49.55	18.06	9.21	57.71	29.43

FLUOPYRAM (243) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets: g/person/day					Intake = daily intake: µg/person				
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
	raw (incl. prepared meat) –80% as muscle												
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.6	5.84	3.50	10.18	6.11	24.29	14.57	4.52	2.71	14.43	8.66
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.6	1.05	0.63	1.14	0.68	18.69	11.21	0.94	0.56	3.12	1.87
MO 0105	Edible offal (mammalian), raw	RAC	3.8	4.64	17.63	1.97	7.49	10.01	38.04	3.27	12.43	3.98	15.12
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.48	108.75	52.20	70.31	33.75	436.11	209.33	61.55	29.54	79.09	37.96
PM 0110	Poultry meat, raw (incl. prepared) – 90% as muscle	RAC	0.19	3.53	0.67	10.83	2.06	51.36	9.76	4.53	0.86	50.00	9.50
PM 0110	Poultry meat, raw (incl. prepared) – 10% as fat	RAC	0.28	0.39	0.11	1.20	0.34	5.71	1.60	0.50	0.14	5.56	1.56
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0.28	NC	–	NC	–	0.32	0.09	NC	–	NC	–
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0.88	0.10	0.09	0.70	0.62	0.97	0.85	0.10	0.09	NC	–
PE 0112	Eggs, raw, (incl. dried)	RAC	0.46	3.84	1.77	4.41	2.03	27.25	12.54	1.13	0.52	7.39	3.40
	Total intake (µg/person) =				164.5		189.5		453.1		182.6		236.4
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (µg/person) =				600		600		600		600		600
	%ADI =				27.4%		31.6%		75.5%		30.4%		39.4%
	Rounded %ADI =				30%		30%		80%		30%		40%

MEFENTRIFLUCONAZOLE (320) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets as g/person/day					Intake as µg/person/day						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
FC 0002	Subgroup of Lemons and limes, raw (incl. kumquat commodities)	RAC	0.37	4.78	1.77	2.42	0.90	3.61	1.34	25.18	9.32	8.25	3.05	15.77	5.83
–	Lemon, juice (single strength, incl. concentrated)	PP	0.007	0.01	0.00	0.01	0.00	0.11	0.00	0.09	0.00	0.18	0.00	0.17	0.00
FC 0003	Subgroup of Mandarins, raw	RAC	0.37	6.18	2.29	3.66	1.35	0.25	0.09	6.82	2.52	3.49	1.29	19.38	7.17
–	Subgroup of Mandarins, juice	PP	0.007	NC	–	NC	–	NC	–	NC	–	NC	–	NC	–
FC 0004	Subgroup of Oranges, sweet, sour, raw	RAC	0.215	20.66	4.44	5.23	1.12	11.90	2.56	37.90	8.15	21.16	4.55	56.46	12.14
JF 0004	Subgroup of Oranges, juice (single strength, incl. concentrated)	PP	0.007	1.27	0.01	2.20	0.02	0.09	0.00	11.81	0.08	0.46	0.00	1.69	0.01
FC 0005	Subgroup of Pummelo and grapefruits, raw	RAC	0.16	0.64	0.10	0.35	0.06	0.93	0.15	6.10	0.98	1.01	0.16	1.36	0.22
JF 0203	Grapefruits, juice (single strength, incl. concentrated)	PP	0.007	0.01	0.00	0.16	0.00	0.02	0.00	1.97	0.01	0.12	0.00	0.77	0.01
FP 0226	Apple, raw	RAC	0.39	13.39	5.22	26.46	10.32	0.52	0.20	16.07	6.27	6.37	2.48	47.79	18.64
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.051	0.32	0.02	3.07	0.16	0.07	0.00	5.00	0.26	0.29	0.01	5.57	0.28
FP 0228	Loquat, raw (incl. processed) (i.e. Japanese medlar)	RAC	0.39	0.59	0.23	0.36	0.14	0.46	0.18	1.88	0.73	NC	–	1.15	0.45
FP 0229	Medlar, raw (incl. processed)	RAC	0.39	0.47	0.18	0.29	0.11	0.36	0.14	1.49	0.58	NC	–	0.92	0.36

FLUOPYRAM (243) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets: g/person/day										Intake = daily intake: µg/person	
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**		
FP 0230	Pear, raw	RAC	0.39	2.16	0.84	6.24	2.43	0.05	0.02	4.07	1.59	1.16	0.45	5.34	2.08
FP 0231	Quince, raw	RAC	0.39	0.73	0.28	0.54	0.21	0.01	0.00	0.07	0.03	0.06	0.02	1.31	0.51
FS 0013	Subgroup of Cherries, raw	RAC	1.1	0.92	1.01	9.15	10.07	0.01	0.01	0.61	0.67	0.06	0.07	6.64	7.30
FS 0014	Subgroup of Plums, raw	RAC	0.26	2.40	0.62	8.60	2.24	0.06	0.02	2.52	0.66	0.58	0.15	4.16	1.08
DF 0014	Plums, dried (prunes)	PP	1.1	0.09	0.10	0.06	0.07	0.01	0.01	0.18	0.20	0.04	0.04	0.06	0.07
FS 2001	Subgroup of peaches, raw (incl. dried apricots)	RAC	0.56	8.01	4.49	5.87	3.29	0.18	0.10	8.19	4.59	1.64	0.92	22.46	12.58
FB 2005	Subgroup of Caneberries, raw	RAC	0.96	0.42	0.40	1.05	1.01	0.01	0.01	0.02	0.02	0.02	0.02	1.24	1.19
FB 2006	Subgroup of Bush berries, raw (including processed)	RAC	0.58	0.53	0.31	1.31	0.76	0.40	0.23	1.66	0.96	0.01	0.01	0.99	0.57
FB 0267	Elderberries, raw (incl. processed)	RAC	0.58	0.44	0.26	0.27	0.16	0.34	0.20	1.41	0.82	NC	–	0.87	0.50
FB 0269	Grapes, raw (incl. must, excl. dried, excl. juice, excl. wine)	RAC	0.26	13.02	3.39	9.25	2.41	0.03	0.01	16.91	4.40	3.70	0.96	54.44	14.15
DF 0269	Grapes, dried (= currants, raisins and sultanas) (from table grapes)	PP	0.97	0.51	0.49	0.51	0.49	0.01	0.01	1.27	1.23	0.12	0.12	2.07	2.01
JF 0269	Grape juice (from wine grapes)	PP	0.03	0.14	0.00	0.29	0.01	0.05	0.00	0.30	0.01	0.24	0.01	0.05	0.00
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.01	0.67	0.01	12.53	0.13	2.01	0.02	1.21	0.01	3.53	0.04	4.01	0.04
FB 2009	Subgroup of Low growing berries, raw	RAC	0.29	0.71	0.21	2.02	0.59	0.04	0.01	1.39	0.40	0.37	0.11	2.53	0.73
FI 0326	Avocado, raw	RAC	0.36	0.13	0.05	0.03	0.01	2.05	0.74	2.54	0.91	2.34	0.84	0.12	0.04
FI 0327	Banana, raw (incl. plantains) (incl. dried)	RAC	0.055	5.23	0.29	6.94	0.38	99.45	5.47	32.47	1.79	48.30	2.66	24.70	1.36
FI 0345	Mango, raw (incl. canned mango, incl. mango juice)	RAC	0.01	10.48	0.10	0.01	0.00	7.24	0.07	6.87	0.07	19.98	0.20	6.25	0.06
FI 0350	Papaya, raw	RAC	0.07	0.35	0.02	0.01	0.00	3.05	0.21	0.80	0.06	7.28	0.51	1.00	0.07
FI 0353	Pineapple, raw (incl. canned Pineapple, excl. pineapple juice, excl. dried pineapple)	RAC	0.14	0.26	0.04	0.58	0.08	7.62	1.07	5.99	0.84	8.21	1.15	0.80	0.11
JF 0341	Pineapple juice (single strength, incl. concentrated)	PP	0.04	0.04	0.00	0.57	0.02	0.12	0.00	1.96	0.08	0.29	0.01	0.28	0.01
–	Pineapple, dried	PP	0.02	0.06	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00
VA 2031	Subgroup of bulb onions	RAC	0.05	31.65	1.58	43.28	2.16	3.68	0.18	38.48	1.92	20.46	1.02	47.29	2.36
VA 2032	Subgroup of Green Onions	RAC	0.39	2.64	1.03	3.09	1.21	1.05	0.41	2.89	1.13	0.61	0.24	5.24	2.04
VB 0400	Broccoli, raw	RAC	0.024	0.88	0.02	0.17	0.00	0.01	0.00	1.25	0.03	3.00	0.07	1.09	0.03
VB 0404	Cauliflower, raw	RAC	0.01	1.65	0.02	0.32	0.00	0.01	0.00	2.33	0.02	4.79	0.05	2.03	0.02
VC 2039	Subgroup of Cucumbers and Squashes, raw	RAC	0.035	10.52	0.37	39.36	1.38	2.07	0.07	25.74	0.90	2.80	0.10	44.83	1.57
VC 2040	Subgroup of Melons, Pumpkins and Winter squashes	RAC	0.15	42.62	6.39	46.85	7.03	4.21	0.63	67.02	10.05	12.84	1.93	110.47	16.57
VO 0448	Tomato, raw	RAC	0.295	41.73	12.31	75.65	22.32	10.66	3.14	82.87	24.45	24.75	7.30	200.93	59.27
–	Tomato, canned (& peeled)	PP	0.02	0.20	0.00	0.31	0.01	0.02	0.00	1.11	0.02	0.11	0.00	1.50	0.03
–	Tomato, paste (i.e. concentrated tomato	PP	0.15	2.34	0.35	1.33	0.20	1.57	0.24	4.24	0.64	0.34	0.05	2.83	0.42

FLUOPYRAM (243) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets: g/person/day									Intake = daily intake: µg/person		
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**		
	sauce/puree)														
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.02	0.29	0.01	0.29	0.01	0.01	0.00	0.38	0.01	0.05	0.00	0.14	0.00
VO 0051	Subgroup of peppers, raw (Capsicum spp. Only), excl. okra	RAC	0.25	5.42	1.36	9.91	2.48	3.97	0.99	7.63	1.91	2.59	0.65	23.68	5.92
VO 2046	Subgroup of eggplants	RAC	0.25	5.58	1.40	4.31	1.08	0.89	0.22	9.31	2.33	13.64	3.41	20.12	5.03
VL 2050	Subgroup of Leafy greens	RAC	8.1	3.93	31.83	5.28	42.77	3.07	24.87	14.53	117.69	8.25	66.83	12.75	103.28
VL 0054	Subgroup of Leaves of Brassicaceae, raw	RAC	6.65	2.63	17.49	9.27	61.65	1.86	12.37	5.82	38.70	19.53	129.87	4.90	32.59
VP 2060	Subgroup of beans with pods (all commodities within this group)	RAC	0.01	0.68	0.01	NC	–	NC	–	0.39	0.00	0.22	0.00	0.49	0.00
VP 2062	Subgroup of succulent beans without pods (all commodities within this group)	RAC	0.01	5.07	0.05	1.02	0.01	0.49	0.00	1.78	0.02	1.19	0.01	8.57	0.09
VP 2063	Subgroup of succulent peas without pods	RAC	0.01	1.97	0.02	0.51	0.01	0.02	0.00	0.79	0.01	3.68	0.04	3.80	0.04
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.01	2.39	0.02	1.61	0.02	10.47	0.10	1.84	0.02	12.90	0.13	7.44	0.07
VD 0523	Broad bean, dry, raw (incl. horse–bean, field bean) (Vicia faba)	RAC	0.01	1.27	0.01	0.01	0.00	0.12	0.00	2.49	0.02	0.23	0.00	5.54	0.06
VD 0527	Cowpea, dry, raw (Vigna sinensis, Dolichos sinensis)	RAC	0.01	0.05	0.00	NC	–	1.74	0.02	0.01	0.00	0.01	0.00	0.07	0.00
VD 0541	Soya bean, dry, raw (Glycine soja)	RAC	0.01	0.58	0.01	0.05	0.00	0.37	0.00	0.03	0.00	1.65	0.02	0.30	0.00
–	Soya paste (i.e. miso)	PP	0.0083	NC	–	NC	–	NC	–	NC	–	NC	–	NC	–
–	Soya curd (i.e. tofu)	PP	0.0083	NC	–	NC	–	NC	–	NC	–	NC	–	NC	–
OR 0541	Soya oil, refined	PP	0.0083	12.99	0.11	10.43	0.09	3.63	0.03	13.10	0.11	10.70	0.09	13.10	0.11
–	Soya sauce	PP	0.0083	0.01	0.00	0.02	0.00	0.01	0.00	0.34	0.00	0.03	0.00	0.01	0.00
–	Soya flour	PP	0.0083	0.05	0.00	0.86	0.01	0.02	0.00	1.02	0.01	0.01	0.00	0.15	0.00
–	Beans (dry) NES: including inter alia lablab or hyacinth bean (Dolichos spp.); jack or sword bean (Canavalia spp.); winged bean (Psophocarpus tetragonolobus); guar bean (Cyamopsis tetragonoloba); velvet bean (Stizolobium spp.); yam bean (Pachyrrhizus erosus)	RAC	0.01	1.70	0.02	0.01	0.00	3.00	0.03	1.80	0.02	1.64	0.02	1.33	0.01
VD 0072	Peas (dry) (Pisum spp), raw	RAC	0.015	1.62	0.02	3.22	0.05	0.92	0.01	1.50	0.02	2.90	0.04	0.17	0.00
VD 0524	Chick–pea (dry) (Cicer spp), raw	RAC	0.015	5.34	0.08	0.13	0.00	0.01	0.00	4.69	0.07	7.24	0.11	5.52	0.08
VD 0533	Lentil (dry) (Lens spp), raw	RAC	0.22	2.12	0.47	0.01	0.00	0.03	0.01	3.21	0.71	1.60	0.35	4.90	1.08
VD 0537	Pigeon pea (dry) (Cajanus spp), raw	RAC	0.015	NC	–	NC	–	0.10	0.00	0.07	0.00	3.38	0.05	NC	–
VR 0574	Beetroot, raw	RAC	0.105	3.42	0.36	6.06	0.64	3.75	0.39	9.11	0.96	NC	–	4.39	0.46
VR 0575	Burdock, greater or edible, raw	RAC	0.105	0.03	0.00	0.06	0.01	0.04	0.00	0.09	0.01	NC	–	0.04	0.00
VR 0577	Carrots, raw	RAC	0.105	9.51	1.00	30.78	3.23	0.37	0.04	8.75	0.92	2.80	0.29	6.10	0.64
VR 0578	Celeriac, raw	RAC	0.105	1.70	0.18	3.01	0.32	1.87	0.20	4.53	0.48	NC	–	2.19	0.23

FLUOPYRAM (243) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets: g/person/day										Intake = daily intake: µg/person	
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**		
VR 0469	Chicory, roots, raw	RAC	0.105	0.01	0.00	0.20	0.02	0.01	0.00	0.01	0.00	0.02	0.00	0.01	0.00
VR 0583	Horseradish, raw	RAC	0.105	0.51	0.05	0.91	0.10	0.56	0.06	1.37	0.14	NC	–	0.66	0.07
VR 0587	Parsley turnip–rooted, raw	RAC	0.105	0.32	0.03	0.57	0.06	0.35	0.04	0.85	0.09	NC	–	0.41	0.04
VR 0588	Parsnip, raw	RAC	0.105	0.59	0.06	1.05	0.11	0.65	0.07	1.58	0.17	NC	–	0.76	0.08
VR 0494	Radish roots, raw	RAC	0.105	2.31	0.24	4.09	0.43	2.53	0.27	6.15	0.65	5.88	0.62	2.97	0.31
VR 0591	Japanese radish, raw (i.e. Chinese radish, Daikon)	RAC	0.105	1.90	0.20	3.36	0.35	2.08	0.22	5.06	0.53	NC	–	2.44	0.26
VR 0498	Salsify, raw (i.e. Oysterplant)	RAC	0.105	0.21	0.02	0.37	0.04	0.23	0.02	0.55	0.06	NC	–	0.27	0.03
VR 0596	Sugar beet, raw	RAC	0.063	NC	–	NC	–	NC	–	NC	–	0.01	0.00	NC	–
–	Sugar beet, sugar	PP	0.004	0.02	0.00	NC	–	0.01	0.00	0.09	0.00	0.07	0.00	12.63	0.05
VR 0497	Swede, raw (i.e. Rutabaga)	RAC	0.105	1.58	0.17	2.80	0.29	1.74	0.18	4.21	0.44	NC	–	2.03	0.21
VR 0506	Turnip, garden, raw	RAC	0.105	2.50	0.26	4.44	0.47	2.75	0.29	6.67	0.70	0.14	0.01	3.22	0.34
VR 0573	Arrowroot, raw	RAC	0.01	1.53	0.02	0.01	0.00	0.93	0.01	1.33	0.01	0.47	0.00	0.02	0.00
VR 0463	Cassava raw (incl. starch, incl. tapioca, incl. flour) (i.e. Manioc)	RAC	0.01	0.08	0.00	0.01	0.00	482.56	4.83	0.99	0.01	25.75	0.26	3.29	0.03
VR 0585	Jerusalem artichoke, raw (i.e. Topinambur)	RAC	0.01	1.57	0.02	0.01	0.00	0.96	0.01	1.36	0.01	0.48	0.00	0.02	0.00
VR 0589	Potato, raw (incl. flour, incl. frozen, incl. tapioca, excl. starch)	RAC	0.01	59.60	0.60	316.10	3.16	9.77	0.10	59.59	0.60	54.12	0.54	119.82	1.20
–	Potato, starch	PP	0.0033	0.03	0.00	0.01	0.00	0.01	0.00	0.15	0.00	0.01	0.00	0.01	0.00
VR 0508	Sweet potato, raw (incl. dried)	RAC	0.01	0.18	0.00	0.18	0.00	42.16	0.42	1.61	0.02	3.06	0.03	6.67	0.07
VR 0504	Tannia, raw (i.e. Tanier, Yautia)	RAC	0.01	NC	–	NC	–	NC	–	0.01	0.00	0.26	0.00	1.27	0.01
VR 0505	Taro, raw (i.e. Dasheen, Eddoe)	RAC	0.01	0.01	0.00	NC	–	25.12	0.25	0.04	0.00	0.01	0.00	0.97	0.01
VR 0600	Yams, raw (incl. dried)	RAC	0.01	0.02	0.00	NC	–	90.40	0.90	6.45	0.06	0.74	0.01	0.65	0.01
GC 0650	Rye, raw	RAC	0.09	NC	–	NC	–	0.02	0.00	0.01	0.00	0.01	0.00	0.01	0.00
CF 1250	Rye, flour (white flour and wholemeal flour)	PP	0.071	0.11	0.01	15.51	1.10	0.06	0.00	0.10	0.01	0.03	0.00	1.72	0.12
GC 0653	Triticale, raw	RAC	0.09	NC	–	NC	–	NC	–	0.01	0.00	NC	–	NC	–
GC 0653	Triticale, flour (white flour and wholemeal flour)	PP	0.071	NC	–	NC	–	NC	–	NC	–	0.31	0.02	NC	–
GC 0654	Wheat, raw (incl. bulgur, incl. fermented beverages, incl. white flour products, incl. white bread, excl. germ, excl. wholemeal bread)	RAC	0.09	381.15	34.30	341.54	30.74	38.34	3.45	281.87	25.37	172.65	15.54	434.06	39.07
CF 1210	Wheat, germ	PP	0.1	NC	–	NC	–	0.01	0.00	0.01	0.00	0.14	0.01	0.01	0.00
CP 1212	Wheat, wholemeal bread	PP	0.05	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.03	0.00	0.01	0.00
–	Wheat, starch	PP	0.026	0.02	0.00	NC	–	0.01	0.00	0.05	0.00	0.13	0.00	0.01	0.00
–	Wheat, gluten	PP	0.05	0.01	0.00	0.01	0.00	0.01	0.00	0.27	0.01	0.01	0.00	0.03	0.00
GC 0640	Barley, raw	RAC	0.425	2.49	1.06	NC	–	0.02	0.01	0.03	0.01	0.18	0.08	0.38	0.16
–	Barley, pot&pearled	PP	0.051	7.12	0.36	7.34	0.37	0.02	0.00	0.03	0.00	0.67	0.03	0.20	0.01
–	Barley, flour (white flour and wholemeal flour)	PP	1.6	2.93	4.69	0.30	0.48	0.02	0.03	0.01	0.02	0.48	0.77	0.01	0.02
–	Barley beer	PP	0.013	4.87	0.06	93.78	1.22	24.28	0.32	12.76	0.17	39.28	0.51	18.15	0.24

FLUOPYRAM (243) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets: g/person/day											Intake = daily intake: µg/person
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**		
–	Barley Malt	PP	0.21	0.09	0.02	1.04	0.22	0.18	0.04	0.33	0.07	0.04	0.01	0.10	0.02
GC 0647	Oats, raw (incl. rolled)	RAC	0.425	0.05	0.02	7.05	3.00	0.10	0.04	1.71	0.73	0.96	0.41	0.04	0.02
CM 0649 (GC 0649)	Rice, husked, dry (incl. flour, incl. oil, incl. beverages, incl. starch, excl. polished)	REP	0.11	1.26	0.14	1.58	0.17	31.05	3.42	5.43	0.60	0.90	0.10	2.18	0.24
CM 0649 (GC 0649)	Rice, husked, dry (incl. paddy rice)	REP	0.11	1.17	0.13	1.30	0.14	31.05	3.42	4.79	0.53	0.25	0.03	2.16	0.24
CM 1205	Rice polished, dry	PP	0.0085	34.21	0.29	10.39	0.09	41.72	0.35	82.38	0.70	150.24	1.28	70.47	0.60
GC 0646	Millet, raw (incl. flour, incl. beer)	RAC	0.41	1.46	0.60	2.32	0.95	5.84	2.39	0.89	0.36	16.17	6.63	0.01	0.00
GC 0651	Sorghum, raw (incl. flour, incl. beer) (i.e. Chicken corn, Dari seed, Durra, Feterita)	RAC	0.41	4.34	1.78	0.01	0.00	16.25	6.66	15.82	6.49	10.97	4.50	2.92	1.20
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. flour, incl. oil, incl. beer, incl. germ, incl. starch)	RAC	0.01	29.81	0.30	44.77	0.45	108.95	1.09	52.37	0.52	60.28	0.60	75.69	0.76
GC 0447	Sweet corn on the cob, raw (incl. frozen kernels, incl. canned kernels)	RAC	0.01	0.14	0.00	0.94	0.01	5.70	0.06	2.61	0.03	1.94	0.02	0.22	0.00
GS 0659	Sugar cane, raw (incl. sugar, incl. molasses)	RAC	0.37	99.68	36.88	86.27	31.92	31.38	11.61	80.36	29.73	84.18	31.15	99.10	36.67
TN 0085	Group of Tree nuts, raw (incl. processed)	RAC	0.01	4.06	0.04	3.27	0.03	7.01	0.07	13.93	0.14	14.01	0.14	9.36	0.09
SO 2090	Subgroup of Small seed oilseeds, raw (incl. processed)	RAC	0.06	2.19	0.13	1.22	0.07	1.05	0.06	7.10	0.43	10.29	0.62	4.83	0.29
SO 2091	Subgroup of Sunflower seeds, raw (incl. processed)	RAC	0.01	7.43	0.07	36.06	0.36	1.15	0.01	8.77	0.09	5.74	0.06	13.63	0.14
OR 0691	Cotton seed oil, edible	PP	0.0002	3.22	0.00	1.54	0.00	1.01	0.00	0.74	0.00	1.12	0.00	2.93	0.00
SO 0697	Peanuts, nutmeat, raw (incl. roasted, incl. oil, incl. butter)	RAC	0.01	1.30	0.01	1.23	0.01	12.62	0.13	2.87	0.03	6.59	0.07	2.67	0.03
SB 0716	Coffee bean, raw (i.e. green coffee)	RAC	0.01	0.96	0.01	0.16	0.00	0.91	0.01	0.27	0.00	1.37	0.01	0.46	0.00
SM 0716	Coffee bean, roasted	PP	0.0062	0.19	0.00	0.91	0.01	0.16	0.00	2.50	0.02	0.39	0.00	0.40	0.00
–	Coffee bean, instant coffee (incl. essences and concentrates)	PP	0.0016	0.07	0.00	0.94	0.00	0.07	0.00	0.70	0.00	0.07	0.00	0.29	0.00
HS 0444	Peppers, chili, dried	PP	2.5	0.42	1.05	0.53	1.33	0.84	2.10	0.50	1.25	0.95	2.38	0.37	0.93
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.04	24.96	1.00	57.95	2.32	16.70	0.67	38.38	1.54	26.46	1.06	29.00	1.16
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.39	6.24	2.43	14.49	5.65	4.18	1.63	9.60	3.74	6.62	2.58	7.25	2.83
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.39	3.29	1.28	6.14	2.39	0.82	0.32	1.57	0.61	2.23	0.87	1.07	0.42
MO 0105	Edible offal (mammalian), raw	RAC	0.61	4.79	2.92	9.68	5.90	2.97	1.81	5.49	3.35	3.84	2.34	5.03	3.07
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.07	289.65	20.28	485.88	34.01	26.92	1.88	239.03	16.73	199.91	13.99	180.53	12.64
PM 0110	Poultry meat, raw (incl. prepared) – 90% as muscle	RAC	0.012	13.17	0.16	26.78	0.32	7.24	0.09	116.71	1.40	22.54	0.27	32.09	0.39

FLUOPYRAM (243) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets: g/person/day												
				Intake = daily intake: µg/person												
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**			
PM 0110	Poultry meat, raw (incl. prepared) – 10% as fat	RAC	0.124	1.46	0.18	2.98	0.37	0.80	0.10	12.97	1.61	2.50	0.31	3.57	0.44	
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0.124	0.10	0.01	0.10	0.01	NC	–	0.10	0.01	0.10	0.01	0.10	0.01	
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0.12	0.12	0.01	0.12	0.01	0.11	0.01	5.37	0.64	0.24	0.03	0.10	0.01	
PE 0112	Eggs, raw, (incl. dried)	RAC	0.032	7.84	0.25	23.08	0.74	2.88	0.09	14.89	0.48	9.81	0.31	14.83	0.47	
	Total intake (µg/person) =				215.8		314.5		106.1		351.6		320.1		426.5	
	Bodyweight per region (kg bw) =				60		60		60		60		60		60	
	ADI (µg/person) =				2400		2400		2400		2400		2400		2400	
	%ADI =				9.0%		13.1%		4.4%		14.7%		13.3%		17.8%	
	Rounded %ADI =				9%		10%		4%		10%		10%		20%	

MEFENTRIFLUCONAZOLE (320) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets as g/person/day											
				Intake as µg/person/day											
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
FC 0002	Subgroup of Lemons and limes, raw (incl. kumquat commodities)	RAC	0.37	8.45	3.13	14.69	5.44	2.88	1.07	8.16	3.02	21.14	7.82	5.93	2.19
–	Lemon, juice (single strength, incl. concentrated)	PP	0.007	0.60	0.00	0.36	0.00	0.01	0.00	1.49	0.01	0.43	0.00	0.24	0.00
FC 0003	Subgroup of Mandarins, raw	RAC	0.37	12.34	4.57	14.99	5.55	16.08	5.95	10.76	3.98	9.94	3.68	NC	–
–	Subgroup of Mandarins, juice	PP	0.007	0.04	0.00	NC	–	0.01	0.00	0.01	0.00	NC	–	NC	–
FC 0004	Subgroup of Oranges, sweet, sour, raw	RAC	0.215	15.68	3.37	24.00	5.16	6.80	1.46	29.09	6.25	15.39	3.31	160.47	34.50
JF 0004	Subgroup of Oranges, juice (single strength, incl. concentrated)	PP	0.007	33.31	0.23	1.78	0.01	0.28	0.00	18.97	0.13	14.01	0.10	13.36	0.09
FC 0005	Subgroup of Pummelo and grapefruits, raw	RAC	0.16	2.19	0.35	1.24	0.20	0.60	0.10	3.44	0.55	4.60	0.74	299.96	47.99
JF 0203	Grapefruits, juice (single strength, incl. concentrated)	PP	0.007	2.89	0.02	1.61	0.01	0.02	0.00	1.15	0.01	7.39	0.05	33.07	0.23
FP 0226	Apple, raw	RAC	0.39	27.44	10.70	49.21	19.19	21.57	8.41	31.09	12.13	51.60	20.12	1.77	0.69
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.051	14.88	0.76	11.98	0.61	0.15	0.01	9.98	0.51	30.32	1.55	3.47	0.18
FP 0228	Loquat, raw (incl. processed) (i.e. Japanese medlar)	RAC	0.39	0.96	0.37	NC	–	NC	–	3.92	1.53	NC	–	2.49	0.97
FP 0229	Medlar, raw (incl. processed)	RAC	0.39	NC	–	NC	–	NC	–	NC	–	NC	–	1.98	0.77
FP 0230	Pear, raw	RAC	0.39	8.79	3.43	8.44	3.29	12.37	4.82	9.60	3.74	10.27	4.01	0.23	0.09
FP 0231	Quince, raw	RAC	0.39	0.19	0.07	0.18	0.07	0.11	0.04	0.04	0.02	0.28	0.11	NC	–
FS 0013	Subgroup of Cherries, raw	RAC	1.1	1.40	1.54	4.21	4.63	0.04	0.04	2.93	3.22	1.50	1.65	NC	–
FS 0014	Subgroup of Plums, raw	RAC	0.26	3.75	0.98	3.33	0.87	5.94	1.54	2.64	0.69	2.50	0.65	0.06	0.02
DF 0014	Plums, dried (prunes)	PP	1.1	0.61	0.67	0.35	0.39	0.05	0.06	0.35	0.39	0.49	0.54	0.13	0.14
FS 2001	Subgroup of peaches, raw (incl. dried apricots)	RAC	0.56	13.03	7.30	16.29	9.12	8.29	4.64	12.95	7.25	5.35	3.00	0.04	0.02

MEFENTRIFLUCONAZOLE (320) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
FB 2005	Subgroup of Caneberries, raw	RAC	0.96	0.56	0.54	1.43	1.37	0.14	0.13	1.23	1.18	1.14	1.09	0.01	0.01
FB 2006	Subgroup of Bush berries, raw (including processed)	RAC	0.58	1.31	0.76	5.50	3.19	0.01	0.01	2.57	1.49	0.82	0.48	2.15	1.25
FB 0267	Elderberries, raw (incl. processed)	RAC	0.58	8.20	4.76	0.14	0.08	NC	–	NC	–	NC	–	1.87	1.08
FB 0269	Grapes, raw (incl. must, excl. dried, excl. juice, excl. wine)	RAC	0.26	6.48	1.68	11.31	2.94	5.21	1.35	9.50	2.47	4.66	1.21	0.78	0.20
DF 0269	Grapes, dried (= currants, raisins and sultanas) (from table grapes)	PP	0.97	3.09	3.00	1.51	1.46	0.03	0.03	1.38	1.34	4.26	4.13	0.42	0.41
JF 0269	Grape juice (from wine grapes)	PP	0.03	0.56	0.02	1.96	0.06	0.02	0.00	2.24	0.07	2.27	0.07	0.34	0.01
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.01	88.93	0.89	62.41	0.62	1.84	0.02	25.07	0.25	61.17	0.61	5.84	0.06
FB 2009	Subgroup of Low growing berries, raw	RAC	0.29	4.55	1.32	5.66	1.64	0.02	0.01	7.85	2.28	5.86	1.70	0.05	0.01
FI 0326	Avocado, raw	RAC	0.36	2.65	0.95	0.87	0.31	0.46	0.17	1.64	0.59	1.30	0.47	0.96	0.35
FI 0327	Banana, raw (incl. plantains) (incl. dried)	RAC	0.055	25.76	1.42	23.65	1.30	23.83	1.31	24.37	1.34	19.43	1.07	101.55	5.59
FI 0345	Mango, raw (incl. canned mango, incl. mango juice)	RAC	0.01	1.80	0.02	0.63	0.01	10.05	0.10	1.07	0.01	3.52	0.04	16.44	0.16
FI 0350	Papaya, raw	RAC	0.07	0.31	0.02	0.18	0.01	1.50	0.11	0.51	0.04	0.54	0.04	1.08	0.08
FI 0353	Pineapple, raw (incl. canned Pineapple, excl. pineapple juice, excl. dried pineapple)	RAC	0.14	8.04	1.13	7.47	1.05	5.73	0.80	7.53	1.05	7.70	1.08	16.18	2.27
JF 0341	Pineapple juice (single strength, incl. concentrated)	PP	0.04	2.91	0.12	2.11	0.08	0.58	0.02	3.95	0.16	16.73	0.67	1.54	0.06
–	Pineapple, dried	PP	0.02	0.02	0.00	0.01	0.00	0.04	0.00	0.02	0.00	0.09	0.00	NC	–
VA 2031	Subgroup of bulb onions	RAC	0.05	20.67	1.03	31.32	1.57	37.52	1.88	35.08	1.75	11.77	0.59	13.74	0.69
VA 2032	Subgroup of Green Onions	RAC	0.39	5.57	2.17	5.15	2.01	1.77	0.69	4.28	1.67	17.34	6.76	6.48	2.53
VB 0400	Broccoli, raw	RAC	0.024	4.24	0.10	1.76	0.04	NC	–	0.51	0.01	3.79	0.09	0.26	0.01
VB 0404	Cauliflower, raw	RAC	0.01	5.27	0.05	5.01	0.05	NC	–	2.70	0.03	5.57	0.06	0.49	0.00
VC 2039	Subgroup of Cucumbers and Squashes, raw	RAC	0.035	7.14	0.25	16.92	0.59	37.58	1.32	15.16	0.53	4.42	0.15	12.67	0.44
VC 2040	Subgroup of Melons, Pumpkins and Winter squashes	RAC	0.15	20.68	3.10	25.00	3.75	85.72	12.86	34.31	5.15	11.54	1.73	23.32	3.50
VO 0448	Tomato, raw	RAC	0.295	32.13	9.48	51.27	15.12	34.92	10.30	73.37	21.64	15.15	4.47	8.88	2.62
–	Tomato, canned (& peeled)	PP	0.02	7.57	0.15	2.66	0.05	0.30	0.01	0.97	0.02	7.31	0.15	0.41	0.01
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.15	4.96	0.74	3.20	0.48	0.15	0.02	1.61	0.24	6.88	1.03	0.52	0.08
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.02	0.80	0.02	0.07	0.00	0.05	0.00	0.61	0.01	0.40	0.01	0.08	0.00
VO 0051	Subgroup of peppers, raw (Capsicum spp. Only), excl. okra	RAC	0.25	5.57	1.39	14.00	3.50	16.50	4.13	8.80	2.20	6.44	1.61	3.44	0.86
VO 2046	Subgroup of eggplants	RAC	0.25	1.01	0.25	1.69	0.42	21.37	5.34	3.00	0.75	1.40	0.35	NC	–
VL 2050	Subgroup of Leafy greens	RAC	8.1	18.38	148.88	18.73	151.71	82.36	667.12	25.32	205.09	17.60	142.56	7.37	59.70
VL 0054	Subgroup of Leaves of Brassicaceae, raw	RAC	6.65	0.10	0.67	NC	–	26.78	178.09	5.00	33.25	0.58	3.86	5.68	37.77
VP 2060	Subgroup of beans with pods (all commodities within this group)	RAC	0.01	5.07	0.05	0.83	0.01	0.17	0.00	3.70	0.04	NC	–	NC	–
VP 2062	Subgroup of succulent beans without pods (all	RAC	0.01	2.42	0.02	6.09	0.06	4.33	0.04	2.09	0.02	18.99	0.19	0.17	0.00

MEFENTRIFLUCONAZOLE (320) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets as g/person/day						Intake as µg/person/day					
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
	commodities within this group)														
VP 2063	Subgroup of succulent peas without pods	RAC	0.01	10.72	0.11	1.99	0.02	2.72	0.03	4.26	0.04	4.23	0.04	NC	–
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.01	1.51	0.02	1.50	0.02	1.90	0.02	5.11	0.05	1.36	0.01	23.43	0.23
VD 0523	Broad bean, dry, raw (incl. horse–bean, field bean) (Vicia faba)	RAC	0.01	0.02	0.00	0.01	0.00	1.16	0.01	0.40	0.00	NC	–	0.06	0.00
VD 0527	Cowpea, dry, raw (Vigna sinensis, Dolichos sinensis)	RAC	0.01	NC	–	NC	–	0.16	0.00	0.01	0.00	NC	–	NC	–
VD 0541	Soya bean, dry, raw (Glycine soja)	RAC	0.01	0.02	0.00	0.33	0.00	6.64	0.07	3.94	0.04	NC	–	5.78	0.06
–	Soya paste (i.e. miso)	PP	0.0083	NC	–	NC	–	NC	–	1.87	0.02	NC	–	NC	–
–	Soya curd (i.e. tofu)	PP	0.0083	NC	–	NC	–	0.68	0.01	0.87	0.01	NC	–	NC	–
OR 0541	Soya oil, refined	PP	0.0083	19.06	0.16	21.06	0.17	5.94	0.05	33.78	0.28	40.05	0.33	13.39	0.11
–	Soya sauce	PP	0.0083	0.45	0.00	0.29	0.00	2.93	0.02	4.35	0.04	0.09	0.00	0.70	0.01
–	Soya flour	PP	0.0083	0.22	0.00	0.27	0.00	0.29	0.00	0.17	0.00	NC	–	NC	–
–	Beans (dry) NES: including inter alia lablab or hyacinth bean (Dolichos spp.); jack or sword bean (Canavalia spp.); winged bean (Psophocarpus tetragonolobus); guar bean (Cyamopsis tetragonoloba); velvet bean (Stizolobium spp.); yam bean (Pachyrrhizus erosus)	RAC	0.01	0.01	0.00	NC	–	0.57	0.01	0.11	0.00	0.16	0.00	0.94	0.01
VD 0072	Peas (dry) (Pisum spp), raw	RAC	0.015	3.80	0.06	1.25	0.02	0.90	0.01	2.33	0.03	2.70	0.04	3.83	0.06
VD 0524	Chick–pea (dry) (Cicer spp), raw	RAC	0.015	0.27	0.00	1.33	0.02	0.32	0.00	0.15	0.00	0.08	0.00	0.04	0.00
VD 0533	Lentil (dry) (Lens spp), raw	RAC	0.22	0.95	0.21	1.18	0.26	0.40	0.09	0.96	0.21	0.71	0.16	1.28	0.28
VD 0537	Pigeon pea (dry) (Cajanus spp), raw	RAC	0.015	NC	–	NC	–	0.20	0.00	NC	–	NC	–	NC	–
VR 0574	Beetroot, raw	RAC	0.105	9.91	1.04	6.34	0.67	NC	–	9.65	1.01	19.11	2.01	6.47	0.68
VR 0575	Burdock, greater or edible, raw	RAC	0.105	NC	–	NC	–	NC	–	0.48	0.05	NC	–	0.06	0.01
VR 0577	Carrots, raw	RAC	0.105	26.26	2.76	27.13	2.85	10.07	1.06	16.49	1.73	44.69	4.69	8.75	0.92
VR 0578	Celeriac, raw	RAC	0.105	2.97	0.31	1.79	0.19	NC	–	0.06	0.01	16.91	1.78	3.22	0.34
VR 0469	Chicory, roots, raw	RAC	0.105	0.01	0.00	0.51	0.05	0.01	0.00	0.01	0.00	21.12	2.22	NC	–
VR 0583	Horseradish, raw	RAC	0.105	0.01	0.00	0.42	0.04	13.01	1.37	0.26	0.03	2.70	0.28	0.97	0.10
VR 0587	Parsley turnip–rooted, raw	RAC	0.105	NC	–	NC	–	NC	–	NC	–	NC	–	0.61	0.06
VR 0588	Parsnip, raw	RAC	0.105	4.42	0.46	0.06	0.01	NC	–	NC	–	NC	–	1.12	0.12
VR 0494	Radish roots, raw	RAC	0.105	3.83	0.40	11.99	1.26	NC	–	5.26	0.55	2.19	0.23	4.37	0.46
VR 0591	Japanese radish, raw (i.e. Chinese radish, Daikon)	RAC	0.105	NC	–	NC	–	26.64	2.80	18.92	1.99	NC	–	3.59	0.38
VR 0498	Salsify, raw (i.e. Oysterplant)	RAC	0.105	1.02	0.11	0.52	0.05	NC	–	NC	–	2.08	0.22	0.39	0.04
VR 0596	Sugar beet, raw	RAC	0.063	0.01	0.00	NC	–	0.01	0.00	0.01	0.00	NC	–	NC	–
–	Sugar beet, sugar	PP	0.004	0.01	0.00	NC	–	0.01	0.00	NC	–	NC	–	NC	–
VR 0497	Swede, raw (i.e. Rutabaga)	RAC	0.105	10.01	1.05	1.66	0.17	NC	–	NC	–	3.06	0.32	2.99	0.31
VR 0506	Turnip, garden, raw	RAC	0.105	5.78	0.61	15.35	1.61	NC	–	6.54	0.69	1.95	0.20	4.73	0.50

MEFENTRIFLUCONAZOLE (320) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
VR 0573	Arrowroot, raw	RAC	0.01	0.02	0.00	0.01	0.00	2.05	0.02	0.21	0.00	NC	–	0.76	0.01
VR 0463	Cassava raw (incl. starch, incl. tapioca, incl. flour) (i.e. Manioc)	RAC	0.01	0.01	0.00	NC	–	20.96	0.21	0.14	0.00	NC	–	9.62	0.10
VR 0585	Jerusalem artichoke, raw (i.e. Topinambur)	RAC	0.01	0.11	0.00	0.01	0.00	NC	–	0.22	0.00	NC	–	0.78	0.01
VR 0589	Potato, raw (incl. flour, incl. frozen, incl. tapioca, excl. starch)	RAC	0.01	225.03	2.25	226.35	2.26	71.26	0.71	173.36	1.73	234.55	2.35	37.71	0.38
–	Potato, starch	PP	0.0033	NC	–	1.74	0.01	0.05	0.00	0.92	0.00	NC	–	NC	–
VR 0508	Sweet potato, raw (incl. dried)	RAC	0.01	0.93	0.01	0.32	0.00	64.65	0.65	5.37	0.05	0.30	0.00	3.13	0.03
VR 0504	Tannia, raw (i.e. Tanier, Yautia)	RAC	0.01	NC	–	NC	–	NC	–	0.01	0.00	NC	–	10.74	0.11
VR 0505	Taro, raw (i.e. Dasheen, Eddoe)	RAC	0.01	NC	–	NC	–	1.93	0.02	0.84	0.01	NC	–	19.94	0.20
VR 0600	Yams, raw (incl. dried)	RAC	0.01	NC	–	NC	–	0.03	0.00	0.71	0.01	NC	–	17.57	0.18
GC 0650	Rye, raw	RAC	0.09	0.01	0.00	NC	–	0.06	0.01	0.01	0.00	NC	–	NC	–
CF 1250	Rye, flour (white flour and wholemeal flour)	PP	0.071	2.57	0.18	28.31	2.01	0.12	0.01	5.20	0.37	1.20	0.09	NC	–
GC 0653	Triticale, raw	RAC	0.09	NC	–	NC	–	0.01	0.00	0.01	0.00	NC	–	NC	–
GC 0653	Triticale, flour (white flour and wholemeal flour)	PP	0.071	0.01	0.00	0.14	0.01	0.23	0.02	NC	–	NC	–	NC	–
GC 0654	Wheat, raw (incl. bulgur, incl. fermented beverages, incl. white flour products, incl. white bread, excl. germ, excl. wholemeal bread)	RAC	0.09	252.06	22.69	244.62	22.02	134.41	12.10	235.10	21.16	216.33	19.47	167.34	15.06
CF 1210	Wheat, germ	PP	0.1	0.97	0.10	0.10	0.01	0.03	0.00	0.01	0.00	NC	–	0.04	0.00
CP 1212	Wheat, wholemeal bread	PP	0.05	0.03	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.05	0.00	0.02	0.00
–	Wheat, starch	PP	0.026	NC	–	NC	–	0.01	0.00	0.31	0.01	NC	–	NC	–
–	Wheat, gluten	PP	0.05	0.68	0.03	NC	–	0.01	0.00	0.01	0.00	NC	–	NC	–
GC 0640	Barley, raw	RAC	0.425	0.01	0.00	NC	–	0.03	0.01	1.36	0.58	NC	–	NC	–
–	Barley, pot&pearled	PP	0.051	0.57	0.03	2.56	0.13	0.33	0.02	0.56	0.03	0.36	0.02	NC	–
–	Barley, flour (white flour and wholemeal flour)	PP	1.6	0.08	0.13	0.03	0.05	0.01	0.02	0.05	0.08	0.68	1.09	0.05	0.08
–	Barley beer	PP	0.013	180.21	2.34	259.46	3.37	45.91	0.60	172.36	2.24	234.42	3.05	65.30	0.85
–	Barley Malt	PP	0.21	0.19	0.04	NC	–	0.04	0.01	0.08	0.02	NC	–	2.14	0.45
GC 0647	Oats, raw (incl. rolled)	RAC	0.425	7.50	3.19	6.26	2.66	0.15	0.06	4.87	2.07	3.16	1.34	2.98	1.27
CM 0649 (GC 0649)	Rice, husked, dry (incl. flour, incl. oil, incl. beverages, incl. starch, excl. polished)	REP	0.11	3.70	0.41	2.11	0.23	1.51	0.17	1.75	0.19	0.29	0.03	5.12	0.56
CM 0649 (GC 0649)	Rice, husked, dry (incl. paddy rice)	REP	0.11	2.43	0.27	1.62	0.18	0.42	0.05	1.06	0.12	NC	–	5.02	0.55
CM 1205	Rice polished, dry	PP	0.0085	13.38	0.11	10.80	0.09	262.08	2.23	57.16	0.49	12.83	0.11	62.78	0.53
GC 0646	Millet, raw (incl. flour, incl. beer)	RAC	0.41	0.03	0.01	0.16	0.07	1.75	0.72	0.69	0.28	NC	–	NC	–

MEFENTRIFLUCONAZOLE (320) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
GC 0651	Sorghum, raw (incl. flour, incl. beer) (i.e. Chicken corn, Dari seed, Durra, Feterita)	RAC	0.41	NC	–	NC	–	1.44	0.59	1.15	0.47	NC	–	7.12	2.92
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. flour, incl. oil, incl. beer, incl. germ, incl. starch)	RAC	0.01	18.51	0.19	26.18	0.26	26.04	0.26	39.99	0.40	7.36	0.07	64.58	0.65
GC 0447	Sweet corn on the cob, raw (incl. frozen kernels, incl. canned kernels)	RAC	0.01	11.43	0.11	3.71	0.04	0.74	0.01	13.63	0.14	3.07	0.03	1.50	0.02
GS 0659	Sugar cane, raw (incl. sugar, incl. molasses)	RAC	0.37	92.24	34.13	95.72	35.42	28.47	10.53	77.39	28.63	117.73	43.56	103.90	38.44
TN 0085	Group of Tree nuts, raw (incl. processed)	RAC	0.01	8.52	0.09	8.94	0.09	15.09	0.15	9.60	0.10	14.57	0.15	26.26	0.26
SO 2090	Subgroup of Small seed oilseeds, raw (incl. processed)	RAC	0.06	33.60	2.02	20.72	1.24	9.72	0.58	17.21	1.03	1.11	0.07	0.54	0.03
SO 2091	Subgroup of Sunflower seeds, raw (incl. processed)	RAC	0.01	23.43	0.23	29.34	0.29	1.24	0.01	14.00	0.14	6.48	0.06	6.91	0.07
OR 0691	Cotton seed oil, edible	PP	0.00016	1.68	0.00	0.66	0.00	1.13	0.00	1.18	0.00	0.89	0.00	0.37	0.00
SO 0697	Peanuts, nutmeat, raw (incl. roasted, incl. oil, incl. butter)	RAC	0.01	5.63	0.06	2.75	0.03	9.58	0.10	5.82	0.06	13.71	0.14	1.84	0.02
SB 0716	Coffee bean, raw (i.e. green coffee)	RAC	0.01	0.60	0.01	NC	–	0.62	0.01	1.71	0.02	NC	–	3.51	0.04
SM 0716	Coffee bean, roasted	PP	0.0062	7.02	0.04	9.75	0.06	0.02	0.00	5.09	0.03	13.38	0.08	0.77	0.00
–	Coffee bean, instant coffee (incl. essences and concentrates)	PP	0.0016	0.75	0.00	0.30	0.00	0.04	0.00	0.67	0.00	2.43	0.00	1.43	0.00
HS 0444	Peppers, chili, dried	PP	2.5	0.11	0.28	0.21	0.53	0.36	0.90	0.21	0.53	0.25	0.63	0.15	0.38
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.04	112.02	4.48	120.71	4.83	63.46	2.54	88.99	3.56	96.24	3.85	41.02	1.64
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.39	28.01	10.92	30.18	11.77	15.86	6.19	22.25	8.68	24.06	9.38	10.25	4.00
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.39	6.44	2.51	15.51	6.05	3.79	1.48	8.29	3.23	18.44	7.19	8.00	3.12
MO 0105	Edible offal (mammalian), raw	RAC	0.61	15.17	9.25	5.19	3.17	6.30	3.84	6.78	4.14	3.32	2.03	3.17	1.93
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.07	388.92	27.22	335.88	23.51	49.15	3.44	331.25	23.19	468.56	32.80	245.45	17.18
PM 0110	Poultry meat, raw (incl. prepared) – 90% as muscle	RAC	0.012	66.38	0.80	48.47	0.58	21.58	0.26	78.41	0.94	48.04	0.58	76.01	0.91
PM 0110	Poultry meat, raw (incl. prepared) – 10% as fat	RAC	0.124	7.38	0.91	5.39	0.67	2.40	0.30	8.71	1.08	5.34	0.66	8.45	1.05
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0.124	0.10	0.01	0.10	0.01	NC	–	0.10	0.01	0.71	0.09	NC	–
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0.12	0.33	0.04	0.72	0.09	0.27	0.03	0.35	0.04	0.80	0.10	NC	–
PE 0112	Eggs, raw, (incl. dried)	RAC	0.032	25.84	0.83	29.53	0.94	28.05	0.90	33.19	1.06	36.44	1.17	8.89	0.28
	Total intake (µg/person) =				355.0		377.4		968.9		441.2		365.2		305.5
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (µg/person) =				2400		2400		2200		2400		2400		2400
	%ADI =				14.8%		15.7%		44.0%		18.4%		15.2%		12.7%
	Rounded %ADI =				10%		20%		40%		20%		20%		10%

MEFENTRIFLUCONAZOLE (320) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets: g/person/day										Intake = daily intake: µg/person
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
FC 0002	Subgroup of Lemons and limes, raw (incl. kumquat commodities)	RAC	0.37	18.96	7.02	0.97	0.36	5.79	2.14	0.09	0.03	3.35	1.24
–	Lemon, juice (single strength, incl. concentrated)	PP	0.007	0.01	0.00	0.01	0.00	0.16	0.00	0.01	0.00	NC	–
FC 0003	Subgroup of Mandarins, raw	RAC	0.37	0.16	0.06	0.27	0.10	9.06	3.35	0.01	0.00	0.02	0.01
–	Subgroup of Mandarins, juice	PP	0.007	0.01	0.00	NC	–	NC	–	NC	–	NC	–
FC 0004	Subgroup of Oranges, sweet, sour, raw	RAC	0.215	1.18	0.25	1.11	0.24	14.28	3.07	0.05	0.01	1.08	0.23
JF 0004	Subgroup of Oranges, juice (single strength, incl. concentrated)	PP	0.007	0.08	0.00	0.26	0.00	12.61	0.09	0.14	0.00	0.33	0.00
FC 0005	Subgroup of Pummelo and grapefruits, raw	RAC	0.16	0.63	0.10	0.01	0.00	1.58	0.25	0.01	0.00	NC	–
JF 0203	Grapefruits, juice (single strength, incl. concentrated)	PP	0.007	0.03	0.00	0.02	0.00	0.78	0.01	0.01	0.00	NC	–
FP 0226	Apple, raw	RAC	0.39	0.21	0.08	2.05	0.80	54.48	21.25	0.10	0.04	1.38	0.54
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.051	0.03	0.00	0.10	0.01	7.19	0.37	0.03	0.00	NC	–
FP 0228	Loquat, raw (incl. processed) (i.e. Japanese medlar)	RAC	0.39	0.94	0.37	4.68	1.83	NC	–	0.50	0.20	3.08	1.20
FP 0229	Medlar, raw (incl. processed)	RAC	0.39	0.75	0.29	3.73	1.45	4.87	1.90	0.40	0.16	2.45	0.96
FP 0230	Pear, raw	RAC	0.39	0.07	0.03	0.14	0.05	9.45	3.69	0.01	0.00	0.14	0.05
FP 0231	Quince, raw	RAC	0.39	NC	–	NC	–	0.65	0.25	NC	–	NC	–
FS 0013	Subgroup of Cherries, raw	RAC	1.1	0.01	0.01	0.01	0.01	5.96	6.56	0.01	0.01	NC	–
FS 0014	Subgroup of Plums, raw	RAC	0.26	0.07	0.02	0.01	0.00	15.56	4.05	0.01	0.00	NC	–
DF 0014	Plums, dried (prunes)	PP	1.1	0.01	0.01	0.01	0.01	0.37	0.41	0.01	0.01	NC	–
FS 2001	Subgroup of peaches, raw (incl. dried apricots)	RAC	0.56	0.02	0.01	0.01	0.01	10.76	6.03	0.01	0.01	NC	–
FB 2005	Subgroup of Caneberries, raw	RAC	0.96	0.01	0.01	7.30	7.01	2.29	2.20	0.01	0.01	NC	–
FB 2006	Subgroup of Bush berries, raw (including processed)	RAC	0.58	0.82	0.48	4.05	2.35	5.94	3.45	0.43	0.25	2.66	1.54
FB 0267	Elderberries, raw (incl. processed)	RAC	0.58	0.71	0.41	3.52	2.04	NC	–	0.38	0.22	2.32	1.35
FB 0269	Grapes, raw (incl. must, excl. dried, excl. juice, excl. wine)	RAC	0.26	0.14	0.04	0.36	0.09	15.33	3.99	0.01	0.00	0.28	0.07
DF 0269	Grapes, dried (= currants, raisins and sultanas) (from table grapes)	PP	0.97	0.01	0.01	0.13	0.13	1.06	1.03	0.01	0.01	0.03	0.03
JF 0269	Grape juice (from wine grapes)	PP	0.03	0.01	0.00	0.01	0.00	0.41	0.01	0.01	0.00	NC	–
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.01	0.31	0.00	0.23	0.00	60.43	0.60	0.52	0.01	31.91	0.32
FB 2009	Subgroup of Low growing berries, raw	RAC	0.29	0.01	0.00	0.01	0.00	3.37	0.98	0.01	0.00	0.01	0.00
FI 0326	Avocado, raw	RAC	0.36	1.12	0.40	0.01	0.00	0.84	0.30	0.01	0.00	6.60	2.38
FI 0327	Banana, raw (incl. plantains) (incl. dried)	RAC	0.055	44.80	2.46	118.17	6.50	25.25	1.39	454.49	25.00	310.23	17.06
FI 0345	Mango, raw (incl. canned mango, incl. mango juice)	RAC	0.01	12.25	0.12	6.83	0.07	0.76	0.01	0.01	0.00	20.12	0.20
FI 0350	Papaya, raw	RAC	0.07	6.47	0.45	0.25	0.02	0.19	0.01	0.01	0.00	26.42	1.85

MEFENTRIFLUCONAZOLE (320) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets: g/person/day						Intake = daily intake: µg/person			
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
FI 0353	Pineapple, raw (incl. canned Pineapple, excl. pineapple juice, excl. dried pineapple)	RAC	0.14	7.64	1.07	6.15	0.86	4.75	0.67	0.15	0.02	24.94	3.49
JF 0341	Pineapple juice (single strength, incl. concentrated)	PP	0.04	0.49	0.02	0.07	0.00	1.23	0.05	0.02	0.00	NC	–
–	Pineapple, dried	PP	0.02	0.01	0.00	0.01	0.00	0.01	0.00	NC	–	NC	–
VA 2031	Subgroup of bulb onions	RAC	0.05	9.83	0.49	22.30	1.12	34.69	1.73	9.65	0.48	2.39	0.12
VA 2032	Subgroup of Green Onions	RAC	0.39	1.45	0.57	1.50	0.59	1.42	0.55	0.01	0.00	6.30	2.46
VB 0400	Broccoli, raw	RAC	0.024	0.01	0.00	0.01	0.00	2.13	0.05	0.01	0.00	NC	–
VB 0404	Cauliflower, raw	RAC	0.01	0.01	0.00	0.01	0.00	2.73	0.03	0.01	0.00	NC	–
VC 2039	Subgroup of Cucumbers and Squashes, raw	RAC	0.035	0.92	0.03	3.20	0.11	13.55	0.47	1.91	0.07	0.05	0.00
VC 2040	Subgroup of Melons, Pumpkins and Winter squashes	RAC	0.15	5.04	0.76	6.54	0.98	38.26	5.74	11.70	1.76	NC	–
VO 0448	Tomato, raw	RAC	0.295	12.99	3.83	4.79	1.41	58.40	17.23	0.92	0.27	0.09	0.03
–	Tomato, canned (& peeled)	PP	0.02	0.07	0.00	0.08	0.00	2.42	0.05	0.07	0.00	NC	–
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.15	0.58	0.09	0.22	0.03	2.21	0.33	0.24	0.04	3.10	0.47
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.02	0.05	0.00	0.01	0.00	0.42	0.01	0.01	0.00	0.02	0.00
VO 0051	Subgroup of peppers, raw (Capsicum spp. Only), excl. okra	RAC	0.25	4.72	1.18	4.83	1.21	16.30	4.08	0.01	0.00	NC	–
VO 2046	Subgroup of eggplants	RAC	0.25	1.31	0.33	8.26	2.07	3.95	0.99	0.01	0.00	NC	–
VL 2050	Subgroup of Leafy greens	RAC	8.1	4.99	40.42	3.29	26.65	7.53	60.99	3.05	24.71	6.09	49.33
VL 0054	Subgroup of Leaves of Brassicaceae, raw	RAC	6.65	3.58	23.81	2.64	17.56	NC	–	1.83	12.17	3.65	24.27
VP 2060	Subgroup of beans with pods (all commodities within this group)	RAC	0.01	NC	–	NC	–	NC	–	NC	–	NC	–
VP 2062	Subgroup of succulent beans without pods (all commodities within this group)	RAC	0.01	0.37	0.00	3.14	0.03	4.88	0.05	0.01	0.00	NC	–
VP 2063	Subgroup of succulent peas without pods	RAC	0.01	0.21	0.00	0.02	0.00	5.51	0.06	0.02	0.00	NC	–
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.01	7.11	0.07	2.33	0.02	3.76	0.04	44.70	0.45	3.27	0.03
VD 0523	Broad bean, dry, raw (incl. horse–bean, field bean) (Vicia faba)	RAC	0.01	3.70	0.04	0.03	0.00	0.17	0.00	0.01	0.00	NC	–
VD 0527	Cowpea, dry, raw (Vigna sinensis, Dolichos sinensis)	RAC	0.01	12.77	0.13	0.99	0.01	0.01	0.00	4.33	0.04	NC	–
VD 0541	Soya bean, dry, raw (Glycine soja)	RAC	0.01	2.76	0.03	0.07	0.00	0.33	0.00	3.16	0.03	NC	–
–	Soya paste (i.e. miso)	PP	0.0083	NC	–	NC	–	NC	–	NC	–	NC	–
–	Soya curd (i.e. tofu)	PP	0.0083	NC	–	NC	–	NC	–	NC	–	NC	–
OR 0541	Soya oil, refined	PP	0.0083	2.32	0.02	2.54	0.02	18.70	0.16	2.51	0.02	6.29	0.05
–	Soya sauce	PP	0.0083	0.01	0.00	0.13	0.00	0.17	0.00	0.01	0.00	0.56	0.00
–	Soya flour	PP	0.0083	0.11	0.00	0.08	0.00	0.07	0.00	0.01	0.00	0.03	0.00
–	Beans (dry) NES: including inter alia lablab or hyacinth bean (Dolichos spp.); jack or sword bean (Canavalia spp.); winged bean (Psophocarpus tetragonolobus); guar	RAC	0.01	2.54	0.03	1.77	0.02	0.03	0.00	0.03	0.00	3.99	0.04

MEFENTRIFLUCONAZOLE (320) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets: g/person/day						Intake = daily intake: µg/person				
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
	bean (Cyamopsis tetragonoloba); velvet bean (Stizolobium spp.); yam bean (Pachyrrhizus erosus)												
VD 0072	Peas (dry) (Pisum spp), raw	RAC	0.015	1.53	0.02	2.52	0.04	3.52	0.05	3.56	0.05	0.74	0.01
VD 0524	Chick–pea (dry) (Cicer spp), raw	RAC	0.015	1.09	0.02	1.56	0.02	0.33	0.00	0.18	0.00	0.47	0.01
VD 0533	Lentil (dry) (Lens spp), raw	RAC	0.22	0.67	0.15	7.26	1.60	0.37	0.08	0.08	0.02	NC	–
VD 0537	Pigeon pea (dry) (Cajanus spp), raw	RAC	0.015	1.14	0.02	0.03	0.00	NC	–	5.53	0.08	NC	–
VR 0574	Beetroot, raw	RAC	0.105	5.86	0.62	4.23	0.44	9.46	0.99	3.96	0.42	7.91	0.83
VR 0575	Burdock, greater or edible, raw	RAC	0.105	0.06	0.01	0.04	0.00	NC	–	0.04	0.00	0.08	0.01
VR 0577	Carrots, raw	RAC	0.105	2.07	0.22	3.00	0.32	25.29	2.66	0.05	0.01	NC	–
VR 0578	Celeriac, raw	RAC	0.105	2.91	0.31	2.10	0.22	7.59	0.80	1.97	0.21	3.93	0.41
VR 0469	Chicory, roots, raw	RAC	0.105	0.01	0.00	0.03	0.00	0.10	0.01	NC	–	NC	–
VR 0583	Horseradish, raw	RAC	0.105	0.88	0.09	0.63	0.07	0.54	0.06	0.59	0.06	1.19	0.12
VR 0587	Parsley turnip–rooted, raw	RAC	0.105	0.55	0.06	0.40	0.04	4.29	0.45	0.37	0.04	0.74	0.08
VR 0588	Parsnip, raw	RAC	0.105	1.02	0.11	0.74	0.08	3.50	0.37	0.69	0.07	1.37	0.14
VR 0494	Radish roots, raw	RAC	0.105	3.96	0.42	2.86	0.30	3.30	0.35	2.67	0.28	5.34	0.56
VR 0591	Japanese radish, raw (i.e. Chinese radish, Daikon)	RAC	0.105	3.25	0.34	2.35	0.25	NC	–	2.20	0.23	4.39	0.46
VR 0498	Salsify, raw (i.e. Oysterplant)	RAC	0.105	0.36	0.04	0.26	0.03	NC	–	0.24	0.03	0.48	0.05
VR 0596	Sugar beet, raw	RAC	0.063	0.01	0.00	NC	–	NC	–	NC	–	NC	–
–	Sugar beet, sugar	PP	0.004	0.56	0.00	0.24	0.00	NC	–	NC	–	5.13	0.02
VR 0497	Swede, raw (i.e. Rutabaga)	RAC	0.105	2.71	0.28	1.96	0.21	7.80	0.82	1.83	0.19	3.66	0.38
VR 0506	Turnip, garden, raw	RAC	0.105	4.29	0.45	3.10	0.33	6.41	0.67	2.90	0.30	5.79	0.61
VR 0573	Arrowroot, raw	RAC	0.01	13.83	0.14	18.24	0.18	0.01	0.00	0.05	0.00	19.60	0.20
VR 0463	Cassava raw (incl. starch, incl. tapioca, incl. flour) (i.e. Manioc)	RAC	0.01	91.92	0.92	34.12	0.34	NC	–	259.92	2.60	45.48	0.45
VR 0585	Jerusalem artichoke, raw (i.e. Topinambur)	RAC	0.01	14.22	0.14	18.75	0.19	0.01	0.00	0.06	0.00	20.14	0.20
VR 0589	Potato, raw (incl. flour, incl. frozen, incl. tapioca, excl. starch)	RAC	0.01	23.96	0.24	13.54	0.14	213.41	2.13	104.35	1.04	8.56	0.09
–	Potato, starch	PP	0.0033	0.01	0.00	0.01	0.00	NC	–	NC	–	NC	–
VR 0508	Sweet potato, raw (incl. dried)	RAC	0.01	28.83	0.29	61.55	0.62	0.15	0.00	221.94	2.22	NC	–
VR 0504	Tannia, raw (i.e. Tanier, Yautia)	RAC	0.01	NC	–	NC	–	0.01	0.00	NC	–	NC	–
VR 0505	Taro, raw (i.e. Dasheen, Eddoe)	RAC	0.01	6.71	0.07	31.91	0.32	NC	–	10.73	0.11	264.31	2.64
VR 0600	Yams, raw (incl. dried)	RAC	0.01	70.93	0.71	30.62	0.31	0.07	0.00	5.65	0.06	30.85	0.31
GC 0650	Rye, raw	RAC	0.09	0.01	0.00	NC	–	NC	–	0.01	0.00	NC	–
CF 1250	Rye, flour (white flour and wholemeal flour)	PP	0.071	0.02	0.00	0.01	0.00	11.16	0.79	0.01	0.00	0.70	0.05
GC 0653	Triticale, raw	RAC	0.09	0.01	0.00	NC	–	NC	–	NC	–	NC	–
GC 0653	Triticale, flour (white flour and wholemeal flour)	PP	0.071	NC	–	NC	–	NC	–	NC	–	NC	–

MEFENTRIFLUCONAZOLE (320) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets: g/person/day						Intake = daily intake: µg/person			
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
GC 0654	Wheat, raw (incl. bulgur, incl. fermented beverages, incl. white flour products, incl. white bread, excl. germ, excl. wholemeal bread)	RAC	0.09	57.15	5.14	110.46	9.94	272.58	24.53	25.81	2.32	132.04	11.88
CF 1210	Wheat, germ	PP	0.1	0.04	0.00	0.01	0.00	0.01	0.00	0.01	0.00	NC	–
CP 1212	Wheat, wholemeal bread	PP	0.05	0.01	0.00	0.01	0.00	0.03	0.00	0.01	0.00	0.01	0.00
–	Wheat, starch	PP	0.026	0.01	0.00	0.02	0.00	NC	–	NC	–	NC	–
–	Wheat, gluten	PP	0.05	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.19	0.01
GC 0640	Barley, raw	RAC	0.425	0.01	0.00	0.01	0.00	0.16	0.07	NC	–	NC	–
–	Barley, pot&pearled	PP	0.051	5.46	0.28	0.01	0.00	1.44	0.07	0.01	0.00	NC	–
–	Barley, flour (white flour and wholemeal flour)	PP	1.6	0.02	0.03	NC	–	0.32	0.51	0.01	0.02	NC	–
–	Barley beer	PP	0.013	16.25	0.21	11.36	0.15	225.21	2.93	19.49	0.25	52.17	0.68
–	Barley Malt	PP	0.21	0.01	0.00	0.11	0.02	0.67	0.14	0.01	0.00	4.61	0.97
GC 0647	Oats, raw (incl. rolled)	RAC	0.425	0.37	0.16	0.07	0.03	2.79	1.19	0.10	0.04	NC	–
CM 0649 (GC 0649)	Rice, husked, dry (incl. flour, incl. oil, incl. beverages, incl. starch, excl. polished)	REP	0.11	13.58	1.49	4.29	0.47	2.17	0.24	0.01	0.00	8.84	0.97
CM 0649 (GC 0649)	Rice, husked, dry (incl. paddy rice)	REP	0.11	13.53	1.49	3.48	0.38	1.96	0.22	0.01	0.00	8.84	0.97
CM 1205	Rice polished, dry	PP	0.0085	30.20	0.26	218.34	1.86	12.77	0.11	15.24	0.13	51.35	0.44
GC 0646	Millet, raw (incl. flour, incl. beer)	RAC	0.41	61.13	25.06	0.78	0.32	NC	–	33.55	13.76	NC	–
GC 0651	Sorghum, raw (incl. flour, incl. beer) (i.e. Chicken corn, Dari seed, Durra, Feterita)	RAC	0.41	89.16	36.56	2.02	0.83	NC	–	35.38	14.51	NC	–
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. flour, incl. oil, incl. beer, incl. germ, incl. starch)	RAC	0.01	116.66	1.17	10.52	0.11	38.46	0.38	76.60	0.77	34.44	0.34
GC 0447	Sweet corn on the cob, raw (incl. frozen kernels, incl. canned kernels)	RAC	0.01	3.63	0.04	20.50	0.21	8.78	0.09	0.02	0.00	0.17	0.00
GS 0659	Sugar cane, raw (incl. sugar, incl. molasses)	RAC	0.37	33.75	12.49	106.29	39.33	78.09	28.89	29.09	10.76	45.70	16.91
TN 0085	Group of Tree nuts, raw (incl. processed)	RAC	0.01	4.39	0.04	135.53	1.36	6.11	0.06	0.72	0.01	317.74	3.18
SO 2090	Subgroup of Small seed oilseeds, raw (incl. processed)	RAC	0.06	2.63	0.16	0.93	0.06	12.79	0.77	9.98	0.60	0.01	0.00
SO 2091	Subgroup of Sunflower seeds, raw (incl. processed)	RAC	0.01	0.99	0.01	0.22	0.00	32.01	0.32	12.12	0.12	0.48	0.00
OR 0691	Cotton seed oil, edible	PP	0.00016	1.28	0.00	0.05	0.00	0.45	0.00	0.42	0.00	0.15	0.00
SO 0697	Peanuts, nutmeat, raw (incl. roasted, incl. oil, incl. butter)	RAC	0.01	18.82	0.19	0.57	0.01	2.28	0.02	6.90	0.07	0.53	0.01
SB 0716	Coffee bean, raw (i.e. green coffee)	RAC	0.01	0.83	0.01	0.69	0.01	1.09	0.01	2.91	0.03	0.82	0.01
SM 0716	Coffee bean, roasted	PP	0.0062	0.02	0.00	0.41	0.00	7.50	0.05	0.01	0.00	0.06	0.00
–	Coffee bean, instant coffee (incl. essences and concentrates)	PP	0.0016	0.03	0.00	0.05	0.00	0.60	0.00	0.01	0.00	5.53	0.01
HS 0444	Peppers, chili, dried	PP	2.5	0.58	1.45	1.27	3.18	1.21	3.03	0.12	0.30	NC	–

MEFENTRIFLUCONAZOLE (320) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets: g/person/day					Intake = daily intake: µg/person				
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.04	23.34	0.93	40.71	1.63	97.15	3.89	18.06	0.72	57.71	2.31
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.39	5.84	2.28	10.18	3.97	24.29	9.47	4.52	1.76	14.43	5.63
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.39	1.05	0.41	1.14	0.44	18.69	7.29	0.94	0.37	3.12	1.22
MO 0105	Edible offal (mammalian), raw	RAC	0.61	4.64	2.83	1.97	1.20	10.01	6.11	3.27	1.99	3.98	2.43
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.07	108.75	7.61	70.31	4.92	436.11	30.53	61.55	4.31	79.09	5.54
PM 0110	Poultry meat, raw (incl. prepared) – 90% as muscle	RAC	0.012	3.53	0.04	10.83	0.13	51.36	0.62	4.53	0.05	50.00	0.60
PM 0110	Poultry meat, raw (incl. prepared) – 10% as fat	RAC	0.124	0.39	0.05	1.20	0.15	5.71	0.71	0.50	0.06	5.56	0.69
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0.124	NC	–	NC	–	0.32	0.04	NC	–	NC	–
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0.12	0.10	0.01	0.70	0.08	0.97	0.12	0.10	0.01	NC	–
PE 0112	Eggs, raw, (incl. dried)	RAC	0.032	3.84	0.12	4.41	0.14	27.25	0.87	1.13	0.04	7.39	0.24
	Total intake (µg/person) =				191.1		152.7		293.6		127.1		170.1
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (µg/person) =				2400		2400		2400		2400		2400
	%ADI =				8.0%		6.4%		12.2%		5.3%		7.1%
	Rounded %ADI =				8%		6%		10%		5%		7%

MEPIQUAT CATION (336) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.229mg/kg bw**

			STMR	Diets as g/person/day					Intake as µg/person/day						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
FB 0269	Grapes, raw (incl. must, incl. wine, excl. dried, excl. juice)	RAC	0.705	13.94	9.83	26.46	18.65	2.79	1.97	18.58	13.10	8.54	6.02	59.95	42.26
DF 0269	Grapes, dried (= currants, raisins and sultanas) (from table grapes)	PP	2.7	0.51	1.38	0.51	1.38	0.01	0.03	1.27	3.43	0.12	0.32	2.07	5.59
JF 0269	Grape juice (from wine grapes)	PP	0.78	0.14	0.11	0.29	0.23	0.05	0.04	0.30	0.23	0.24	0.19	0.05	0.04
SO 0691	Cotton seed, raw (incl. oil)	RAC	10	20.53	205.30	9.80	98.00	6.42	64.20	4.73	47.30	7.14	71.40	18.68	186.80
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.039	24.96	0.97	57.95	2.26	16.70	0.65	38.38	1.50	26.46	1.03	29.00	1.13
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.038	6.24	0.24	14.49	0.55	4.18	0.16	9.60	0.36	6.62	0.25	7.25	0.28
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.038	3.29	0.13	6.14	0.23	0.82	0.03	1.57	0.06	2.23	0.08	1.07	0.04
MO 0105	Edible offal (mammalian), raw	RAC	0.12	4.79	0.57	9.68	1.16	2.97	0.36	5.49	0.66	3.84	0.46	5.03	0.60
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.025	289.65	7.24	485.88	12.15	26.92	0.67	239.03	5.98	199.91	5.00	180.53	4.51

MEPIQUAT CATION (336) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.229mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
PM 0110	Poultry meat, raw (incl. prepared) – 90% as muscle	RAC	0.01	13.17	0.13	26.78	0.27	7.24	0.07	116.71	1.17	22.54	0.23	32.09	0.32
PM 0110	Poultry meat, raw (incl. prepared) – 10% as fat	RAC	0.01	1.46	0.01	2.98	0.03	0.80	0.01	12.97	0.13	2.50	0.03	3.57	0.04
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0.01	0.10	0.00	0.10	0.00	NC	–	0.10	0.00	0.10	0.00	0.10	0.00
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0.01	0.12	0.00	0.12	0.00	0.11	0.00	5.37	0.05	0.24	0.00	0.10	0.00
PE 0112	Eggs, raw, (incl. dried)	RAC	0.039	7.84	0.31	23.08	0.90	2.88	0.11	14.89	0.58	9.81	0.38	14.83	0.58
	Total intake (µg/person) =				226.2		135.8		68.3		74.5		85.4		242.2
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (µg/person) =				13740		13740		13740		13740		13740		13740
	%ADI =				1.6%		1.0%		0.5%		0.5%		0.6%		1.8%
	Rounded %ADI =				2%		1%		0%		1%		1%		2%

MEPIQUAT CATION (336) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.229mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
FB 0269	Grapes, raw (incl. must, incl. wine, excl. dried, excl. juice)	RAC	0.705	128.64	90.69	97.04	68.41	7.74	5.46	43.94	30.98	88.68	62.52	8.80	6.20
DF 0269	Grapes, dried (= currants, raisins and sultanas) (from table grapes)	PP	2.7	3.09	8.34	1.51	4.08	0.03	0.08	1.38	3.73	4.26	11.50	0.42	1.13
JF 0269	Grape juice (from wine grapes)	PP	0.78	0.56	0.44	1.96	1.53	0.02	0.02	2.24	1.75	2.27	1.77	0.34	0.27
SO 0691	Cotton seed, raw (incl. oil)	RAC	10	10.71	107.10	4.23	42.30	7.19	71.90	7.54	75.40	5.66	56.60	2.38	23.80
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.039	112.02	4.37	120.71	4.71	63.46	2.47	88.99	3.47	96.24	3.75	41.02	1.60
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.038	28.01	1.06	30.18	1.15	15.86	0.60	22.25	0.85	24.06	0.91	10.25	0.39
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.038	6.44	0.24	15.51	0.59	3.79	0.14	8.29	0.32	18.44	0.70	8.00	0.30
MO 0105	Edible offal (mammalian), raw	RAC	0.12	15.17	1.82	5.19	0.62	6.30	0.76	6.78	0.81	3.32	0.40	3.17	0.38
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.025	388.92	9.72	335.88	8.40	49.15	1.23	331.25	8.28	468.56	11.71	245.45	6.14
PM 0110	Poultry meat, raw (incl. prepared) – 90% as muscle	RAC	0.01	66.38	0.66	48.47	0.48	21.58	0.22	78.41	0.78	48.04	0.48	76.01	0.76
PM 0110	Poultry meat, raw (incl. prepared) – 10% as fat	RAC	0.01	7.38	0.07	5.39	0.05	2.40	0.02	8.71	0.09	5.34	0.05	8.45	0.08
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0.01	0.10	0.00	0.10	0.00	NC	–	0.10	0.00	0.71	0.01	NC	–

MEPIQUAT CATION (336) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.229mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0.01	0.33	0.00	0.72	0.01	0.27	0.00	0.35	0.00	0.80	0.01	NC	–
PE 0112	Eggs, raw, (incl. dried)	RAC	0.039	25.84	1.01	29.53	1.15	28.05	1.09	33.19	1.29	36.44	1.42	8.89	0.35
	Total intake (µg/person) =				225.5		133.5		84.0		127.7		151.8		41.4
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (µg/person) =				13740		13740		12595		13740		13740		13740
	%ADI =				1.6%		1.0%		0.7%		0.9%		1.1%		0.3%
	Rounded %ADI =				2%		1%		1%		1%		1%		0%

MEPIQUAT CATION (336) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.229mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person							
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
FB 0269	Grapes, raw (incl. must, incl. wine, excl. dried, excl. juice)	RAC	0.705	0.57	0.40	0.69	0.49	98.34	69.33	0.73	0.51	44.12	31.10
DF 0269	Grapes, dried (= currants, raisins and sultanas) (from table grapes)	PP	2.7	0.01	0.03	0.13	0.35	1.06	2.86	0.01	0.03	0.03	0.08
JF 0269	Grape juice (from wine grapes)	PP	0.78	0.01	0.01	0.01	0.01	0.41	0.32	0.01	0.01	NC	–
SO 0691	Cotton seed, raw (incl. oil)	RAC	10	8.14	81.40	0.32	3.20	2.84	28.40	2.69	26.90	0.97	9.70
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.039	23.34	0.91	40.71	1.59	97.15	3.79	18.06	0.70	57.71	2.25
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.038	5.84	0.22	10.18	0.39	24.29	0.92	4.52	0.17	14.43	0.55
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.038	1.05	0.04	1.14	0.04	18.69	0.71	0.94	0.04	3.12	0.12
MO 0105	Edible offal (mammalian), raw	RAC	0.12	4.64	0.56	1.97	0.24	10.01	1.20	3.27	0.39	3.98	0.48
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.025	108.75	2.72	70.31	1.76	436.11	10.90	61.55	1.54	79.09	1.98
PM 0110	Poultry meat, raw (incl. prepared) – 90% as muscle	RAC	0.01	3.53	0.04	10.83	0.11	51.36	0.51	4.53	0.05	50.00	0.50
PM 0110	Poultry meat, raw (incl. prepared) – 10% as fat	RAC	0.01	0.39	0.00	1.20	0.01	5.71	0.06	0.50	0.01	5.56	0.06
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0.01	NC	–	NC	–	0.32	0.00	NC	–	NC	–
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0.01	0.10	0.00	0.70	0.01	0.97	0.01	0.10	0.00	NC	–
PE 0112	Eggs, raw, (incl. dried)	RAC	0.039	3.84	0.15	4.41	0.17	27.25	1.06	1.13	0.04	7.39	0.29
	Total intake (µg/person) =				86.5		8.4		120.1		30.4		47.1
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (µg/person) =				13740		13740		13740		13740		13740
	%ADI =				0.6%		0.1%		0.9%		0.2%		0.3%
	Rounded %ADI =				1%		0%		1%		0%		0%

METAFLUMIZONE (236) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.1 mg/kg bw**

			STMR	Diets as g/person/day						Intake as µg/person/day					
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
FC 0002	Subgroup of Lemons and limes, raw (incl. lemon juice) (incl. kumquat commodities)	RAC	0.52	4.82	2.51	2.45	1.27	3.93	2.04	25.44	13.23	8.74	4.54	16.23	8.44
FC 0004	Subgroup of Oranges, sweet, sour, raw	RAC	0.66	20.66	13.64	5.23	3.45	11.90	7.85	37.90	25.01	21.16	13.97	56.46	37.26
JF 0004	Subgroup of Oranges, juice (single strength, incl. concentrated)	PP	0.0066	1.27	0.01	2.20	0.01	0.09	0.00	11.81	0.08	0.46	0.00	1.69	0.01
FP 0226	Apple, raw (incl. cider, excl. juice)	RAC	0.275	13.49	3.71	26.63	7.32	15.05	4.14	16.28	4.48	6.47	1.78	47.88	13.17
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.022	0.32	0.01	3.07	0.07	0.07	0.00	5.00	0.11	0.29	0.01	5.57	0.12
FB 0269	Grapes, raw (i.e. table grapes)	RAC	0.98	12.68	12.43	9.12	8.94	0.03	0.03	16.88	16.54	3.70	3.63	54.42	53.33
DF 0269	Grapes, dried (= currants, raisins and sultanas) (from table grapes)	PP	2.55	0.51	1.30	0.51	1.30	0.01	0.03	1.27	3.24	0.12	0.31	2.07	5.28
JF 0269	Grape juice (from wine grapes)	PP	1.04	0.14	0.15	0.29	0.30	0.05	0.05	0.30	0.31	0.24	0.25	0.05	0.05
–	Graps must (from wine grapes)	PP	1.39	0.33	0.46	0.13	0.18	0.01	0.01	0.02	0.03	0.01	0.01	0.02	0.03
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.078	0.67	0.05	12.53	0.98	2.01	0.16	1.21	0.09	3.53	0.28	4.01	0.31
–	Onions, green, raw	RAC	0.905	2.45	2.22	1.49	1.35	1.02	0.92	2.60	2.35	0.60	0.54	2.03	1.84
VB 0402	Brussels sprouts, raw	RAC	0.125	0.63	0.08	6.41	0.80	0.13	0.02	1.03	0.13	NC	–	2.35	0.29
VB 0467	Chinese cabbage, type pe–tsai, raw	RAC	0.49	0.45	0.22	4.56	2.23	0.09	0.04	0.73	0.36	NC	–	1.67	0.82
VC 0046	Melons, except watermelon, raw (Cantaloupe)	RAC	0.02	8.90	0.18	8.64	0.17	0.80	0.02	17.90	0.36	2.80	0.06	29.17	0.58
VO 0448	Tomato, raw	RAC	0.125	41.73	5.22	75.65	9.46	10.66	1.33	82.87	10.36	24.75	3.09	200.93	25.12
–	Tomato, canned (& peeled)	PP	0.02	0.20	0.00	0.31	0.01	0.02	0.00	1.11	0.02	0.11	0.00	1.50	0.03
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.1	2.34	0.23	1.33	0.13	1.57	0.16	4.24	0.42	0.34	0.03	2.83	0.28
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.02	0.29	0.01	0.29	0.01	0.01	0.00	0.38	0.01	0.05	0.00	0.14	0.00
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), excl. okra	RAC	0.18	8.48	1.53	13.74	2.47	10.13	1.82	11.29	2.03	9.52	1.71	26.36	4.74
VO 2046	Subgroup of eggplants	RAC	0.18	5.58	1.00	4.31	0.78	0.89	0.16	9.31	1.68	13.64	2.46	20.12	3.62
VL 0483	Lettuce, leaf, raw	RAC	2	0.53	1.06	0.36	0.72	0.16	0.32	6.21	12.42	1.90	3.80	6.05	12.10
VD 0541	Soya bean, dry, raw (incl. paste, incl. curd, incl. oil, incl. sauce)	RAC	0.02	72.79	1.46	59.05	1.18	20.55	0.41	74.20	1.48	61.12	1.22	73.24	1.46
VR 0589	Potato, raw (incl. flour, incl. frozen, incl. starch, incl. tapioca)	RAC	0	59.74	0.00	316.14	0.00	9.78	0.00	60.26	0.00	54.12	0.00	119.82	0.00
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. flour, incl. oil, incl. beer, incl. germ, incl.	RAC	0.02	29.81	0.60	44.77	0.90	108.95	2.18	52.37	1.05	60.28	1.21	75.69	1.51

METAFLUMIZONE (236) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.1 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
	starch)														
GS 0659	Sugar cane, raw (incl. sugar, incl. molasses)	RAC	0	99.68	0.00	86.27	0.00	31.38	0.00	80.36	0.00	84.18	0.00	99.10	0.00
SB 0716	Coffee bean raw (incl. roasted, incl. instant coffee, incl. substitutes)	RAC	0.02	1.36	0.03	3.59	0.07	1.44	0.03	5.18	0.10	2.02	0.04	1.70	0.03
SB 0716	Coffee bean, raw (i.e. green coffee)	RAC	0.046	0.96	0.04	0.16	0.01	0.91	0.04	0.27	0.01	1.37	0.06	0.46	0.02
SM 0716	Coffee bean, roasted	PP	0.046	0.19	0.01	0.91	0.04	0.16	0.01	2.50	0.12	0.39	0.02	0.40	0.02
HS 0444	Peppers, chili, dried	PP	1.8	0.42	0.76	0.53	0.95	0.84	1.51	0.50	0.90	0.95	1.71	0.37	0.67
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.02	24.96	0.50	57.95	1.16	16.70	0.33	38.38	0.77	26.46	0.53	29.00	0.58
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.092	6.24	0.57	14.49	1.33	4.18	0.38	9.60	0.88	6.62	0.61	7.25	0.67
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.092	3.29	0.30	6.14	0.56	0.82	0.08	1.57	0.14	2.23	0.21	1.07	0.10
MO 0105	Edible offal (mammalian), raw	RAC	0.02	4.79	0.10	9.68	0.19	2.97	0.06	5.49	0.11	3.84	0.08	5.03	0.10
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.01	289.65	2.90	485.88	4.86	26.92	0.27	239.03	2.39	199.91	2.00	180.53	1.81
PM 0110	Poultry meat, raw (incl. prepared) – 90% as muscle	RAC	0.003	13.17	0.04	26.78	0.08	7.24	0.02	116.71	0.35	22.54	0.07	32.09	0.10
PM 0110	Poultry meat, raw (incl. prepared) – 10% as fat	RAC	0.104	1.46	0.15	2.98	0.31	0.80	0.08	12.97	1.35	2.50	0.26	3.57	0.37
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0.104	0.10	0.01	0.10	0.01	NC	–	0.10	0.01	0.10	0.01	0.10	0.01
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0.01	0.12	0.00	0.12	0.00	0.11	0.00	5.37	0.05	0.24	0.00	0.10	0.00
PE 0112	Eggs, raw, (incl. dried)	RAC	0.012	7.84	0.09	23.08	0.28	2.88	0.03	14.89	0.18	9.81	0.12	14.83	0.18
	Total intake (µg/person) =				53.5		53.9		24.6		103.2		44.6		175.1
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (µg/person) =				6000		6000		6000		6000		6000		6000
	%ADI =				0.892%		0.898%		0.409%		1.719%		0.743%		2.918%
	Rounded %ADI =				1%		1%		0%		2%		1%		3%

METAFLUMIZONE (236) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.1 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
FC 0002	Subgroup of Lemons and limes, raw (incl. lemon juice) (incl. kumquat commodities)	RAC	0.52	10.12	5.26	15.69	8.16	2.88	1.50	12.30	6.40	22.32	11.61	6.59	3.43
FC 0004	Subgroup of Oranges, sweet, sour, raw	RAC	0.66	15.68	10.35	24.00	15.84	6.80	4.49	29.09	19.20	15.39	10.16	160.47	105.91
JF 0004	Subgroup of Oranges, juice (single strength, incl. concentrated)	PP	0.0066	33.31	0.22	1.78	0.01	0.28	0.00	18.97	0.13	14.01	0.09	13.36	0.09
FP 0226	Apple, raw (incl. cider, excl. juice)	RAC	0.275	41.14	11.31	56.49	15.53	26.64	7.33	31.58	8.68	51.94	14.28	3.05	0.84
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.022	14.88	0.33	11.98	0.26	0.15	0.00	9.98	0.22	30.32	0.67	3.47	0.08
FB 0269	Grapes, raw (i.e. table grapes)	RAC	0.98	6.33	6.20	11.22	11.00	5.21	5.11	9.38	9.19	4.55	4.46	0.78	0.76
DF 0269	Grapes, dried (= currants, raisins and sultanas) (from table grapes)	PP	2.55	3.09	7.88	1.51	3.85	0.03	0.08	1.38	3.52	4.26	10.86	0.42	1.07
JF 0269	Grape juice (from wine grapes)	PP	1.04	0.56	0.58	1.96	2.04	0.02	0.02	2.24	2.33	2.27	2.36	0.34	0.35
–	Graps must (from wine grapes)	PP	1.39	0.16	0.22	0.09	0.13	0.01	0.01	0.12	0.17	0.11	0.15	NC	–
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.078	88.93	6.94	62.41	4.87	1.84	0.14	25.07	1.96	61.17	4.77	5.84	0.46
–	Onions, green, raw	RAC	0.905	1.55	1.40	0.74	0.67	1.05	0.95	3.74	3.38	0.94	0.85	6.45	5.84
VB 0402	Brussels sprouts, raw	RAC	0.125	2.24	0.28	2.67	0.33	6.23	0.78	0.32	0.04	4.19	0.52	2.58	0.32
VB 0467	Chinese cabbage, type pe–tsai, raw	RAC	0.49	NC	–	NC	–	17.39	8.52	9.44	4.63	NC	–	1.83	0.90
VC 0046	Melons, except watermelon, raw (Cantaloupe)	RAC	0.02	9.20	0.18	11.95	0.24	14.63	0.29	8.99	0.18	7.86	0.16	2.46	0.05
VO 0448	Tomato, raw	RAC	0.125	32.13	4.02	51.27	6.41	34.92	4.37	73.37	9.17	15.15	1.89	8.88	1.11
–	Tomato, canned (& peeled)	PP	0.02	7.57	0.15	2.66	0.05	0.30	0.01	0.97	0.02	7.31	0.15	0.41	0.01
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.1	4.96	0.50	3.20	0.32	0.15	0.02	1.61	0.16	6.88	0.69	0.52	0.05
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.02	0.80	0.02	0.07	0.00	0.05	0.00	0.61	0.01	0.40	0.01	0.08	0.00
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), excl. okra	RAC	0.18	6.39	1.15	15.53	2.80	19.09	3.44	10.36	1.86	8.29	1.49	4.53	0.82
VO 2046	Subgroup of eggplants	RAC	0.18	1.01	0.18	1.69	0.30	21.37	3.85	3.00	0.54	1.40	0.25	NC	–

METAFLUMIZONE (236) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.1 mg/kg bw**

			STMR	Diets as g/person/day						Intake as µg/person/day					
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
VL 0483	Lettuce, leaf, raw	RAC	2	14.50	29.00	11.76	23.52	13.14	26.28	19.50	39.00	4.81	9.62	2.23	4.46
VD 0541	Soya bean, dry, raw (incl. paste, incl. curd, incl. oil, incl. sauce)	RAC	0.02	106.33	2.13	117.78	2.36	42.12	0.84	195.70	3.91	222.52	4.45	80.47	1.61
VR 0589	Potato, raw (incl. flour, incl. frozen, incl. starch, incl. tapioca)	RAC	0	225.03	0.00	234.24	0.00	71.48	0.00	177.55	0.00	234.55	0.00	37.71	0.00
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. flour, incl. oil, incl. beer, incl. germ, incl. starch)	RAC	0.02	18.51	0.37	26.18	0.52	26.04	0.52	39.99	0.80	7.36	0.15	64.58	1.29
GS 0659	Sugar cane, raw (incl. sugar, incl. molasses)	RAC	0	92.24	0.00	95.72	0.00	28.47	0.00	77.39	0.00	117.73	0.00	103.90	0.00
SB 0716	Coffee bean raw (incl. roasted, incl. instant coffee, incl. substitutes)	RAC	0.02	10.90	0.22	12.44	0.25	0.77	0.02	9.48	0.19	22.07	0.44	8.15	0.16
SB 0716	Coffee bean, raw (i.e. green coffee)	RAC	0.046	0.60	0.03	NC	–	0.62	0.03	1.71	0.08	NC	–	3.51	0.16
SM 0716	Coffee bean, roasted	PP	0.046	7.02	0.32	9.75	0.45	0.02	0.00	5.09	0.23	13.38	0.62	0.77	0.04
HS 0444	Peppers, chili, dried	PP	1.8	0.11	0.20	0.21	0.38	0.36	0.65	0.21	0.38	0.25	0.45	0.15	0.27
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.02	112.02	2.24	120.71	2.41	63.46	1.27	88.99	1.78	96.24	1.92	41.02	0.82
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.092	28.01	2.58	30.18	2.78	15.86	1.46	22.25	2.05	24.06	2.21	10.25	0.94
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.092	6.44	0.59	15.51	1.43	3.79	0.35	8.29	0.76	18.44	1.70	8.00	0.74
MO 0105	Edible offal (mammalian), raw	RAC	0.02	15.17	0.30	5.19	0.10	6.30	0.13	6.78	0.14	3.32	0.07	3.17	0.06
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.01	388.92	3.89	335.88	3.36	49.15	0.49	331.25	3.31	468.56	4.69	245.45	2.45
PM 0110	Poultry meat, raw (incl. prepared) – 90% as muscle	RAC	0.003	66.38	0.20	48.47	0.15	21.58	0.06	78.41	0.24	48.04	0.14	76.01	0.23
PM 0110	Poultry meat, raw (incl. prepared) – 10% as fat	RAC	0.104	7.38	0.77	5.39	0.56	2.40	0.25	8.71	0.91	5.34	0.56	8.45	0.88
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0.104	0.10	0.01	0.10	0.01	NC	–	0.10	0.01	0.71	0.07	NC	–

METAFLUMIZONE (236) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.1 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0.01	0.33	0.00	0.72	0.01	0.27	0.00	0.35	0.00	0.80	0.01	NC	–
PE 0112	Eggs, raw, (incl. dried)	RAC	0.012	25.84	0.31	29.53	0.35	28.05	0.34	33.19	0.40	36.44	0.44	8.89	0.11
	Total intake (µg/person) =				100.3		111.4		73.6		126.0		93.0		136.3
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (µg/person) =				6000		6000		5500		6000		6000		6000
	%ADI =				1.6722%		1.8574%		1.3377%		2.0995%		1.5493%		2.2717%
	Rounded %ADI =				2%		2%		1%		2%		2%		2%

METAFLUMIZONE (236) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.1 mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
FC 0002	Subgroup of Lemons and limes, raw (incl. lemon juice) (incl. kumquat commodities)	RAC	0.52	18.97	9.86	0.97	0.50	6.23	3.24	0.09	0.05	3.35	1.74
FC 0004	Subgroup of Oranges, sweet, sour, raw	RAC	0.66	1.18	0.78	1.11	0.73	14.28	9.42	0.05	0.03	1.08	0.71
JF 0004	Subgroup of Oranges, juice (single strength, incl. concentrated)	PP	0.0066	0.08	0.00	0.26	0.00	12.61	0.08	0.14	0.00	0.33	0.00
FP 0226	Apple, raw (incl. cider, excl. juice)	RAC	0.275	66.67	18.33	2.06	0.57	55.83	15.35	188.29	51.78	1.38	0.38
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.022	0.03	0.00	0.10	0.00	7.19	0.16	0.03	0.00	NC	–
FB 0269	Grapes, raw (i.e. table grapes)	RAC	0.98	0.14	0.14	0.36	0.35	15.22	14.92	0.01	0.01	0.09	0.09
DF 0269	Grapes, dried (= currants, raisins and sultanas) (from table grapes)	PP	2.55	0.01	0.03	0.13	0.33	1.06	2.70	0.01	0.03	0.03	0.08
JF 0269	Grape juice (from wine grapes)	PP	1.04	0.01	0.01	0.01	0.01	0.41	0.43	0.01	0.01	NC	–
–	Graps must (from wine grapes)	PP	1.39	0.01	0.01	0.01	0.01	0.11	0.15	0.01	0.01	0.19	0.26
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.078	0.31	0.02	0.23	0.02	60.43	4.71	0.52	0.04	31.91	2.49
–	Onions, green, raw	RAC	0.905	1.43	1.29	0.05	0.05	0.20	0.18	NC	–	6.30	5.70
VB 0402	Brussels sprouts, raw	RAC	0.125	0.88	0.11	0.69	0.09	2.89	0.36	0.01	0.00	NC	–
VB 0467	Chinese cabbage, type pe–tsai, raw	RAC	0.49	0.62	0.30	0.49	0.24	NC	–	0.01	0.00	NC	–
VC 0046	Melons, except watermelon, raw (Cantaloupe)	RAC	0.02	0.19	0.00	0.10	0.00	4.98	0.10	0.01	0.00	NC	–
VO 0448	Tomato, raw	RAC	0.125	12.99	1.62	4.79	0.60	58.40	7.30	0.92	0.12	0.09	0.01
–	Tomato, canned (& peeled)	PP	0.02	0.07	0.00	0.08	0.00	2.42	0.05	0.07	0.00	NC	–
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.1	0.58	0.06	0.22	0.02	2.21	0.22	0.24	0.02	3.10	0.31

METAFLUMIZONE (236) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.1 mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.02	0.05	0.00	0.01	0.00	0.42	0.01	0.01	0.00	0.02	0.00
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), excl. okra	RAC	0.18	8.97	1.61	14.13	2.54	25.14	4.53	0.91	0.16	NC	–
VO 2046	Subgroup of eggplants	RAC	0.18	1.31	0.24	8.26	1.49	3.95	0.71	0.01	0.00	NC	–
VL 0483	Lettuce, leaf, raw	RAC	2	0.29	0.58	0.03	0.06	6.71	13.42	0.01	0.02	NC	–
VD 0541	Soya bean, dry, raw (incl. paste, incl. curd, incl. oil, incl. sauce)	RAC	0.02	15.80	0.32	14.29	0.29	104.36	2.09	17.11	0.34	35.20	0.70
VR 0589	Potato, raw (incl. flour, incl. frozen, incl. starch, incl. tapioca)	RAC	0	23.96	0.00	13.56	0.00	213.41	0.00	104.35	0.00	8.56	0.00
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. flour, incl. oil, incl. beer, incl. germ, incl. starch)	RAC	0.02	116.66	2.33	10.52	0.21	38.46	0.77	76.60	1.53	34.44	0.69
GS 0659	Sugar cane, raw (incl. sugar, incl. molasses)	RAC	0	33.75	0.00	106.29	0.00	78.09	0.00	29.09	0.00	45.70	0.00
SB 0716	Coffee bean raw (incl. roasted, incl. instant coffee, incl. substitutes)	RAC	0.02	0.95	0.02	1.32	0.03	11.64	0.23	2.96	0.06	14.73	0.29
SB 0716	Coffee bean, raw (i.e. green coffee)	RAC	0.046	0.83	0.04	0.69	0.03	1.09	0.05	2.91	0.13	0.82	0.04
SM 0716	Coffee bean, roasted	PP	0.046	0.02	0.00	0.41	0.02	7.50	0.35	0.01	0.00	0.06	0.00
HS 0444	Peppers, chili, dried	PP	1.8	0.58	1.04	1.27	2.29	1.21	2.18	0.12	0.22	NC	–
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.02	23.34	0.47	40.71	0.81	97.15	1.94	18.06	0.36	57.71	1.15
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.092	5.84	0.54	10.18	0.94	24.29	2.23	4.52	0.42	14.43	1.33
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.092	1.05	0.10	1.14	0.10	18.69	1.72	0.94	0.09	3.12	0.29
MO 0105	Edible offal (mammalian), raw	RAC	0.02	4.64	0.09	1.97	0.04	10.01	0.20	3.27	0.07	3.98	0.08
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.01	108.75	1.09	70.31	0.70	436.11	4.36	61.55	0.62	79.09	0.79
PM 0110	Poultry meat, raw (incl. prepared) – 90% as muscle	RAC	0.003	3.53	0.01	10.83	0.03	51.36	0.15	4.53	0.01	50.00	0.15
PM 0110	Poultry meat, raw (incl. prepared) – 10% as fat	RAC	0.104	0.39	0.04	1.20	0.13	5.71	0.59	0.50	0.05	5.56	0.58
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0.104	NC	–	NC	–	0.32	0.03	NC	–	NC	–
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0.01	0.10	0.00	0.70	0.01	0.97	0.01	0.10	0.00	NC	–
PE 0112	Eggs, raw, (incl. dried)	RAC	0.012	3.84	0.05	4.41	0.05	27.25	0.33	1.13	0.01	7.39	0.09
	Total intake (µg/person) =				41.1		13.3		95.3		56.2		18.0
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (µg/person) =				6000		6000		6000		6000		6000

METAFLUMIZONE (236) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.1 mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
	%ADI =				0.689%		0.222%		1.588%		0.937%		0.299%
	Rounded %ADI =				1%		0%		2%		1%		0%

METARYLPICOXAMID (346) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.2 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day									
Codex code	Commodity description	Expr. as	mg/kg	G01 diet	G01 intake	G02 diet	G02 intake	G03 diet	G03 intake	G04 diet	G04 intake	G05 diet	G05 intake	G06 diet	G06 intake
VD 0541	Soya bean, dry, raw (Glycine soja)	RAC	0.02	0.58	0.01	0.05	0.00	0.37	0.01	0.03	0.00	1.65	0.03	0.30	0.01
	Total intake (µg/person) =				0.0		0.0		0.0		0.0		0.0		0.0
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (µg/person) =				12000		12000		12000		12000		12000		12000
	%ADI =				0.0%		0.0%		0.0%		0.0%		0.0%		0.0%
	Rounded %ADI =				0%		0%		0%		0%		0%		0%

METARYLPICOXAMID (346) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.2 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day									
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
VD 0541	Soya bean, dry, raw (Glycine soja)	RAC	0.02	0.02	0.00	0.33	0.01	6.64	0.13	3.94	0.08	NC	–	5.78	0.12
	Total intake (µg/person) =				0.0		0.0		0.1		0.1		0.0		0.1
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (µg/person) =				12000		12000		11000		12000		12000		12000
	%ADI =				0.0%		0.0%		0.0%		0.0%		0.0%		0.0%
	Rounded %ADI =				0%		0%		0%		0%		0%		0%

METARYLPICOXAMID (346) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.2 mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
VD 0541	Soya bean, dry, raw (Glycine soja)	RAC	0.02	2.76	0.06	0.07	0.00	0.33	0.01	3.16	0.06	NC	–
	Total intake (µg/person) =				0.1		0.0		0.0		0.1		0.0
	Bodyweight per region (kg bw) =				60		60		60		60		60

METARYLPICOXAMID (346) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.2 mg/kg bw**

			STMR	Diets: g/person/day									
				Intake = daily intake: µg/person									
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
	ADI (µg/person) =				12000		12000		12000		12000		12000
	%ADI =				0.0%		0.0%		0.0%		0.0%		0.0%
	Rounded %ADI =				0%		0%		0%		0%		0%

METCONAZOLE (313) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets as g/person/day											
				Intake as µg/person/day											
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
FS 0013	Subgroup of Cherries, raw	RAC	0.07	0.92	0.06	9.15	0.64	0.01	0.00	0.61	0.04	0.06	0.00	6.64	0.46
FS 0014	Subgroup of Plums, raw	RAC	0.04	2.40	0.10	8.60	0.34	0.06	0.00	2.52	0.10	0.58	0.02	4.16	0.17
DF 0014	Plums, dried (prunes)	PP	0.092	0.09	0.01	0.06	0.01	0.01	0.00	0.18	0.02	0.04	0.00	0.06	0.01
FS 2001	Subgroup of peaches, raw (incl. dried apricots)	RAC	0.045	8.01	0.36	5.87	0.26	0.18	0.01	8.19	0.37	1.64	0.07	22.46	1.01
FB 0020	Blueberries, raw	RAC	0.14	0.01	0.00	0.03	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00
FI 0327	Banana, raw (incl. plantains) (incl. dried)	RAC	0.1	5.23	0.52	6.94	0.69	99.45	9.95	32.47	3.25	48.30	4.83	24.70	2.47
VA 0381	Garlic, raw	RAC	0.05	2.29	0.11	5.78	0.29	0.11	0.01	3.69	0.18	1.65	0.08	3.91	0.20
–	Onions, dry, raw	RAC	0.05	29.36	1.47	37.50	1.88	3.56	0.18	34.78	1.74	18.81	0.94	43.38	2.17
VP 0061	Beans with pods (Phaseolus spp): (immature pods + succulent seeds)	RAC	0	0.68	0.00	NC	–	NC	–	0.39	0.00	0.22	0.00	0.49	0.00
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.04	2.39	0.10	1.61	0.06	10.47	0.42	1.84	0.07	12.90	0.52	7.44	0.30
VD 0523	Broad bean, dry, raw (incl. horse–bean, field bean) (Vicia faba)	RAC	0.04	1.27	0.05	0.01	0.00	0.12	0.00	2.49	0.10	0.23	0.01	5.54	0.22
VD 0527	Cowpea, dry, raw (Vigna sinensis, Dolichos sinensis)	RAC	0.04	0.05	0.00	NC	–	1.74	0.07	0.01	0.00	0.01	0.00	0.07	0.00
VD 0541	Soya bean, dry, raw (incl. flour, incl. paste, incl. curd, incl. sauce, excl. oil)	RAC	0.01	0.63	0.01	1.09	0.01	0.40	0.00	1.40	0.01	1.68	0.02	0.48	0.00
OR 0541	Soya oil, refined	PP	0.005	12.99	0.06	10.43	0.05	3.63	0.02	13.10	0.07	10.70	0.05	13.10	0.07
VD 2066	Subgroup of dry peas, raw	RAC	0.0425	9.09	0.39	3.35	0.14	1.06	0.05	9.48	0.40	15.11	0.64	10.58	0.45
VR 0596	Sugar beet, raw	RAC	0.02	NC	–	NC	–	NC	–	NC	–	0.01	0.00	NC	–
–	Sugar beet, sugar	PP	0.012	0.02	0.00	NC	–	0.01	0.00	0.09	0.00	0.07	0.00	12.63	0.15
VR 2071	Subgroup of tuberous and corm vegetables, raw (incl. processed)	RAC	0	63.11	0.00	316.33	0.00	651.91	0.00	72.06	0.00	84.88	0.00	132.70	0.00
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. flour, incl. oil, incl. beer, incl. germ, incl. starch)	RAC	0.01	29.81	0.30	44.77	0.45	108.95	1.09	52.37	0.52	60.28	0.60	75.69	0.76
GC 0447	Sweet corn on the cob, raw (incl. frozen kernels, incl. canned kernels)	RAC	0.01	0.14	0.00	0.94	0.01	5.70	0.06	2.61	0.03	1.94	0.02	0.22	0.00

METCONAZOLE (313) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets as g/person/day											
				Intake as µg/person/day											
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
GS 0659	Sugar cane, raw	RAC	0.0205	38.16	0.78	NC	–	12.58	0.26	0.34	0.01	17.79	0.36	42.78	0.88
–	Sugar cane, molasses	PP	0.027	NC	–	NC	–	NC	–	NC	–	0.01	0.00	NC	–
–	Sugar cane, sugar (incl. non-centrifugal sugar, incl. refined sugar and maltose)	PP	0.002	61.52	0.12	86.27	0.17	18.80	0.04	80.02	0.16	66.39	0.13	56.32	0.11
TN 0085	Group of Tree nuts, raw (incl. processed)	RAC	0	4.06	0.00	3.27	0.00	7.01	0.00	13.93	0.00	14.01	0.00	9.36	0.00
SO 0495	Rape seed, raw	RAC	0.02	0.02	0.00	NC	–	NC	–	0.01	0.00	0.75	0.02	0.01	0.00
OR 0495	Rape seed oil, edible	PP	0.032	0.35	0.01	0.44	0.01	0.19	0.01	0.97	0.03	3.28	0.10	0.77	0.02
SO 2091	Subgroup of Sunflower seeds, raw (incl. processed)	RAC	0.089	7.43	0.66	36.06	3.21	1.15	0.10	8.77	0.78	5.74	0.51	13.63	1.21
OR 0691	Cotton seed oil, edible	PP	0.004	3.22	0.01	1.54	0.01	1.01	0.00	0.74	0.00	1.12	0.00	2.93	0.01
SO 0697	Peanuts, nutmeat, raw (incl. roasted, incl. butter, excl. oil)	RAC	0.04	0.46	0.02	1.21	0.05	6.64	0.27	2.71	0.11	1.26	0.05	1.84	0.07
OR 0697	Peanut oil, edible	PP	0.056	0.36	0.02	0.01	0.00	2.57	0.14	0.07	0.00	2.29	0.13	0.36	0.02
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat)	RAC	0	31.20	0.00	72.44	0.00	20.88	0.00	47.98	0.00	33.08	0.00	36.25	0.00
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0	3.29	0.00	6.14	0.00	0.82	0.00	1.57	0.00	2.23	0.00	1.07	0.00
MO 0105	Edible offal (mammalian), raw	RAC	0.037	4.79	0.18	9.68	0.36	2.97	0.11	5.49	0.20	3.84	0.14	5.03	0.19
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0	289.65	0.00	485.88	0.00	26.92	0.00	239.03	0.00	199.91	0.00	180.53	0.00
PM 0110	Poultry meat, raw (incl. prepared)	RAC	0	14.63	0.00	29.76	0.00	8.04	0.00	129.68	0.00	25.04	0.00	35.66	0.00
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0	0.10	0.00	0.10	0.00	NC	–	0.10	0.00	0.10	0.00	0.10	0.00
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0.019	0.12	0.00	0.12	0.00	0.11	0.00	5.37	0.10	0.24	0.00	0.10	0.00
PE 0112	Eggs, raw, (incl. dried)	RAC	0	7.84	0.00	23.08	0.00	2.88	0.00	14.89	0.00	9.81	0.00	14.83	0.00
	Total intake (µg/person) =				5.4		8.7		12.8		8.3		9.3		11.0
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (µg/person) =				2400		2400		2400		2400		2400		2400
	%ADI =				0.2%		0.4%		0.5%		0.3%		0.4%		0.5%
	Rounded %ADI =				0%		0%		1%		0%		0%		0%

METCONAZOLE (313) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets as g/person/day											
				Intake as µg/person/day											
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
FS 0013	Subgroup of Cherries, raw	RAC	0.07	1.40	0.10	4.21	0.29	0.04	0.00	2.93	0.21	1.50	0.11	NC	–
FS 0014	Subgroup of Plums, raw	RAC	0.04	3.75	0.15	3.33	0.13	5.94	0.24	2.64	0.11	2.50	0.10	0.06	0.00

METCONAZOLE (313) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets as g/person/day											
							Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
DF 0014	Plums, dried (prunes)	PP	0.092	0.61	0.06	0.35	0.03	0.05	0.00	0.35	0.03	0.49	0.05	0.13	0.01
FS 2001	Subgroup of peaches, raw (incl. dried apricots)	RAC	0.045	13.03	0.59	16.29	0.73	8.29	0.37	12.95	0.58	5.35	0.24	0.04	0.00
FB 0020	Blueberries, raw	RAC	0.14	0.04	0.01	0.23	0.03	0.01	0.00	0.83	0.12	0.33	0.05	NC	–
FI 0327	Banana, raw (incl. plantains) (incl. dried)	RAC	0.1	25.76	2.58	23.65	2.37	23.83	2.38	24.37	2.44	19.43	1.94	101.55	10.16
VA 0381	Garlic, raw	RAC	0.05	0.98	0.05	1.49	0.07	12.88	0.64	3.74	0.19	2.05	0.10	1.14	0.06
–	Onions, dry, raw	RAC	0.05	19.69	0.98	29.83	1.49	24.64	1.23	31.35	1.57	9.72	0.49	12.59	0.63
VP 0061	Beans with pods (Phaseolus spp): (immature pods + succulent seeds)	RAC	0	5.07	0.00	0.83	0.00	0.17	0.00	3.70	0.00	NC	–	NC	–
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.04	1.51	0.06	1.50	0.06	1.90	0.08	5.11	0.20	1.36	0.05	23.43	0.94
VD 0523	Broad bean, dry, raw (incl. horse–bean, field bean) (Vicia faba)	RAC	0.04	0.02	0.00	0.01	0.00	1.16	0.05	0.40	0.02	NC	–	0.06	0.00
VD 0527	Cowpea, dry, raw (Vigna sinensis, Dolichos sinensis)	RAC	0.04	NC	–	NC	–	0.16	0.01	0.01	0.00	NC	–	NC	–
VD 0541	Soya bean, dry, raw (incl. flour, incl. paste, incl. curd, incl. sauce, excl. oil)	RAC	0.01	0.47	0.00	0.77	0.01	9.12	0.09	8.05	0.08	0.04	0.00	6.06	0.06
OR 0541	Soya oil, refined	PP	0.005	19.06	0.10	21.06	0.11	5.94	0.03	33.78	0.17	40.05	0.20	13.39	0.07
VD 2066	Subgroup of dry peas, raw	RAC	0.0425	5.01	0.21	3.76	0.16	1.82	0.08	3.44	0.15	3.49	0.15	5.15	0.22
VR 0596	Sugar beet, raw	RAC	0.02	0.01	0.00	NC	–	0.01	0.00	0.01	0.00	NC	–	NC	–
–	Sugar beet, sugar	PP	0.012	0.01	0.00	NC	–	0.01	0.00	NC	–	NC	–	NC	–
VR 2071	Subgroup of tuberous and corm vegetables, raw (incl. processed)	RAC	0	226.09	0.00	234.58	0.00	161.10	0.00	185.04	0.00	234.85	0.00	100.25	0.00
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. flour, incl. oil, incl. beer, incl. germ, incl. starch)	RAC	0.01	18.51	0.19	26.18	0.26	26.04	0.26	39.99	0.40	7.36	0.07	64.58	0.65
GC 0447	Sweet corn on the cob, raw (incl. frozen kernels, incl. canned kernels)	RAC	0.01	11.43	0.11	3.71	0.04	0.74	0.01	13.63	0.14	3.07	0.03	1.50	0.02
GS 0659	Sugar cane, raw	RAC	0.0205	NC	–	NC	–	4.27	0.09	0.01	0.00	NC	–	3.24	0.07
–	Sugar cane, molasses	PP	0.027	NC	–	NC	–	0.08	0.00	NC	–	NC	–	NC	–
–	Sugar cane, sugar (incl. non-centrifugal sugar, incl. refined sugar and maltose)	PP	0.002	92.24	0.18	95.72	0.19	24.12	0.05	77.39	0.15	117.73	0.24	100.67	0.20
TN 0085	Group of Tree nuts, raw (incl. processed)	RAC	0	8.52	0.00	8.94	0.00	15.09	0.00	9.60	0.00	14.57	0.00	26.26	0.00
SO 0495	Rape seed, raw	RAC	0.02	NC	–	NC	–	0.01	0.00	NC	–	NC	–	NC	–
OR 0495	Rape seed oil, edible	PP	0.032	12.52	0.40	7.63	0.24	3.00	0.10	6.01	0.19	NC	–	NC	–
SO 2091	Subgroup of Sunflower seeds, raw (incl. processed)	RAC	0.089	23.43	2.09	29.34	2.61	1.24	0.11	14.00	1.25	6.48	0.58	6.91	0.61
OR 0691	Cotton seed oil, edible	PP	0.004	1.68	0.01	0.66	0.00	1.13	0.00	1.18	0.00	0.89	0.00	0.37	0.00
SO 0697	Peanuts, nutmeat, raw (incl. roasted, incl.	RAC	0.04	3.26	0.13	2.22	0.09	5.38	0.22	4.85	0.19	1.54	0.06	1.82	0.07

METCONAZOLE (313) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets as g/person/day											
				Intake as µg/person/day											
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
	butter, excl. oil)														
OR 0697	Peanut oil, edible	PP	0.056	1.02	0.06	0.23	0.01	1.81	0.10	0.42	0.02	5.23	0.29	0.01	0.00
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat)	RAC	0	140.03	0.00	150.89	0.00	79.32	0.00	111.24	0.00	120.30	0.00	51.27	0.00
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0	6.44	0.00	15.51	0.00	3.79	0.00	8.29	0.00	18.44	0.00	8.00	0.00
MO 0105	Edible offal (mammalian), raw	RAC	0.037	15.17	0.56	5.19	0.19	6.30	0.23	6.78	0.25	3.32	0.12	3.17	0.12
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0	388.92	0.00	335.88	0.00	49.15	0.00	331.25	0.00	468.56	0.00	245.45	0.00
PM 0110	Poultry meat, raw (incl. prepared)	RAC	0	73.76	0.00	53.86	0.00	23.98	0.00	87.12	0.00	53.38	0.00	84.45	0.00
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0	0.10	0.00	0.10	0.00	NC	–	0.10	0.00	0.71	0.00	NC	–
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0.019	0.33	0.01	0.72	0.01	0.27	0.01	0.35	0.01	0.80	0.02	NC	–
PE 0112	Eggs, raw, (incl. dried)	RAC	0	25.84	0.00	29.53	0.00	28.05	0.00	33.19	0.00	36.44	0.00	8.89	0.00
	Total intake (µg/person) =				8.6		9.1		6.4		8.5		4.9		13.9
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (µg/person) =				2400		2400		2200		2400		2400		2400
	%ADI =				0.4%		0.4%		0.3%		0.4%		0.2%		0.6%
	Rounded %ADI =				0%		0%		0%		0%		0%		1%

METCONAZOLE (313) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets: g/person/day									
				Intake = daily intake: µg/person									
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
FS 0013	Subgroup of Cherries, raw	RAC	0.07	0.01	0.00	0.01	0.00	5.96	0.42	0.01	0.00	NC	–
FS 0014	Subgroup of Plums, raw	RAC	0.04	0.07	0.00	0.01	0.00	15.56	0.62	0.01	0.00	NC	–
DF 0014	Plums, dried (prunes)	PP	0.092	0.01	0.00	0.01	0.00	0.37	0.03	0.01	0.00	NC	–
FS 2001	Subgroup of peaches, raw (incl. dried apricots)	RAC	0.045	0.02	0.00	0.01	0.00	10.76	0.48	0.01	0.00	NC	–
FB 0020	Blueberries, raw	RAC	0.14	NC	–	NC	–	0.20	0.03	NC	–	NC	–
FI 0327	Banana, raw (incl. plantains) (incl. dried)	RAC	0.1	44.80	4.48	118.17	11.82	25.25	2.53	454.49	45.45	310.23	31.02
VA 0381	Garlic, raw	RAC	0.05	0.82	0.04	2.06	0.10	3.79	0.19	0.03	0.00	0.29	0.01
–	Onions, dry, raw	RAC	0.05	9.01	0.45	20.24	1.01	30.90	1.55	9.61	0.48	2.11	0.11
VP 0061	Beans with pods (Phaseolus spp): (immature pods + succulent seeds)	RAC	0	NC	–	NC	–	NC	–	NC	–	NC	–
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.04	7.11	0.28	2.33	0.09	3.76	0.15	44.70	1.79	3.27	0.13
VD 0523	Broad bean, dry, raw (incl. horse–bean, field bean) (Vicia faba)	RAC	0.04	3.70	0.15	0.03	0.00	0.17	0.01	0.01	0.00	NC	–

METCONAZOLE (313) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets: g/person/day							Intake = daily intake: µg/person		
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
VD 0527	Cowpea, dry, raw (Vigna sinensis, Dolichos sinensis)	RAC	0.04	12.77	0.51	0.99	0.04	0.01	0.00	4.33	0.17	NC	–
VD 0541	Soya bean, dry, raw (incl. flour, incl. paste, incl. curd, incl. sauce, excl. oil)	RAC	0.01	2.89	0.03	0.21	0.00	0.48	0.00	3.16	0.03	0.26	0.00
OR 0541	Soya oil, refined	PP	0.005	2.32	0.01	2.54	0.01	18.70	0.09	2.51	0.01	6.29	0.03
VD 2066	Subgroup of dry peas, raw	RAC	0.0425	4.43	0.19	11.36	0.48	4.22	0.18	9.36	0.40	1.21	0.05
VR 0596	Sugar beet, raw	RAC	0.02	0.01	0.00	NC	–	NC	–	NC	–	NC	–
–	Sugar beet, sugar	PP	0.012	0.56	0.01	0.24	0.00	NC	–	NC	–	5.13	0.06
VR 2071	Subgroup of tuberous and corm vegetables, raw (incl. processed)	RAC	0	250.41	0.00	208.74	0.00	213.64	0.00	602.70	0.00	388.95	0.00
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. flour, incl. oil, incl. beer, incl. germ, incl. starch)	RAC	0.01	116.66	1.17	10.52	0.11	38.46	0.38	76.60	0.77	34.44	0.34
GC 0447	Sweet corn on the cob, raw (incl. frozen kernels, incl. canned kernels)	RAC	0.01	3.63	0.04	20.50	0.21	8.78	0.09	0.02	0.00	0.17	0.00
GS 0659	Sugar cane, raw	RAC	0.0205	5.62	0.12	50.91	1.04	NC	–	11.04	0.23	0.10	0.00
–	Sugar cane, molasses	PP	0.027	NC	–	NC	–	NC	–	NC	–	NC	–
–	Sugar cane, sugar (incl. non-centrifugal sugar, incl. refined sugar and maltose)	PP	0.002	28.13	0.06	55.38	0.11	78.09	0.16	18.04	0.04	45.60	0.09
TN 0085	Group of Tree nuts, raw (incl. processed)	RAC	0	4.39	0.00	135.53	0.00	6.11	0.00	0.72	0.00	317.74	0.00
SO 0495	Rape seed, raw	RAC	0.02	NC	–	0.01	0.00	NC	–	NC	–	NC	–
OR 0495	Rape seed oil, edible	PP	0.032	0.07	0.00	0.03	0.00	4.62	0.15	0.03	0.00	NC	–
SO 2091	Subgroup of Sunflower seeds, raw (incl. processed)	RAC	0.089	0.99	0.09	0.22	0.02	32.01	2.85	12.12	1.08	0.48	0.04
OR 0691	Cotton seed oil, edible	PP	0.004	1.28	0.01	0.05	0.00	0.45	0.00	0.42	0.00	0.15	0.00
SO 0697	Peanuts, nutmeat, raw (incl. roasted, incl. butter, excl. oil)	RAC	0.04	7.14	0.29	0.45	0.02	1.87	0.07	6.22	0.25	0.53	0.02
OR 0697	Peanut oil, edible	PP	0.056	5.02	0.28	0.05	0.00	0.17	0.01	0.29	0.02	NC	–
MM 0095	Meat from mammalS other than marine mammals, raw (incl. prepared meat)	RAC	0	29.18	0.00	50.89	0.00	121.44	0.00	22.58	0.00	72.14	0.00
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0	1.05	0.00	1.14	0.00	18.69	0.00	0.94	0.00	3.12	0.00
MO 0105	Edible offal (mammalian), raw	RAC	0.037	4.64	0.17	1.97	0.07	10.01	0.37	3.27	0.12	3.98	0.15
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0	108.75	0.00	70.31	0.00	436.11	0.00	61.55	0.00	79.09	0.00
PM 0110	Poultry meat, raw (incl. prepared)	RAC	0	3.92	0.00	12.03	0.00	57.07	0.00	5.03	0.00	55.56	0.00
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0	NC	–	NC	–	0.32	0.00	NC	–	NC	–
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0.019	0.10	0.00	0.70	0.01	0.97	0.02	0.10	0.00	NC	–
PE 0112	Eggs, raw, (incl. dried)	RAC	0	3.84	0.00	4.41	0.00	27.25	0.00	1.13	0.00	7.39	0.00
	Total intake (µg/person) =				8.4		15.2		10.4		50.8		32.1
	Bodyweight per region (kg bw) =				60		60		60		60		60

METCONAZOLE (313) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person							
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
	ADI (µg/person) =				2400		2400		2400		2400		2400
	%ADI =				0.3%		0.6%		0.4%		2.1%		1.3%
	Rounded %ADI =				0%		1%		0%		2%		1%

PROQUINAZID (347) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
FP 0226	Apple, raw (incl. cider, excl. juice)	RAC	0.0795	13.49	1.07	26.63	2.12	15.05	1.20	16.28	1.29	6.47	0.51	47.88	3.81
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.014	0.32	0.00	3.07	0.04	0.07	0.00	5.00	0.07	0.29	0.00	5.57	0.08
FP 0230	Pear, raw	RAC	0.0795	2.16	0.17	6.24	0.50	0.05	0.00	4.07	0.32	1.16	0.09	5.34	0.42
FB 0269	Grapes, raw (i.e. table grapes)	RAC	0.055	12.68	0.70	9.12	0.50	0.03	0.00	16.88	0.93	3.70	0.20	54.42	2.99
DF 0269	Grapes, dried (= currants, raisins and sultanas) (from table grapes)	PP	0.15	0.51	0.08	0.51	0.08	0.01	0.00	1.27	0.19	0.12	0.02	2.07	0.31
JF 0269	Grape juice (from wine grapes)	PP	0.018	0.14	0.00	0.29	0.01	0.05	0.00	0.30	0.01	0.24	0.00	0.05	0.00
–	Graps must (from wine grapes)	PP	0.014	0.33	0.00	0.13	0.00	0.01	0.00	0.02	0.00	0.01	0.00	0.02	0.00
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.018	0.67	0.01	12.53	0.23	2.01	0.04	1.21	0.02	3.53	0.06	4.01	0.07
GC 0650	Rye, raw (incl. flour)	RAC	0.02	0.13	0.00	19.38	0.39	0.10	0.00	0.12	0.00	0.03	0.00	2.15	0.04
GC 0654	Wheat, raw (incl. bulgur, incl. fermented beverages, incl. germ, incl. wholemeal bread, incl. white flour products, incl. white bread)	RAC	0.02	381.15	7.62	341.55	6.83	38.35	0.77	281.89	5.64	172.83	3.46	434.07	8.68
GC 0640	Barley, raw (incl. malt extract, incl. pot&pearled, incl. flour & grits, incl. beer, incl. malt)	RAC	0.04	19.91	0.80	31.16	1.25	5.04	0.20	3.10	0.12	9.77	0.39	4.31	0.17
GC 0647	Oats, raw (incl. rolled)	RAC	0.04	0.05	0.00	7.05	0.28	0.10	0.00	1.71	0.07	0.96	0.04	0.04	0.00
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.02	24.96	0.50	57.95	1.16	16.70	0.33	38.38	0.77	26.46	0.53	29.00	0.58
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.024	3.29	0.08	6.14	0.15	0.82	0.02	1.57	0.04	2.23	0.05	1.07	0.03
MO 0105	Edible offal (mammalian), raw	RAC	0.092	4.79	0.44	9.68	0.89	2.97	0.27	5.49	0.51	3.84	0.35	5.03	0.46
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.023	289.65	6.66	485.88	11.18	26.92	0.62	239.03	5.50	199.91	4.60	180.53	4.15
	Total intake (µg/person) =				18.1		25.6		3.5		15.5		10.3		21.8
	Bodyweight per region (kg bw) =				60		60		60		60		60		60

PROQUINAZID (347) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
	ADI (µg/person) =				600		600		600		600		600		600
	%ADI =				3.0%		4.3%		0.6%		2.6%		1.7%		3.6%
	Rounded %ADI =				3%		4%		1%		3%		2%		4%

PROQUINAZID (347) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
FP 0226	Apple, raw (incl. cider, excl. juice)	RAC	0.0795	41.14	3.27	56.49	4.49	26.64	2.12	31.58	2.51	51.94	4.13	3.05	0.24
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.014	14.88	0.21	11.98	0.17	0.15	0.00	9.98	0.14	30.32	0.42	3.47	0.05
FP 0230	Pear, raw	RAC	0.0795	8.79	0.70	8.44	0.67	12.37	0.98	9.60	0.76	10.27	0.82	0.23	0.02
FB 0269	Grapes, raw (i.e. table grapes)	RAC	0.055	6.33	0.35	11.22	0.62	5.21	0.29	9.38	0.52	4.55	0.25	0.78	0.04
DF 0269	Grapes, dried (= currants, raisins and sultanas) (from table grapes)	PP	0.15	3.09	0.46	1.51	0.23	0.03	0.00	1.38	0.21	4.26	0.64	0.42	0.06
JF 0269	Grape juice (from wine grapes)	PP	0.018	0.56	0.01	1.96	0.04	0.02	0.00	2.24	0.04	2.27	0.04	0.34	0.01
–	Graps must (from wine grapes)	PP	0.014	0.16	0.00	0.09	0.00	0.01	0.00	0.12	0.00	0.11	0.00	NC	–
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.018	88.93	1.60	62.41	1.12	1.84	0.03	25.07	0.45	61.17	1.10	5.84	0.11
GC 0650	Rye, raw (incl. flour)	RAC	0.02	3.21	0.06	35.38	0.71	0.21	0.00	6.50	0.13	1.49	0.03	NC	–
GC 0654	Wheat, raw (incl. bulgur, incl. fermented beverages, incl. germ, incl. wholemeal bread, incl. white flour products, incl. white bread)	RAC	0.02	253.07	5.06	244.73	4.89	134.44	2.69	235.10	4.70	216.39	4.33	167.40	3.35
GC 0640	Barley, raw (incl. malt extract, incl. pot&pearled, incl. flour & grits, incl. beer, incl. malt)	RAC	0.04	36.18	1.45	53.45	2.14	9.39	0.38	35.25	1.41	46.68	1.87	15.92	0.64
GC 0647	Oats, raw (incl. rolled)	RAC	0.04	7.50	0.30	6.26	0.25	0.15	0.01	4.87	0.19	3.16	0.13	2.98	0.12
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.02	112.02	2.24	120.71	2.41	63.46	1.27	88.99	1.78	96.24	1.92	41.02	0.82
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.024	6.44	0.15	15.51	0.37	3.79	0.09	8.29	0.20	18.44	0.44	8.00	0.19
MO 0105	Edible offal (mammalian), raw	RAC	0.092	15.17	1.40	5.19	0.48	6.30	0.58	6.78	0.62	3.32	0.31	3.17	0.29
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.023	388.92	8.95	335.88	7.73	49.15	1.13	331.25	7.62	468.56	10.78	245.45	5.65
	Total intake (µg/person) =				26.2		26.3		9.6		21.3		27.2		11.6
	Bodyweight per region (kg bw) =				60		60		55		60		60		60

PROQUINAZID (347) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets as g/person/day											
				Intake as µg/person/day											
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
	ADI (µg/person) =				600		600		550		600		600		600
	%ADI =				4.4%		4.4%		1.7%		3.5%		4.5%		1.9%
	Rounded %ADI =				4%		4%		2%		4%		5%		2%

PROQUINAZID (347) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.01 mg/kg bw**

			STMR	Diets: g/person/day											
				Intake = daily intake: µg/person											
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**		
FP 0226	Apple, raw (incl. cider, excl. juice)	RAC	0.0795	66.67	5.30	2.06	0.16	55.83	4.44	188.29	14.97	1.38	0.11		
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.014	0.03	0.00	0.10	0.00	7.19	0.10	0.03	0.00	NC	–		
FP 0230	Pear, raw	RAC	0.0795	0.07	0.01	0.14	0.01	9.45	0.75	0.01	0.00	0.14	0.01		
FB 0269	Grapes, raw (i.e. table grapes)	RAC	0.055	0.14	0.01	0.36	0.02	15.22	0.84	0.01	0.00	0.09	0.00		
DF 0269	Grapes, dried (= currants, raisins and sultanas) (from table grapes)	PP	0.15	0.01	0.00	0.13	0.02	1.06	0.16	0.01	0.00	0.03	0.00		
JF 0269	Grape juice (from wine grapes)	PP	0.018	0.01	0.00	0.01	0.00	0.41	0.01	0.01	0.00	NC	–		
–	Graps must (from wine grapes)	PP	0.014	0.01	0.00	0.01	0.00	0.11	0.00	0.01	0.00	0.19	0.00		
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.018	0.31	0.01	0.23	0.00	60.43	1.09	0.52	0.01	31.91	0.57		
GC 0650	Rye, raw (incl. flour)	RAC	0.02	0.03	0.00	0.01	0.00	13.95	0.28	0.01	0.00	0.88	0.02		
GC 0654	Wheat, raw (incl. bulgur, incl. fermented beverages, incl. germ, incl. wholemeal bread, incl. white flour products, incl. white bread)	RAC	0.02	57.20	1.14	110.47	2.21	272.62	5.45	25.82	0.52	132.04	2.64		
GC 0640	Barley, raw (incl. malt extract, incl. pot&pearled, incl. flour & grits, incl. beer, incl. malt)	RAC	0.04	11.58	0.46	2.33	0.09	46.71	1.87	3.72	0.15	16.26	0.65		
GC 0647	Oats, raw (incl. rolled)	RAC	0.04	0.37	0.01	0.07	0.00	2.79	0.11	0.10	0.00	NC	–		
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.02	23.34	0.47	40.71	0.81	97.15	1.94	18.06	0.36	57.71	1.15		
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.024	1.05	0.03	1.14	0.03	18.69	0.45	0.94	0.02	3.12	0.07		
MO 0105	Edible offal (mammalian), raw	RAC	0.092	4.64	0.43	1.97	0.18	10.01	0.92	3.27	0.30	3.98	0.37		
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.023	108.75	2.50	70.31	1.62	436.11	10.03	61.55	1.42	79.09	1.82		
	Total intake (µg/person) =				10.4		5.2		28.4		17.8		7.4		
	Bodyweight per region (kg bw) =				60		60		60		60		60		
	ADI (µg/person) =				600		600		600		600		600		
	%ADI =				1.7%		0.9%		4.7%		3.0%		1.2%		
	Rounded %ADI =				2%		1%		5%		3%		1%		

PYRACLOSTROBIN (210) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets as g/person/day						Intake as µg/person/day					
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
FC 0001	Group of Citrus fruit, raw (incl. citrus fruit juice, incl. kumquat commodities)	RAC	0.035	34.91	1.22	16.51	0.58	17.23	0.60	104.48	3.66	35.57	1.24	98.49	3.45
FP 0009	Group of Pome fruits, raw (incl. apple juice, incl. apple cider)	RAC	0.12	19.79	2.37	38.25	4.59	17.96	2.16	32.56	3.91	8.08	0.97	64.45	7.73
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.012	0.32	0.00	3.07	0.04	0.07	0.00	5.00	0.06	0.29	0.00	5.57	0.07
–	Apple cider (i.e. fermented apple juice)	PP	0.012	0.07	0.00	0.12	0.00	10.66	0.13	0.15	0.00	0.07	0.00	0.07	0.00
FS 0013	Subgroup of Cherries, raw	RAC	0.51	0.92	0.47	9.15	4.67	0.01	0.01	0.61	0.31	0.06	0.03	6.64	3.39
FS 0014	Subgroup of Plums, raw	RAC	0.09	2.40	0.22	8.60	0.77	0.06	0.01	2.52	0.23	0.58	0.05	4.16	0.37
DF 0014	Plums, dried (prunes)	PP	0.41	0.09	0.04	0.06	0.02	0.01	0.00	0.18	0.07	0.04	0.02	0.06	0.02
FS 2001	Subgroup of peaches, raw (incl. dried apricots)	RAC	0.07	8.01	0.56	5.87	0.41	0.18	0.01	8.19	0.57	1.64	0.11	22.46	1.57
FB 0272	Raspberries, red, black, raw	RAC	0.78	0.07	0.05	0.93	0.73	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
FB 0020	Blueberries, raw	RAC	0.34	0.01	0.00	0.03	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00
FB 0021	Currants, Black, Red, White, raw	RAC	0.185	0.02	0.00	0.74	0.14	0.01	0.00	0.03	0.01	0.01	0.00	0.01	0.00
FB 0269	Grapes, raw (i.e. table grapes)	RAC	0.44	12.68	5.58	9.12	4.01	0.03	0.01	16.88	7.43	3.70	1.63	54.42	23.94
DF 0269	Grapes, dried (= currants, raisins and sultanas) (from table grapes)	PP	1.36	0.51	0.69	0.51	0.69	0.01	0.01	1.27	1.73	0.12	0.16	2.07	2.82
JF 0269	Grape juice (from wine grapes)	PP	0.005	0.14	0.00	0.29	0.00	0.05	0.00	0.30	0.00	0.24	0.00	0.05	0.00
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.04	0.67	0.03	12.53	0.50	2.01	0.08	1.21	0.05	3.53	0.14	4.01	0.16
FB 0275	Strawberry, raw	RAC	0.2	0.70	0.14	2.01	0.40	0.04	0.01	1.36	0.27	0.37	0.07	2.53	0.51
FT 0305	Table olives, raw	RAC	0.01	0.08	0.00	0.16	0.00	NC	–	0.24	0.00	0.01	0.00	0.65	0.01
FI 0326	Avocado, raw	RAC	0.053	0.13	0.01	0.03	0.00	2.05	0.11	2.54	0.13	2.34	0.12	0.12	0.01
FI 0345	Mango, raw	RAC	0.11	10.38	1.14	0.01	0.00	7.24	0.80	6.85	0.75	19.53	2.15	4.52	0.50
FI 0353	Pineapple, raw	RAC	0.002	0.01	0.00	0.10	0.00	7.15	0.01	1.84	0.00	7.01	0.01	0.46	0.00

PYRACLOSTROBIN (210) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets as g/person/day						Intake as µg/person/day					
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
FI 0351	Passion fruit, raw	RAC	0.045	0.58	0.03	0.01	0.00	0.59	0.03	0.60	0.03	0.18	0.01	0.08	0.00
VA 0381	Garlic, raw	RAC	0.05	2.29	0.11	5.78	0.29	0.11	0.01	3.69	0.18	1.65	0.08	3.91	0.20
–	Onions, dry, raw	RAC	0.02	29.36	0.59	37.50	0.75	3.56	0.07	34.78	0.70	18.81	0.38	43.38	0.87
VA 0384	Leek, raw	RAC	0.22	0.18	0.04	1.59	0.35	0.03	0.01	0.28	0.06	0.01	0.00	3.21	0.71
VB 0042	Subgroup of Flowerhead Brassica, raw	RAC	0.02	2.54	0.05	0.49	0.01	0.01	0.00	3.57	0.07	7.79	0.16	3.12	0.06
VB 0402	Brussels sprouts, raw	RAC	0.03	0.63	0.02	6.41	0.19	0.13	0.00	1.03	0.03	NC	–	2.35	0.07
VB 0041	Cabbages, head, raw	RAC	0.02	2.73	0.05	27.92	0.56	0.55	0.01	4.47	0.09	4.27	0.09	10.25	0.21
VC 0424	Cucumber, raw	RAC	0.08	8.01	0.64	30.66	2.45	1.45	0.12	19.84	1.59	0.27	0.02	34.92	2.79
VC 0431	Squash, Summer (Courgette, Marrow, Zucchetti, Zucchini), raw	RAC	0.15	0.78	0.12	2.06	0.31	0.30	0.05	1.61	0.24	2.25	0.34	2.36	0.35
VC 0046	Melons, except watermelon, raw (Cantaloupe)	RAC	0.105	8.90	0.93	8.64	0.91	0.80	0.08	17.90	1.88	2.80	0.29	29.17	3.06
VO 0448	Tomato, raw	RAC	0.12	41.73	5.01	75.65	9.08	10.66	1.28	82.87	9.94	24.75	2.97	200.93	24.11
VO 0444	Peppers, chili, raw	RAC	0.08	3.99	0.32	7.30	0.58	2.93	0.23	5.62	0.45	NC	–	17.44	1.40
VO 0445	Peppers, sweet, raw (incl. dried)	RAC	0.08	4.49	0.36	6.44	0.52	7.21	0.58	5.68	0.45	9.52	0.76	8.92	0.71
VO 2046	Subgroup of eggplants	RAC	0.12	5.58	0.67	4.31	0.52	0.89	0.11	9.31	1.12	13.64	1.64	20.12	2.41
VL 0502	Spinach, raw	RAC	0.09	0.74	0.07	0.22	0.02	0.02	0.00	0.91	0.08	0.04	0.00	2.92	0.26
VL 0480	Kale (Borecole, Collards), raw	RAC	0.175	0.57	0.10	5.77	1.01	0.11	0.02	0.92	0.16	5.25	0.92	2.12	0.37
VL 2832	Witloof chicory (sprouts)	RAC	0.029	0.03	0.00	0.02	0.00	0.01	0.00	0.36	0.01	0.06	0.00	0.35	0.01
VP 0061	Beans with pods (Phaseolus spp): (immature pods +	RA	0.07	0.68	0.05	NC	–	NC	–	0.39	0.03	0.22	0.02	0.49	0.03

PYRACLOSTROBIN (210) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets as g/person/day						Intake as µg/person/day					
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
	succulent seeds)	C													
014B	Peas with pods	–	0.075	–	–	–	–	–	–	–	–	–	–	–	–
VP 0062	Beans without pods: (Phaseolus spp.) (succulent seeds), raw	RAC	0.01	1.56	0.02	0.60	0.01	0.49	0.00	1.18	0.01	0.90	0.01	7.79	0.08
VP 0523	Broad bean without pods (succulent seeds) (Vicia spp), raw	RAC	0.01	3.51	0.04	0.43	0.00	0.01	0.00	0.60	0.01	0.29	0.00	0.78	0.01
VP 2063	Subgroup of succulent peas without pods	RAC	0.01	1.97	0.02	0.51	0.01	0.02	0.00	0.79	0.01	3.68	0.04	3.80	0.04
VD 0541	Soya bean, dry, raw (Glycine soja)	RAC	0.02	0.58	0.01	0.05	0.00	0.37	0.01	0.03	0.00	1.65	0.03	0.30	0.01
OR 0541	Soya oil, refined	PP	0.012	12.99	0.16	10.43	0.13	3.63	0.04	13.10	0.16	10.70	0.13	13.10	0.16
VD 2066	Subgroup of dry peas, raw	RAC	0.059	9.09	0.54	3.35	0.20	1.06	0.06	9.48	0.56	15.11	0.89	10.58	0.62
VR 2070	Subgroup of Root vegetables, raw	RAC	0.12	24.72	2.97	57.71	6.93	17.01	2.04	49.58	5.95	9.33	1.12	114.41	13.73
VR 2071	Subgroup of tuberous and corm vegetables, raw (incl. processed)	RAC	0	63.11	0.00	316.33	0.00	651.91	0.00	72.06	0.00	84.88	0.00	132.70	0.00
VS 0624	Celery	RAC	0.15	2.14	0.32	3.79	0.57	2.35	0.35	5.69	0.85	0.02	0.00	2.75	0.41
VS 0621	Asparagus, raw	RAC	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.03	0.00	0.07	0.00	0.21	0.00
VS 0620	Artichoke globe, raw	RAC	0.25	0.69	0.17	0.01	0.00	0.01	0.00	0.32	0.08	0.26	0.07	1.21	0.30
GC 0654	Wheat, raw (incl. bulgur, incl. fermented beverages, incl. white flour products, incl. white bread, excl. germ, excl. wholemeal bread)	RAC	0.02	381.15	7.62	341.54	6.83	38.34	0.77	281.87	5.64	172.65	3.45	434.06	8.68
CF 1210	Wheat, germ	PP	0.016	NC	–	NC	–	0.01	0.00	0.01	0.00	0.14	0.00	0.01	0.00
CF 1211	Wheat, white flour (incl. white flour products: starch, gluten, macaroni, pastry)	PP	0.012	301.24	3.61	268.64	3.22	30.21	0.36	222.51	2.67	134.73	1.62	343.12	4.12
GC 0640	Barley, raw	RAC	0.345	2.49	0.86	NC	–	0.02	0.01	0.03	0.01	0.18	0.06	0.38	0.13
–	Barley beer	PP	0.23	4.87	1.12	93.78	21.57	24.28	5.58	12.76	2.93	39.28	9.03	18.15	4.17
–	Barley Malt	PP	0.4	0.09	0.04	1.04	0.42	0.18	0.07	0.33	0.13	0.04	0.02	0.10	0.04
GC 0647	Oats, raw (incl. rolled)	RAC	0.17	0.05	0.01	7.05	1.20	0.10	0.02	1.71	0.29	0.96	0.16	0.04	0.01

PYRACLOSTROBIN (210) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets as g/person/day						Intake as µg/person/day					
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
CM 0649 (GC 0649)	Rice, husked, dry (incl. oil, incl. beverages, incl. starch, excl. polished, excl. flour)	REP	0.023	1.20	0.03	1.30	0.03	31.05	0.71	4.79	0.11	0.61	0.01	2.16	0.05
CM 1205	Rice polished, dry	PP	0.01	34.21	0.34	10.39	0.10	41.72	0.42	82.38	0.82	150.24	1.50	70.47	0.70
–	Rice flour	PP	0.004	0.05	0.00	0.22	0.00	0.01	0.00	0.50	0.00	0.22	0.00	0.02	0.00
–	Rice, Fermented Beverages (rice wine, sake)	PP	0.004	NC	–	NC	–	NC	–	NC	–	0.01	0.00	NC	–
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. flour, incl. oil, incl. beer, incl. germ, incl. starch)	RAC	0.02	29.81	0.60	44.77	0.90	108.95	2.18	52.37	1.05	60.28	1.21	75.69	1.51
GS 0659	Sugar cane, raw	RAC	0.025	38.16	0.95	NC	–	12.58	0.31	0.34	0.01	17.79	0.44	42.78	1.07
–	Sugar cane, molasses	PP	0.005	NC	–	NC	–	NC	–	NC	–	0.01	0.00	NC	–
–	Sugar cane, sugar (incl. non-centrifugal sugar, incl. refined sugar and maltose)	PP	0.0025	61.52	0.15	86.27	0.22	18.80	0.05	80.02	0.20	66.39	0.17	56.32	0.14
TN 0085	Group of Tree nuts, raw (incl. processed)	RAC	0.02	4.06	0.08	3.27	0.07	7.01	0.14	13.93	0.28	14.01	0.28	9.36	0.19
TN 0675	Pistachio nut, nutmeat	RAC	0.22	0.41	0.09	0.07	0.02	0.01	0.00	0.85	0.19	0.02	0.00	1.08	0.24
SO 0495	Rape seed, raw	RAC	0.04	0.02	0.00	NC	–	NC	–	0.01	0.00	0.75	0.03	0.01	0.00
OR 0495	Rape seed oil, edible	PP	0.053	0.35	0.02	0.44	0.02	0.19	0.01	0.97	0.05	3.28	0.17	0.77	0.04
SO 0702	Sunflower seed, raw	RAC	0.055	0.09	0.00	0.33	0.02	0.09	0.00	0.24	0.01	0.02	0.00	0.01	0.00
OR 0702	Sunflower seed oil, edible	PP	0.00077	2.97	0.00	14.42	0.01	0.43	0.00	3.46	0.00	2.20	0.00	5.53	0.00
SO 0691	Cotton seed, raw (incl. oil)	RAC	0.025	20.53	0.51	9.80	0.25	6.42	0.16	4.73	0.12	7.14	0.18	18.68	0.47
OR 0691	Cotton seed oil, edible	PP	0.0045	3.22	0.01	1.54	0.01	1.01	0.00	0.74	0.00	1.12	0.01	2.93	0.01
SO 0305	Olives for oil production, raw	RAC	0.01	1.47	0.01	0.67	0.01	NC	–	1.26	0.01	0.04	0.00	7.63	0.08
–	Olive oil (virgin and residue oil)	PP	0.062	2.17	0.13	0.13	0.01	0.05	0.00	1.32	0.08	0.10	0.01	2.76	0.17
SB 0715	Cacao bean, raw (incl. roasted, incl. powder, incl. butter, incl. paste, incl. nes products)	RAC	0.01	0.72	0.01	4.20	0.04	0.60	0.01	4.21	0.04	0.42	0.00	0.78	0.01
SB 0716	Coffee bean raw (incl. roasted, incl. instant coffee, incl. substitutes)	RAC	0.025	1.36	0.03	3.59	0.09	1.44	0.04	5.18	0.13	2.02	0.05	1.70	0.04
HS 0190	Subgroup of seed spices (incl. processed)	RAC	0.18	0.51	0.09	0.03	0.01	0.01	0.00	1.82	0.33	0.28	0.05	0.29	0.05

PYRACLOSTROBIN (210) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
HS 0444	Peppers, chili, dried	PP	0.08	0.42	0.03	0.53	0.04	0.84	0.07	0.50	0.04	0.95	0.08	0.37	0.03
DH 1100	Hops, dry	RAC	4	0.01	0.04	0.04	0.16	0.01	0.04	0.01	0.04	NC	–	0.01	0.04
DT 1114	Tea, green or black, fermented and dried	RAC	0.965	2.28	2.20	1.92	1.85	0.46	0.44	2.40	2.32	1.29	1.24	3.04	2.93
–	Tea concentrates	PP	0.0009	0.01	0.00	0.06	0.00	0.01	0.00	0.04	0.00	0.01	0.00	0.01	0.00
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.0181	24.96	0.45	57.95	1.05	16.70	0.30	38.38	0.69	26.46	0.48	29.00	0.52
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.166	6.24	1.04	14.49	2.41	4.18	0.69	9.60	1.59	6.62	1.10	7.25	1.20
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.166	3.29	0.55	6.14	1.02	0.82	0.14	1.57	0.26	2.23	0.37	1.07	0.18
MO 0105	Edible offal (mammalian), raw	RAC	0.015	4.79	0.07	9.68	0.15	2.97	0.04	5.49	0.08	3.84	0.06	5.03	0.08
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.0095	289.65	2.75	485.88	4.62	26.92	0.26	239.03	2.27	199.91	1.90	180.53	1.72
	Total intake (µg/person) =				49.4		89.3		21.9		66.4		40.4		126.2
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (µg/person) =				1800		1800		1800		1800		1800		1800
	%ADI =				2.7%		5.0%		1.2%		3.7%		2.2%		7.0%
	Rounded %ADI =				3%		5%		1%		4%		2%		7%

PYRACLOSTROBIN (210) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
FC 0001	Group of Citrus fruit, raw (incl. citrus fruit juice, incl. kumquat commodities)	RAC	0.035	114.42	4.00	62.91	2.20	26.97	0.94	96.72	3.39	96.22	3.37	563.19	19.71
FP 0009	Group of Pome fruits, raw (incl. apple juice, incl. apple cider)	RAC	0.12	71.38	8.57	81.73	9.81	42.91	5.15	58.89	7.07	103.85	12.46	12.48	1.50
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.012	14.88	0.18	11.98	0.14	0.15	0.00	9.98	0.12	30.32	0.36	3.47	0.04
–	Apple cider (i.e. fermented apple juice)	PP	0.012	10.05	0.12	5.34	0.06	3.72	0.04	0.36	0.00	0.25	0.00	0.93	0.01
FS 0013	Subgroup of Cherries, raw	RAC	0.51	1.40	0.71	4.21	2.15	0.04	0.02	2.93	1.49	1.50	0.77	NC	–
FS 0014	Subgroup of Plums, raw	RAC	0.09	3.75	0.34	3.33	0.30	5.94	0.53	2.64	0.24	2.50	0.23	0.06	0.01

PYRACLOSTROBIN (210) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
DF 0014	Plums, dried (prunes)	PP	0.41	0.61	0.25	0.35	0.14	0.05	0.02	0.35	0.14	0.49	0.20	0.13	0.05
FS 2001	Subgroup of peaches, raw (incl. dried apricots)	RAC	0.07	13.03	0.91	16.29	1.14	8.29	0.58	12.95	0.91	5.35	0.37	0.04	0.00
FB 0272	Raspberries, red, black, raw	RAC	0.78	0.47	0.37	0.91	0.71	0.01	0.01	0.99	0.77	1.14	0.89	NC	–
FB 0020	Blueberries, raw	RAC	0.34	0.04	0.01	0.23	0.08	0.01	0.00	0.83	0.28	0.33	0.11	NC	–
FB 0021	Currants, Black, Red, White, raw	RAC	0.185	0.48	0.09	4.23	0.78	NC	–	1.51	0.28	0.49	0.09	NC	–
FB 0269	Grapes, raw (i.e. table grapes)	RAC	0.44	6.33	2.79	11.22	4.94	5.21	2.29	9.38	4.13	4.55	2.00	0.78	0.34
DF 0269	Grapes, dried (= currants, raisins and sultanas) (from table grapes)	PP	1.36	3.09	4.20	1.51	2.05	0.03	0.04	1.38	1.88	4.26	5.79	0.42	0.57
JF 0269	Grape juice (from wine grapes)	PP	0.005	0.56	0.00	1.96	0.01	0.02	0.00	2.24	0.01	2.27	0.01	0.34	0.00
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.04	88.93	3.56	62.41	2.50	1.84	0.07	25.07	1.00	61.17	2.45	5.84	0.23
FB 0275	Strawberry, raw	RAC	0.2	4.49	0.90	5.66	1.13	0.02	0.00	6.63	1.33	5.75	1.15	0.05	0.01
FT 0305	Table olives, raw	RAC	0.01	0.04	0.00	0.01	0.00	0.01	0.00	0.03	0.00	0.01	0.00	NC	–
FI 0326	Avocado, raw	RAC	0.053	2.65	0.14	0.87	0.05	0.46	0.02	1.64	0.09	1.30	0.07	0.96	0.05
FI 0345	Mango, raw	RAC	0.11	1.80	0.20	0.63	0.07	9.73	1.07	1.07	0.12	3.52	0.39	16.44	1.81
FI 0353	Pineapple, raw	RAC	0.002	3.29	0.01	2.19	0.00	3.77	0.01	3.75	0.01	0.77	0.00	15.72	0.03
FI 0351	Passion fruit, raw	RAC	0.045	0.01	0.00	0.01	0.00	NC	–	NC	–	0.02	0.00	NC	–
VA 0381	Garlic, raw	RAC	0.05	0.98	0.05	1.49	0.07	12.88	0.64	3.74	0.19	2.05	0.10	1.14	0.06
–	Onions, dry, raw	RAC	0.02	19.69	0.39	29.83	0.60	24.64	0.49	31.35	0.63	9.72	0.19	12.59	0.25
VA 0384	Leek, raw	RAC	0.22	4.01	0.88	4.41	0.97	0.72	0.16	0.54	0.12	16.41	3.61	0.03	0.01
VB 0042	Subgroup of Flowerhead Brassica, raw	RAC	0.02	9.50	0.19	6.77	0.14	NC	–	3.21	0.06	9.36	0.19	0.75	0.02
VB 0402	Brussels sprouts, raw	RAC	0.03	2.24	0.07	2.67	0.08	6.23	0.19	0.32	0.01	4.19	0.13	2.58	0.08
VB 0041	Cabbages, head, raw	RAC	0.02	8.97	0.18	27.12	0.54	1.44	0.03	24.96	0.50	4.55	0.09	11.23	0.22
VC 0424	Cucumber, raw	RAC	0.08	6.72	0.54	11.03	0.88	32.10	2.57	15.10	1.21	4.05	0.32	9.57	0.77
VC 0431	Squash, Summer (Courgette, Marrow, Zucchetti, Zucchini), raw	RAC	0.15	NC	–	NC	–	5.48	0.82	NC	–	NC	–	1.03	0.15
VC 0046	Melons, except watermelon, raw (Cantaloupe)	RAC	0.105	9.20	0.97	11.95	1.25	14.63	1.54	8.99	0.94	7.86	0.83	2.46	0.26
VO 0448	Tomato, raw	RAC	0.12	32.13	3.86	51.27	6.15	34.92	4.19	73.37	8.80	15.15	1.82	8.88	1.07
VO 0444	Peppers, chili, raw	RAC	0.08	5.57	0.45	14.00	1.12	8.25	0.66	5.77	0.46	6.44	0.52	2.53	0.20
VO 0445	Peppers, sweet, raw (incl. dried)	RAC	0.08	0.82	0.07	1.53	0.12	10.85	0.87	4.59	0.37	1.84	0.15	2.00	0.16
VO 2046	Subgroup of eggplants	RAC	0.12	1.01	0.12	1.69	0.20	21.37	2.56	3.00	0.36	1.40	0.17	NC	–
VL 0502	Spinach, raw	RAC	0.09	2.20	0.20	1.76	0.16	13.38	1.20	2.94	0.26	5.53	0.50	0.02	0.00
VL 0480	Kale (Borecole, Collards), raw	RAC	0.175	NC	–	NC	–	14.54	2.54	NC	–	NC	–	2.32	0.41
VL 2832	Witloof chicory (sprouts)	RAC	0.029	1.50	0.04	0.95	0.03	NC	–	1.84	0.05	0.65	0.02	0.13	0.00
VP 0061	Beans with pods (Phaseolus spp): (immature pods + succulent seeds)	RAC	0.07	5.07	0.35	0.83	0.06	0.17	0.01	3.70	0.26	NC	–	NC	–
014B	Peas with pods	–	0.075	–	–	–	–	–	–	–	–	–	–	–	–

PYRACLOSTROBIN (210) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
VP 0062	Beans without pods: (Phaseolus spp.) (succulent seeds), raw	RAC	0.01	2.21	0.02	5.25	0.05	4.17	0.04	1.61	0.02	16.95	0.17	0.17	0.00
VP 0523	Broad bean without pods (succulent seeds) (Vicia spp), raw	RAC	0.01	0.22	0.00	0.84	0.01	0.15	0.00	0.48	0.00	2.04	0.02	NC	–
VP 2063	Subgroup of succulent peas without pods	RAC	0.01	10.72	0.11	1.99	0.02	2.72	0.03	4.26	0.04	4.23	0.04	NC	–
VD 0541	Soya bean, dry, raw (Glycine soja)	RAC	0.02	0.02	0.00	0.33	0.01	6.64	0.13	3.94	0.08	NC	–	5.78	0.12
OR 0541	Soya oil, refined	PP	0.012	19.06	0.23	21.06	0.25	5.94	0.07	33.78	0.41	40.05	0.48	13.39	0.16
VD 2066	Subgroup of dry peas, raw	RAC	0.059	5.01	0.30	3.76	0.22	1.82	0.11	3.44	0.20	3.49	0.21	5.15	0.30
VR 2070	Subgroup of Root vegetables, raw	RAC	0.12	64.22	7.71	65.78	7.89	49.73	5.97	57.68	6.92	113.82	13.66	37.27	4.47
VR 2071	Subgroup of tuberous and corm vegetables, raw (incl. processed)	RAC	0	226.09	0.00	234.58	0.00	161.10	0.00	185.04	0.00	234.85	0.00	100.25	0.00
VS 0624	Celery	RAC	0.15	7.68	1.15	2.85	0.43	NC	–	3.34	0.50	16.83	2.52	4.04	0.61
VS 0621	Asparagus, raw	RAC	0.01	0.84	0.01	2.08	0.02	7.11	0.07	1.01	0.01	1.69	0.02	0.04	0.00
VS 0620	Artichoke globe, raw	RAC	0.25	0.98	0.25	3.65	0.91	0.07	0.02	1.67	0.42	0.26	0.07	NC	–
GC 0654	Wheat, raw (incl. bulgur, incl. fermented beverages, incl. white flour products, incl. white bread, excl. germ, excl. wholemeal bread)	RAC	0.02	252.06	5.04	244.62	4.89	134.41	2.69	235.10	4.70	216.33	4.33	167.34	3.35
CF 1210	Wheat, germ	PP	0.016	0.97	0.02	0.10	0.00	0.03	0.00	0.01	0.00	NC	–	0.04	0.00
CF 1211	Wheat, white flour (incl. white flour products: starch, gluten, macaroni, pastry)	PP	0.012	198.08	2.38	193.03	2.32	106.24	1.27	185.09	2.22	168.67	2.02	131.59	1.58
GC 0640	Barley, raw	RAC	0.345	0.01	0.00	NC	–	0.03	0.01	1.36	0.47	NC	–	NC	–
–	Barley beer	PP	0.23	180.21	41.45	259.46	59.68	45.91	10.56	172.36	39.64	234.42	53.92	65.30	15.02
–	Barley Malt	PP	0.4	0.19	0.08	NC	–	0.04	0.02	0.08	0.03	NC	–	2.14	0.86
GC 0647	Oats, raw (incl. rolled)	RAC	0.17	7.50	1.28	6.26	1.06	0.15	0.03	4.87	0.83	3.16	0.54	2.98	0.51
CM 0649 (GC 0649)	Rice, husked, dry (incl. oil, incl. beverages, incl. starch, excl. polished, excl. flour)	REP	0.023	2.43	0.06	1.62	0.04	0.58	0.01	1.69	0.04	NC	–	5.03	0.12
CM 1205	Rice polished, dry	PP	0.01	13.38	0.13	10.80	0.11	262.08	2.62	57.16	0.57	12.83	0.13	62.78	0.63
–	Rice flour	PP	0.004	0.98	0.00	0.38	0.00	0.72	0.00	0.05	0.00	0.23	0.00	0.07	0.00
–	Rice, Fermented Beverages (rice wine, sake)	PP	0.004	NC	–	NC	–	0.03	0.00	2.77	0.01	NC	–	NC	–
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. flour, incl. oil, incl. beer, incl. germ, incl. starch)	RAC	0.02	18.51	0.37	26.18	0.52	26.04	0.52	39.99	0.80	7.36	0.15	64.58	1.29
GS 0659	Sugar cane, raw	RAC	0.025	NC	–	NC	–	4.27	0.11	0.01	0.00	NC	–	3.24	0.08
–	Sugar cane, molasses	PP	0.005	NC	–	NC	–	0.08	0.00	NC	–	NC	–	NC	–
–	Sugar cane, sugar (incl. non-centrifugal sugar, incl. refined sugar and maltose)	PP	0.0025	92.24	0.23	95.72	0.24	24.12	0.06	77.39	0.19	117.73	0.29	100.67	0.25
TN 0085	Group of Tree nuts, raw (incl. processed)	RAC	0.02	8.52	0.17	8.94	0.18	15.09	0.30	9.60	0.19	14.57	0.29	26.26	0.53

PYRACLOSTROBIN (210) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
TN 0675	Pistachio nut, nutmeat	RAC	0.22	0.35	0.08	0.48	0.11	0.07	0.02	0.39	0.09	0.23	0.05	0.02	0.00
SO 0495	Rape seed, raw	RAC	0.04	NC	–	NC	–	0.01	0.00	NC	–	NC	–	NC	–
OR 0495	Rape seed oil, edible	PP	0.053	12.52	0.66	7.63	0.40	3.00	0.16	6.01	0.32	NC	–	NC	–
SO 0702	Sunflower seed, raw	RAC	0.055	0.01	0.00	1.32	0.07	0.03	0.00	1.17	0.06	NC	–	0.02	0.00
OR 0702	Sunflower seed oil, edible	PP	0.00077	9.50	0.01	11.37	0.01	0.49	0.00	5.15	0.00	2.63	0.00	2.80	0.00
SO 0691	Cotton seed, raw (incl. oil)	RAC	0.025	10.71	0.27	4.23	0.11	7.19	0.18	7.54	0.19	5.66	0.14	2.38	0.06
OR 0691	Cotton seed oil, edible	PP	0.0045	1.68	0.01	0.66	0.00	1.13	0.01	1.18	0.01	0.89	0.00	0.37	0.00
SO 0305	Olives for oil production, raw	RAC	0.01	0.35	0.00	0.01	0.00	0.01	0.00	0.57	0.01	0.06	0.00	NC	–
–	Olive oil (virgin and residue oil)	PP	0.062	3.40	0.21	9.49	0.59	0.02	0.00	4.28	0.27	2.74	0.17	0.48	0.03
SB 0715	Cacao bean, raw (incl. roasted, incl. powder, incl. butter, incl. paste, incl. nes products)	RAC	0.01	7.54	0.08	5.59	0.06	0.29	0.00	4.14	0.04	1.27	0.01	5.29	0.05
SB 0716	Coffee bean raw (incl. roasted, incl. instant coffee, incl. substitutes)	RAC	0.025	10.90	0.27	12.44	0.31	0.77	0.02	9.48	0.24	22.07	0.55	8.15	0.20
HS 0190	Subgroup of seed spices (incl. processed)	RAC	0.18	0.25	0.05	0.26	0.05	0.10	0.02	0.16	0.03	0.49	0.09	0.11	0.02
HS 0444	Peppers, chili, dried	PP	0.08	0.11	0.01	0.21	0.02	0.36	0.03	0.21	0.02	0.25	0.02	0.15	0.01
DH 1100	Hops, dry	RAC	4	NC	–	NC	–	0.02	0.08	0.02	0.08	NC	–	NC	–
DT 1114	Tea, green or black, fermented and dried	RAC	0.965	2.71	2.62	0.82	0.79	1.14	1.10	1.59	1.53	1.82	1.76	0.53	0.51
–	Tea concentrates	PP	0.0009	0.20	0.00	0.91	0.00	0.01	0.00	0.26	0.00	0.47	0.00	0.21	0.00
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.0181	112.02	2.03	120.71	2.18	63.46	1.15	88.99	1.61	96.24	1.74	41.02	0.74
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.166	28.01	4.65	30.18	5.01	15.86	2.63	22.25	3.69	24.06	3.99	10.25	1.70
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.166	6.44	1.07	15.51	2.57	3.79	0.63	8.29	1.38	18.44	3.06	8.00	1.33
MO 0105	Edible offal (mammalian), raw	RAC	0.015	15.17	0.23	5.19	0.08	6.30	0.09	6.78	0.10	3.32	0.05	3.17	0.05
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.0095	388.92	3.69	335.88	3.19	49.15	0.47	331.25	3.15	468.56	4.45	245.45	2.33
	Total intake (µg/person) =				112.6		135.0		60.5		108.6		134.3		64.9
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (µg/person) =				1800		1800		1650		1800		1800		1800
	%ADI =				6.3%		7.5%		3.7%		6.0%		7.5%		3.6%
	Rounded %ADI =				6%		8%		4%		6%		7%		4%

PYRACLOSTROBIN (210) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

	STMR	**Diets: g/person/day**	**Intake = daily intake: µg/person**

Codex code	Commodity description	Expr. as	mg/kg	G13 diet	G13 intake	G14 diet	G14 intake	G15 diet	G15 intake	G16 diet	G16 intake	G17 diet	G17 intake
FC 0001	Group of Citrus fruit, raw (incl. citrus fruit juice, incl. kumquat commodities)	RAC	0.035	21.16	0.74	2.94	0.10	58.52	2.05	0.44	0.02	5.13	0.18
FP 0009	Group of Pome fruits, raw (incl. apple juice, incl. apple cider)	RAC	0.12	68.89	8.27	11.06	1.33	80.62	9.67	189.82	22.78	19.56	2.35
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.012	0.03	0.00	0.10	0.00	7.19	0.09	0.03	0.00	NC	–
–	Apple cider (i.e. fermented apple juice)	PP	0.012	48.75	0.59	0.01	0.00	0.99	0.01	138.03	1.66	NC	–
FS 0013	Subgroup of Cherries, raw	RAC	0.51	0.01	0.01	0.01	0.01	5.96	3.04	0.01	0.01	NC	–
FS 0014	Subgroup of Plums, raw	RAC	0.09	0.07	0.01	0.01	0.00	15.56	1.40	0.01	0.00	NC	–
DF 0014	Plums, dried (prunes)	PP	0.41	0.01	0.00	0.01	0.00	0.37	0.15	0.01	0.00	NC	–
FS 2001	Subgroup of peaches, raw (incl. dried apricots)	RAC	0.07	0.02	0.00	0.01	0.00	10.76	0.75	0.01	0.00	NC	–
FB 0272	Raspberries, red, black, raw	RAC	0.78	0.01	0.01	0.01	0.01	2.04	1.59	0.01	0.01	NC	–
FB 0020	Blueberries, raw	RAC	0.34	NC	–	NC	–	0.20	0.07	NC	–	NC	–
FB 0021	Currants, Black, Red, White, raw	RAC	0.185	0.01	0.00	NC	–	0.74	0.14	NC	–	NC	–
FB 0269	Grapes, raw (i.e. table grapes)	RAC	0.44	0.14	0.06	0.36	0.16	15.22	6.70	0.01	0.00	0.09	0.04
DF 0269	Grapes, dried (= currants, raisins and sultanas) (from table grapes)	PP	1.36	0.01	0.01	0.13	0.18	1.06	1.44	0.01	0.01	0.03	0.04
JF 0269	Grape juice (from wine grapes)	PP	0.005	0.01	0.00	0.01	0.00	0.41	0.00	0.01	0.00	NC	–
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.04	0.31	0.01	0.23	0.01	60.43	2.42	0.52	0.02	31.91	1.28
FB 0275	Strawberry, raw	RAC	0.2	0.01	0.00	0.01	0.00	3.35	0.67	0.01	0.00	0.01	0.00
FT 0305	Table olives, raw	RAC	0.01	NC	–	NC	–	0.01	0.00	NC	–	NC	–
FI 0326	Avocado, raw	RAC	0.053	1.12	0.06	0.01	0.00	0.84	0.04	0.01	0.00	6.60	0.35
FI 0345	Mango, raw	RAC	0.11	12.25	1.35	6.74	0.74	0.76	0.08	0.01	0.00	20.12	2.21
FI 0353	Pineapple, raw	RAC	0.002	6.09	0.01	6.05	0.01	1.04	0.00	0.15	0.00	24.94	0.05
FI 0351	Passion fruit, raw	RAC	0.045	0.12	0.01	0.10	0.00	0.01	0.00	0.18	0.01	3.81	0.17
VA 0381	Garlic, raw	RAC	0.05	0.82	0.04	2.06	0.10	3.79	0.19	0.03	0.00	0.29	0.01
–	Onions, dry, raw	RAC	0.02	9.01	0.18	20.24	0.40	30.90	0.62	9.61	0.19	2.11	0.04
VA 0384	Leek, raw	RAC	0.22	0.02	0.00	1.44	0.32	1.22	0.27	0.01	0.00	NC	–
VB 0042	Subgroup of Flowerhead Brassica, raw	RAC	0.02	0.02	0.00	0.02	0.00	4.86	0.10	0.01	0.00	NC	–
VB 0402	Brussels sprouts, raw	RAC	0.03	0.88	0.03	0.69	0.02	2.89	0.09	0.01	0.00	NC	–
VB 0041	Cabbages, head, raw	RAC	0.02	3.82	0.08	2.99	0.06	49.16	0.98	0.01	0.00	NC	–
VC 0424	Cucumber, raw	RAC	0.08	0.68	0.05	1.81	0.14	10.40	0.83	0.01	0.00	0.04	0.00
VC 0431	Squash, Summer (Courgette, Marrow, Zucchetti, Zucchini), raw	RAC	0.15	0.09	0.01	1.01	0.15	NC	–	1.91	0.29	NC	–
VC 0046	Melons, except watermelon, raw (Cantaloupe)	RAC	0.105	0.19	0.02	0.10	0.01	4.98	0.52	0.01	0.00	NC	–
VO 0448	Tomato, raw	RAC	0.12	12.99	1.56	4.79	0.57	58.40	7.01	0.92	0.11	0.09	0.01
VO 0444	Peppers, chili, raw	RAC	0.08	3.47	0.28	3.56	0.28	16.30	1.30	0.01	0.00	NC	–
VO 0445	Peppers, sweet, raw (incl. dried)	RAC	0.08	5.49	0.44	10.57	0.85	8.84	0.71	0.91	0.07	NC	–
VO 2046	Subgroup of eggplants	RAC	0.12	1.31	0.16	8.26	0.99	3.95	0.47	0.01	0.00	NC	–
VL 0502	Spinach, raw	RAC	0.09	0.17	0.02	0.01	0.00	0.81	0.07	0.01	0.00	NC	–

PYRACLOSTROBIN (210) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets: g/person/day						Intake = daily intake: µg/person			
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
VL 0480	Kale (Borecole, Collards), raw	RAC	0.175	0.79	0.14	0.62	0.11	NC	–	0.01	0.00	NC	–
VL 2832	Witloof chicory (sprouts)	RAC	0.029	0.02	0.00	0.01	0.00	0.01	0.00	0.01	0.00	NC	–
VP 0061	Beans with pods (Phaseolus spp): (immature pods + succulent seeds)	RAC	0.07	NC	–	NC	–	NC	–	NC	–	NC	–
014B	Peas with pods	–	0.075	–	–	–	–	–	–	–	–	–	–
VP 0062	Beans without pods: (Phaseolus spp.) (succulent seeds), raw	RAC	0.01	0.30	0.00	3.13	0.03	4.11	0.04	0.01	0.00	NC	–
VP 0523	Broad bean without pods (succulent seeds) (Vicia spp), raw	RAC	0.01	0.07	0.00	0.01	0.00	0.76	0.01	NC	–	NC	–
VP 2063	Subgroup of succulent peas without pods	RAC	0.01	0.21	0.00	0.02	0.00	5.51	0.06	0.02	0.00	NC	–
VD 0541	Soya bean, dry, raw (Glycine soja)	RAC	0.02	2.76	0.06	0.07	0.00	0.33	0.01	3.16	0.06	NC	–
OR 0541	Soya oil, refined	PP	0.012	2.32	0.03	2.54	0.03	18.70	0.22	2.51	0.03	6.29	0.08
VD 2066	Subgroup of dry peas, raw	RAC	0.059	4.43	0.26	11.36	0.67	4.22	0.25	9.36	0.55	1.21	0.07
VR 2070	Subgroup of Root vegetables, raw	RAC	0.12	31.84	3.82	23.38	2.81	68.28	8.19	17.52	2.10	71.01	8.52
VR 2071	Subgroup of tuberous and corm vegetables, raw (incl. processed)	RAC	0	250.41	0.00	208.74	0.00	213.64	0.00	602.70	0.00	388.95	0.00
VS 0624	Celery	RAC	0.15	3.66	0.55	2.65	0.40	4.84	0.73	2.47	0.37	4.94	0.74
VS 0621	Asparagus, raw	RAC	0.01	0.01	0.00	0.01	0.00	0.17	0.00	0.01	0.00	NC	–
VS 0620	Artichoke globe, raw	RAC	0.25	0.01	0.00	NC	–	0.08	0.02	0.01	0.00	NC	–
GC 0654	Wheat, raw (incl. bulgur, incl. fermented beverages, incl. white flour products, incl. white bread, excl. germ, excl. wholemeal bread)	RAC	0.02	57.15	1.14	110.46	2.21	272.58	5.45	25.81	0.52	132.04	2.64
CF 1210	Wheat, germ	PP	0.016	0.04	0.00	0.01	0.00	0.01	0.00	0.01	0.00	NC	–
CF 1211	Wheat, white flour (incl. white flour products: starch, gluten, macaroni, pastry)	PP	0.012	44.78	0.54	86.96	1.04	214.05	2.57	20.31	0.24	103.60	1.24
GC 0640	Barley, raw	RAC	0.345	0.01	0.00	0.01	0.00	0.16	0.06	NC	–	NC	–
–	Barley beer	PP	0.23	16.25	3.74	11.36	2.61	225.21	51.80	19.49	4.48	52.17	12.00
–	Barley Malt	PP	0.4	0.01	0.00	0.11	0.04	0.67	0.27	0.01	0.00	4.61	1.84
GC 0647	Oats, raw (incl. rolled)	RAC	0.17	0.37	0.06	0.07	0.01	2.79	0.47	0.10	0.02	NC	–
CM 0649 (GC 0649)	Rice, husked, dry (incl. oil, incl. beverages, incl. starch, excl. polished, excl. flour)	REP	0.023	13.54	0.31	4.12	0.09	1.96	0.05	0.01	0.00	8.84	0.20
CM 1205	Rice polished, dry	PP	0.01	30.20	0.30	218.34	2.18	12.77	0.13	15.24	0.15	51.35	0.51
–	Rice flour	PP	0.004	0.03	0.00	0.13	0.00	0.16	0.00	0.01	0.00	NC	–
–	Rice, Fermented Beverages (rice wine, sake)	PP	0.004	NC	–	NC	–	NC	–	NC	–	NC	–
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. flour, incl. oil, incl. beer, incl. germ, incl. starch)	RAC	0.02	116.66	2.33	10.52	0.21	38.46	0.77	76.60	1.53	34.44	0.69
GS 0659	Sugar cane, raw	RAC	0.025	5.62	0.14	50.91	1.27	NC	–	11.04	0.28	0.10	0.00

PYRACLOSTROBIN (210) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.03 mg/kg bw**

			STMR	Diets: g/person/day									
				Intake = daily intake: µg/person									
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
–	Sugar cane, molasses	PP	0.005	NC	–	NC	–	NC	–	NC	–	NC	–
–	Sugar cane, sugar (incl. non-centrifugal sugar, incl. refined sugar and maltose)	PP	0.0025	28.13	0.07	55.38	0.14	78.09	0.20	18.04	0.05	45.60	0.11
TN 0085	Group of Tree nuts, raw (incl. processed)	RAC	0.02	4.39	0.09	135.53	2.71	6.11	0.12	0.72	0.01	317.74	6.35
TN 0675	Pistachio nut, nutmeat	RAC	0.22	0.01	0.00	0.01	0.00	0.15	0.03	0.01	0.00	NC	–
SO 0495	Rape seed, raw	RAC	0.04	NC	–	0.01	0.00	NC	–	NC	–	NC	–
OR 0495	Rape seed oil, edible	PP	0.053	0.07	0.00	0.03	0.00	4.62	0.24	0.03	0.00	NC	–
SO 0702	Sunflower seed, raw	RAC	0.055	0.02	0.00	0.01	0.00	0.03	0.00	2.23	0.12	NC	–
OR 0702	Sunflower seed oil, edible	PP	0.00077	0.37	0.00	0.09	0.00	12.98	0.01	4.01	0.00	0.20	0.00
SO 0691	Cotton seed, raw (incl. oil)	RAC	0.025	8.14	0.20	0.32	0.01	2.84	0.07	2.69	0.07	0.97	0.02
OR 0691	Cotton seed oil, edible	PP	0.0045	1.28	0.01	0.05	0.00	0.45	0.00	0.42	0.00	0.15	0.00
SO 0305	Olives for oil production, raw	RAC	0.01	NC	–	NC	–	0.02	0.00	NC	–	NC	–
–	Olive oil (virgin and residue oil)	PP	0.062	0.03	0.00	0.02	0.00	2.14	0.13	0.01	0.00	0.10	0.01
SB 0715	Cacao bean, raw (incl. roasted, incl. powder, incl. butter, incl. paste, incl. nes products)	RAC	0.01	0.11	0.00	0.89	0.01	6.28	0.06	0.17	0.00	2.31	0.02
SB 0716	Coffee bean raw (incl. roasted, incl. instant coffee, incl. substitutes)	RAC	0.025	0.95	0.02	1.32	0.03	11.64	0.29	2.96	0.07	14.73	0.37
HS 0190	Subgroup of seed spices (incl. processed)	RAC	0.18	0.02	0.00	1.51	0.27	0.23	0.04	0.01	0.00	0.05	0.01
HS 0444	Peppers, chili, dried	PP	0.08	0.58	0.05	1.27	0.10	1.21	0.10	0.12	0.01	NC	–
DH 1100	Hops, dry	RAC	4	NC	–	NC	–	0.04	0.16	NC	–	NC	–
DT 1114	Tea, green or black, fermented and dried	RAC	0.965	0.53	0.51	5.25	5.07	0.63	0.61	0.56	0.54	0.82	0.79
–	Tea concentrates	PP	0.0009	0.01	0.00	0.01	0.00	0.23	0.00	0.01	0.00	0.06	0.00
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.0181	23.34	0.42	40.71	0.74	97.15	1.76	18.06	0.33	57.71	1.04
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.166	5.84	0.97	10.18	1.69	24.29	4.03	4.52	0.75	14.43	2.40
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.166	1.05	0.17	1.14	0.19	18.69	3.10	0.94	0.16	3.12	0.52
MO 0105	Edible offal (mammalian), raw	RAC	0.015	4.64	0.07	1.97	0.03	10.01	0.15	3.27	0.05	3.98	0.06
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.0095	108.75	1.03	70.31	0.67	436.11	4.14	61.55	0.58	79.09	0.75
	Total intake (µg/person) =				31.1		31.9		129.8		38.3		47.7
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (µg/person) =				1800		1800		1800		1800		1800
	%ADI =				1.7%		1.8%		7.2%		2.1%		2.7%
	Rounded %ADI =				2%		2%		7%		2%		3%

PYRIOFENONE (310) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.09 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
FB 2005	Subgroup of Caneberries, raw	RAC	0.265	0.42	0.11	1.05	0.28	0.01	0.00	0.02	0.01	0.02	0.01	1.24	0.33
FB 2006	Subgroup of Bush berries, raw (including processed)	RAC	0.34	0.53	0.18	1.31	0.45	0.40	0.14	1.66	0.56	0.01	0.00	0.99	0.34
FB 0269	Grapes, raw (i.e. table grapes)	RAC	0.23	12.68	2.92	9.12	2.10	0.03	0.01	16.88	3.88	3.70	0.85	54.42	12.52
DF 0269	Grapes, dried (= currants, raisins and sultanas) (from table grapes)	PP	0.64	0.51	0.33	0.51	0.33	0.01	0.01	1.27	0.81	0.12	0.08	2.07	1.32
JF 0269	Grape juice (from wine grapes)	PP	0.014	0.14	0.00	0.29	0.00	0.05	0.00	0.30	0.00	0.24	0.00	0.05	0.00
–	Graps must (from wine grapes)	PP	0.1	0.33	0.03	0.13	0.01	0.01	0.00	0.02	0.00	0.01	0.00	0.02	0.00
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.032	0.67	0.02	12.53	0.40	2.01	0.06	1.21	0.04	3.53	0.11	4.01	0.13
FB 0265	Cranberry, raw	RAC	0.17	0.02	0.00	0.01	0.00	NC	–	0.03	0.01	0.01	0.00	0.01	0.00
FB 0275	Strawberry, raw	RAC	0.61	0.70	0.43	2.01	1.23	0.04	0.02	1.36	0.83	0.37	0.23	2.53	1.54
VC 0045	Group of Fruiting vegetables, cucurbits, raw	RAC	0.04	53.14	2.13	86.21	3.45	6.28	0.25	92.76	3.71	15.64	0.63	155.30	6.21
VO 0448	Tomato, raw (incl. canned, excl. juice, excl. paste)	RAC	0.056	42.04	2.35	76.13	4.26	10.69	0.60	84.59	4.74	24.92	1.40	203.27	11.38
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.032	2.34	0.07	1.33	0.04	1.57	0.05	4.24	0.14	0.34	0.01	2.83	0.09
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.0056	0.29	0.00	0.29	0.00	0.01	0.00	0.38	0.00	0.05	0.00	0.14	0.00
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), incl. okra	RAC	0.36	10.45	3.76	13.74	4.95	13.81	4.97	14.53	5.23	15.25	5.49	27.93	10.05
VO 2046	Subgroup of eggplants	RAC	0.36	5.58	2.01	4.31	1.55	0.89	0.32	9.31	3.35	13.64	4.91	20.12	7.24
HS 0444	Peppers, chili, dried	PP	3.6	0.42	1.51	0.53	1.91	0.84	3.02	0.50	1.80	0.95	3.42	0.37	1.33
	Total intake (µg/person) =				15.9		21.0		9.5		25.1		17.1		52.5
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (µg/person) =				5400		5400		5400		5400		5400		5400
	%ADI =				0.294%		0.388%		0.175%		0.465%		0.317%		0.972%
	Rounded %ADI =				0%		0%		0%		0%		0%		1%

PYRIOFENONE (310) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.09 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
FB 2005	Subgroup of Caneberries, raw	RAC	0.265	0.56	0.15	1.43	0.38	0.14	0.04	1.23	0.33	1.14	0.30	0.01	0.00

PYRIOFENONE (310) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.09 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
FB 2006	Subgroup of Bush berries, raw (including processed)	RAC	0.34	1.31	0.45	5.50	1.87	0.01	0.00	2.57	0.87	0.82	0.28	2.15	0.73
FB 0269	Grapes, raw (i.e. table grapes)	RAC	0.23	6.33	1.46	11.22	2.58	5.21	1.20	9.38	2.16	4.55	1.05	0.78	0.18
DF 0269	Grapes, dried (= currants, raisins and sultanas) (from table grapes)	PP	0.64	3.09	1.98	1.51	0.97	0.03	0.02	1.38	0.88	4.26	2.73	0.42	0.27
JF 0269	Grape juice (from wine grapes)	PP	0.014	0.56	0.01	1.96	0.03	0.02	0.00	2.24	0.03	2.27	0.03	0.34	0.00
–	Graps must (from wine grapes)	PP	0.1	0.16	0.02	0.09	0.01	0.01	0.00	0.12	0.01	0.11	0.01	NC	–
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.032	88.93	2.85	62.41	2.00	1.84	0.06	25.07	0.80	61.17	1.96	5.84	0.19
FB 0265	Cranberry, raw	RAC	0.17	0.06	0.01	0.01	0.00	0.01	0.00	1.22	0.21	0.11	0.02	NC	–
FB 0275	Strawberry, raw	RAC	0.61	4.49	2.74	5.66	3.45	0.02	0.01	6.63	4.04	5.75	3.51	0.05	0.03
VC 0045	Group of Fruiting vegetables, cucurbits, raw	RAC	0.04	27.81	1.11	41.93	1.68	123.30	4.93	49.47	1.98	15.95	0.64	35.99	1.44
VO 0448	Tomato, raw (incl. canned, excl. juice, excl. paste)	RAC	0.056	43.88	2.46	55.41	3.10	35.38	1.98	74.88	4.19	26.50	1.48	9.51	0.53
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.032	4.96	0.16	3.20	0.10	0.15	0.00	1.61	0.05	6.88	0.22	0.52	0.02
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.0056	0.80	0.00	0.07	0.00	0.05	0.00	0.61	0.00	0.40	0.00	0.08	0.00
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), incl. okra	RAC	0.36	6.39	2.30	15.53	5.59	19.13	6.89	10.53	3.79	8.29	2.98	5.25	1.89
VO 2046	Subgroup of eggplants	RAC	0.36	1.01	0.36	1.69	0.61	21.37	7.69	3.00	1.08	1.40	0.50	NC	–
HS 0444	Peppers, chili, dried	PP	3.6	0.11	0.40	0.21	0.76	0.36	1.30	0.21	0.76	0.25	0.90	0.15	0.54
	Total intake (µg/person) =				16.4		23.1		24.1		21.2		16.6		5.8
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (µg/person) =				5400		5400		4950		5400		5400		5400
	%ADI =				0.304%		0.428%		0.487%		0.392%		0.308%		0.108%
	Rounded %ADI =				0%		0%		0%		0%		0%		0%

PYRIOFENONE (310) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.09 mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
FB 2005	Subgroup of Caneberries, raw	RAC	0.265	0.01	0.00	7.30	1.93	2.29	0.61	0.01	0.00	NC	–
FB 2006	Subgroup of Bush berries, raw (including	RAC	0.34	0.82	0.28	4.05	1.38	5.94	2.02	0.43	0.15	2.66	0.90

PYRIOFENONE (310) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.09 mg/kg bw**

			STMR	Diets: g/person/day									
				Intake = daily intake: µg/person									
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
	processed)												
FB 0269	Grapes, raw (i.e. table grapes)	RAC	0.23	0.14	0.03	0.36	0.08	15.22	3.50	0.01	0.00	0.09	0.02
DF 0269	Grapes, dried (= currants, raisins and sultanas) (from table grapes)	PP	0.64	0.01	0.01	0.13	0.08	1.06	0.68	0.01	0.01	0.03	0.02
JF 0269	Grape juice (from wine grapes)	PP	0.014	0.01	0.00	0.01	0.00	0.41	0.01	0.01	0.00	NC	–
–	Graps must (from wine grapes)	PP	0.1	0.01	0.00	0.01	0.00	0.11	0.01	0.01	0.00	0.19	0.02
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.032	0.31	0.01	0.23	0.01	60.43	1.93	0.52	0.02	31.91	1.02
FB 0265	Cranberry, raw	RAC	0.17	NC	–	NC	–	0.03	0.01	NC	–	NC	–
FB 0275	Strawberry, raw	RAC	0.61	0.01	0.01	0.01	0.01	3.35	2.04	0.01	0.01	0.01	0.01
VC 0045	Group of Fruiting vegetables, cucurbits, raw	RAC	0.04	5.96	0.24	9.74	0.39	51.82	2.07	13.61	0.54	0.05	0.00
VO 0448	Tomato, raw (incl. canned, excl. juice, excl. paste)	RAC	0.056	13.10	0.73	4.90	0.27	62.16	3.48	1.04	0.06	0.09	0.01
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.032	0.58	0.02	0.22	0.01	2.21	0.07	0.24	0.01	3.10	0.10
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.0056	0.05	0.00	0.01	0.00	0.42	0.00	0.01	0.00	0.02	0.00
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), incl. okra	RAC	0.36	15.20	5.47	14.23	5.12	25.14	9.05	0.91	0.33	NC	–
VO 2046	Subgroup of eggplants	RAC	0.36	1.31	0.47	8.26	2.97	3.95	1.42	0.01	0.00	NC	–
HS 0444	Peppers, chili, dried	PP	3.6	0.58	2.09	1.27	4.57	1.21	4.36	0.12	0.43	NC	–
	Total intake (µg/person) =				9.4		16.8		31.3		1.6		2.1
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (µg/person) =				5400		5400		5400		5400		5400
	%ADI =				0.173%		0.311%		0.579%		0.029%		0.039%
	Rounded %ADI =				0%		0%		1%		0%		0%

PYRIPROXYFEN (200) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.1 mg/kg bw**

			STMR	Diets as g/person/day											
				Intake as µg/person/day											
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
FC 0002	Subgroup of Lemons and limes, raw (incl. lemon juice) (incl. kumquat commodities)	RAC	0.013	4.82	0.06	2.45	0.03	3.93	0.05	25.44	0.33	8.74	0.11	16.23	0.21
FC 0003	Subgroup of Mandarins, raw (incl.	RAC	0.013	6.18	0.08	3.66	0.05	0.25	0.00	6.82	0.09	3.49	0.05	19.38	0.25

PYRIPROXYFEN (200) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.1 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
	mandarin juice)														
FC 0004	Subgroup of Oranges, sweet, sour, raw	RAC	0.013	20.66	0.27	5.23	0.07	11.90	0.15	37.90	0.49	21.16	0.28	56.46	0.73
JF 0004	Subgroup of Oranges, juice (single strength, incl. concentrated)	PP	0.0036	1.27	0.00	2.20	0.01	0.09	0.00	11.81	0.04	0.46	0.00	1.69	0.01
FC 0005	Subgroup of Pummelo and grapefruits, raw (incl. grapefruit juice)	RAC	0.013	0.66	0.01	0.69	0.01	0.96	0.01	10.20	0.13	1.25	0.02	2.97	0.04
FS 0013	Subgroup of Cherries, raw	RAC	0.26	0.92	0.24	9.15	2.38	0.01	0.00	0.61	0.16	0.06	0.02	6.64	1.73
FS 0014	Subgroup of Plums, raw	RAC	0.045	2.40	0.11	8.60	0.39	0.06	0.00	2.52	0.11	0.58	0.03	4.16	0.19
DF 0014	Plums, dried (prunes)	PP	0.13	0.09	0.01	0.06	0.01	0.01	0.00	0.18	0.02	0.04	0.01	0.06	0.01
FS 2001	Subgroup of peaches, raw (incl. dried apricots)	RAC	0.16	8.01	1.28	5.87	0.94	0.18	0.03	8.19	1.31	1.64	0.26	22.46	3.59
FB 2006	Subgroup of Bush berries, raw (including processed)	RAC	0.365	0.53	0.19	1.31	0.48	0.40	0.15	1.66	0.61	0.01	0.00	0.99	0.36
FB 0269	Grapes, raw (incl. must, incl. wine, excl. dried, excl. juice)	RAC	0.145	13.94	2.02	26.46	3.84	2.79	0.40	18.58	2.69	8.54	1.24	59.95	8.69
DF 0269	Grapes, dried (= currants, raisins and sultanas) (from table grapes)	PP	0.188	0.51	0.10	0.51	0.10	0.01	0.00	1.27	0.24	0.12	0.02	2.07	0.39
JF 0269	Grape juice (from wine grapes)	PP	0.0058	0.14	0.00	0.29	0.00	0.05	0.00	0.30	0.00	0.24	0.00	0.05	0.00
FB 0275	Strawberry, raw	RAC	0.14	0.70	0.10	2.01	0.28	0.04	0.01	1.36	0.19	0.37	0.05	2.53	0.35
FI 0345	Mango, raw (incl. canned mango, incl. mango juice)	RAC	0.02	10.48	0.21	0.01	0.00	7.24	0.14	6.87	0.14	19.98	0.40	6.25	0.13
FI 0350	Papaya, raw	RAC	0.07	0.35	0.02	0.01	0.00	3.05	0.21	0.80	0.06	7.28	0.51	1.00	0.07
FI 0353	Pineapple, raw (incl. canned Pineapple, incl. pineapple juice, incl. dried pineapple)	RAC	0.01	0.61	0.01	1.56	0.02	7.89	0.08	9.36	0.09	8.76	0.09	1.30	0.01
VB 0404	Cauliflower, raw	RAC	0.02	1.65	0.03	0.32	0.01	0.01	0.00	2.33	0.05	4.79	0.10	2.03	0.04
VB 0041	Cabbages, head, raw	RAC	0.02	2.73	0.05	27.92	0.56	0.55	0.01	4.47	0.09	4.27	0.09	10.25	0.21
VC 0424	Cucumber, raw	RAC	0.01	8.01	0.08	30.66	0.31	1.45	0.01	19.84	0.20	0.27	0.00	34.92	0.35
VC 0425	Gherkin, raw	RAC	0.01	1.73	0.02	6.64	0.07	0.31	0.00	4.29	0.04	0.29	0.00	7.56	0.08
VC 0431	Squash, Summer (Courgette, Marrow, Zucchetti, Zucchini), raw	RAC	0.01	0.78	0.01	2.06	0.02	0.30	0.00	1.61	0.02	2.25	0.02	2.36	0.02
VC 0046	Melons, except watermelon, raw (Cantaloupe)	RAC	0.016	8.90	0.14	8.64	0.14	0.80	0.01	17.90	0.29	2.80	0.04	29.17	0.47
VO 0448	Tomato, raw	RAC	0.1	41.73	4.17	75.65	7.57	10.66	1.07	82.87	8.29	24.75	2.48	200.93	20.09
–	Tomato, canned (& peeled)	PP	0.018	0.20	0.00	0.31	0.01	0.02	0.00	1.11	0.02	0.11	0.00	1.50	0.03
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.12	2.34	0.28	1.33	0.16	1.57	0.19	4.24	0.51	0.34	0.04	2.83	0.34

PYRIPROXYFEN (200) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.1 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.018	0.29	0.01	0.29	0.01	0.01	0.00	0.38	0.01	0.05	0.00	0.14	0.00
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), excl. okra	RAC	0.17	8.48	1.44	13.74	2.34	10.13	1.72	11.29	1.92	9.52	1.62	26.36	4.48
VO 2046	Subgroup of eggplants	RAC	0.17	5.58	0.95	4.31	0.73	0.89	0.15	9.31	1.58	13.64	2.32	20.12	3.42
VL 0485	Mustard greens, raw (i.e. Indian mustard, Amsoi, mustard cabbage)	RAC	0.345	0.03	0.01	0.31	0.11	0.01	0.00	0.05	0.02	0.47	0.16	0.11	0.04
VP 2060	Subgroup of beans with pods (all commodities within this group)	RAC	0.02	0.68	0.01	NC	–	NC	–	0.39	0.01	0.22	0.00	0.49	0.01
OR 0691	Cotton seed oil, edible	PP	0.002	3.22	0.01	1.54	0.00	1.01	0.00	0.74	0.00	1.12	0.00	2.93	0.01
HS 0444	Peppers, chili, dried	PP	1.7	0.42	0.71	0.53	0.90	0.84	1.43	0.50	0.85	0.95	1.62	0.37	0.63
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0	24.96	0.00	57.95	0.00	16.70	0.00	38.38	0.00	26.46	0.00	29.00	0.00
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.0076	6.24	0.05	14.49	0.11	4.18	0.03	9.60	0.07	6.62	0.05	7.25	0.06
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.0076	3.29	0.03	6.14	0.05	0.82	0.01	1.57	0.01	2.23	0.02	1.07	0.01
MO 0105	Edible offal (mammalian), raw	RAC	0	4.79	0.00	9.68	0.00	2.97	0.00	5.49	0.00	3.84	0.00	5.03	0.00
PM 0110	Poultry meat, raw (incl. prepared) – 90% as muscle	RAC	0.00052	13.17	0.01	26.78	0.01	7.24	0.00	116.71	0.06	22.54	0.01	32.09	0.02
PM 0110	Poultry meat, raw (incl. prepared) – 10% as fat	RAC	0.01	1.46	0.01	2.98	0.03	0.80	0.01	12.97	0.13	2.50	0.03	3.57	0.04
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0.01	0.10	0.00	0.10	0.00	NC	–	0.10	0.00	0.10	0.00	0.10	0.00
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0.00046	0.12	0.00	0.12	0.00	0.11	0.00	5.37	0.00	0.24	0.00	0.10	0.00
	Total intake (µg/person) =				12.7		21.7		5.9		20.9		11.7		47.1
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (µg/person) =				6000		6000		6000		6000		6000		6000
	%ADI =				0.212%		0.362%		0.098%		0.348%		0.195%		0.785%
	Rounded %ADI =				0%		0%		0%		0%		0%		1%

PYRIPROXYFEN (200) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.1 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
FC 0002	Subgroup of Lemons and limes, raw (incl. lemon juice) (incl. kumquat commodities)	RAC	0.013	10.12	0.13	15.69	0.20	2.88	0.04	12.30	0.16	22.32	0.29	6.59	0.09
FC 0003	Subgroup of Mandarins, raw (incl. mandarin juice)	RAC	0.013	12.42	0.16	14.99	0.19	16.08	0.21	10.78	0.14	9.94	0.13	NC	–
FC 0004	Subgroup of Oranges, sweet, sour, raw	RAC	0.013	15.68	0.20	24.00	0.31	6.80	0.09	29.09	0.38	15.39	0.20	160.47	2.09
JF 0004	Subgroup of Oranges, juice (single strength, incl. concentrated)	PP	0.0036	33.31	0.12	1.78	0.01	0.28	0.00	18.97	0.07	14.01	0.05	13.36	0.05
FC 0005	Subgroup of Pummelo and grapefruits, raw (incl. grapefruit juice)	RAC	0.013	8.21	0.11	4.60	0.06	0.64	0.01	5.85	0.08	19.98	0.26	368.86	4.80
FS 0013	Subgroup of Cherries, raw	RAC	0.26	1.40	0.36	4.21	1.09	0.04	0.01	2.93	0.76	1.50	0.39	NC	–
FS 0014	Subgroup of Plums, raw	RAC	0.045	3.75	0.17	3.33	0.15	5.94	0.27	2.64	0.12	2.50	0.11	0.06	0.00
DF 0014	Plums, dried (prunes)	PP	0.13	0.61	0.08	0.35	0.05	0.05	0.01	0.35	0.05	0.49	0.06	0.13	0.02
FS 2001	Subgroup of peaches, raw (incl. dried apricots)	RAC	0.16	13.03	2.08	16.29	2.61	8.29	1.33	12.95	2.07	5.35	0.86	0.04	0.01
FB 2006	Subgroup of Bush berries, raw (including processed)	RAC	0.365	1.31	0.48	5.50	2.01	0.01	0.00	2.57	0.94	0.82	0.30	2.15	0.78
FB 0269	Grapes, raw (incl. must, incl. wine, excl. dried, excl. juice)	RAC	0.145	128.64	18.65	97.04	14.07	7.74	1.12	43.94	6.37	88.68	12.86	8.80	1.28
DF 0269	Grapes, dried (= currants, raisins and sultanas) (from table grapes)	PP	0.188	3.09	0.58	1.51	0.28	0.03	0.01	1.38	0.26	4.26	0.80	0.42	0.08
JF 0269	Grape juice (from wine grapes)	PP	0.0058	0.56	0.00	1.96	0.01	0.02	0.00	2.24	0.01	2.27	0.01	0.34	0.00
FB 0275	Strawberry, raw	RAC	0.14	4.49	0.63	5.66	0.79	0.02	0.00	6.63	0.93	5.75	0.81	0.05	0.01
FI 0345	Mango, raw (incl. canned mango, incl. mango juice)	RAC	0.02	1.80	0.04	0.63	0.01	10.05	0.20	1.07	0.02	3.52	0.07	16.44	0.33
FI 0350	Papaya, raw	RAC	0.07	0.31	0.02	0.18	0.01	1.50	0.11	0.51	0.04	0.54	0.04	1.08	0.08
FI 0353	Pineapple, raw (incl. canned Pineapple, incl. pineapple juice, incl. dried pineapple)	RAC	0.01	13.13	0.13	11.13	0.11	6.94	0.07	14.36	0.14	36.74	0.37	18.81	0.19
VB 0404	Cauliflower, raw	RAC	0.02	5.27	0.11	5.01	0.10	NC	–	2.70	0.05	5.57	0.11	0.49	0.01
VB 0041	Cabbages, head, raw	RAC	0.02	8.97	0.18	27.12	0.54	1.44	0.03	24.96	0.50	4.55	0.09	11.23	0.22
VC 0424	Cucumber, raw	RA	0.01	6.72	0.07	11.03	0.11	32.10	0.32	15.10	0.15	4.05	0.04	9.57	0.10

PYRIPROXYFEN (200) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.1 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
		C													
VC 0425	Gherkin, raw	RAC	0.01	0.41	0.00	5.89	0.06	NC	–	0.06	0.00	0.37	0.00	2.07	0.02
VC 0431	Squash, Summer (Courgette, Marrow, Zucchetti, Zucchini), raw	RAC	0.01	NC	–	NC	–	5.48	0.05	NC	–	NC	–	1.03	0.01
VC 0046	Melons, except watermelon, raw (Cantaloupe)	RAC	0.016	9.20	0.15	11.95	0.19	14.63	0.23	8.99	0.14	7.86	0.13	2.46	0.04
VO 0448	Tomato, raw	RAC	0.1	32.13	3.21	51.27	5.13	34.92	3.49	73.37	7.34	15.15	1.52	8.88	0.89
–	Tomato, canned (& peeled)	PP	0.018	7.57	0.14	2.66	0.05	0.30	0.01	0.97	0.02	7.31	0.13	0.41	0.01
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.12	4.96	0.60	3.20	0.38	0.15	0.02	1.61	0.19	6.88	0.83	0.52	0.06
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.018	0.80	0.01	0.07	0.00	0.05	0.00	0.61	0.01	0.40	0.01	0.08	0.00
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), excl. okra	RAC	0.17	6.39	1.09	15.53	2.64	19.09	3.25	10.36	1.76	8.29	1.41	4.53	0.77
VO 2046	Subgroup of eggplants	RAC	0.17	1.01	0.17	1.69	0.29	21.37	3.63	3.00	0.51	1.40	0.24	NC	–
VL 0485	Mustard greens, raw (i.e. Indian mustard, Amsoi, mustard cabbage)	RAC	0.345	NC	–	NC	–	NC	–	NC	–	NC	–	0.13	0.04
VP 2060	Subgroup of beans with pods (all commodities within this group)	RAC	0.02	5.07	0.10	0.83	0.02	0.17	0.00	3.70	0.07	NC	–	NC	–
OR 0691	Cotton seed oil, edible	PP	0.002	1.68	0.00	0.66	0.00	1.13	0.00	1.18	0.00	0.89	0.00	0.37	0.00
HS 0444	Peppers, chili, dried	PP	1.7	0.11	0.19	0.21	0.36	0.36	0.61	0.21	0.36	0.25	0.43	0.15	0.26
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0	112.02	0.00	120.71	0.00	63.46	0.00	88.99	0.00	96.24	0.00	41.02	0.00
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.0076	28.01	0.21	30.18	0.23	15.86	0.12	22.25	0.17	24.06	0.18	10.25	0.08
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.0076	6.44	0.05	15.51	0.12	3.79	0.03	8.29	0.06	18.44	0.14	8.00	0.06
MO 0105	Edible offal (mammalian), raw	RAC	0	15.17	0.00	5.19	0.00	6.30	0.00	6.78	0.00	3.32	0.00	3.17	0.00
PM	Poultry meat, raw (incl. prepared) – 90% as	RA	0.0005	66.38	0.03	48.47	0.03	21.58	0.01	78.41	0.04	48.04	0.02	76.01	0.04

PYRIPROXYFEN (200) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.1 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
0110	muscle	C	2												
PM 0110	Poultry meat, raw (incl. prepared) – 10% as fat	RAC	0.01	7.38	0.07	5.39	0.05	2.40	0.02	8.71	0.09	5.34	0.05	8.45	0.08
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0.01	0.10	0.00	0.10	0.00	NC	–	0.10	0.00	0.71	0.01	NC	–
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0.00046	0.33	0.00	0.72	0.00	0.27	0.00	0.35	0.00	0.80	0.00	NC	–
	Total intake (µg/person) =				30.3		32.3		15.3		24.0		22.9		12.5
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (µg/person) =				6000		6000		5500		6000		6000		6000
	%ADI =				0.506%		0.538%		0.278%		0.400%		0.382%		0.208%
	Rounded %ADI =				1%		1%		0%		0%		0%		0%

PYRIPROXYFEN (200) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.1 mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
FC 0002	Subgroup of Lemons and limes, raw (incl. lemon juice) (incl. kumquat commodities)	RAC	0.013	18.97	0.25	0.97	0.01	6.23	0.08	0.09	0.00	3.35	0.04
FC 0003	Subgroup of Mandarins, raw (incl. mandarin juice)	RAC	0.013	0.16	0.00	0.27	0.00	9.06	0.12	0.01	0.00	0.02	0.00
FC 0004	Subgroup of Oranges, sweet, sour, raw	RAC	0.013	1.18	0.02	1.11	0.01	14.28	0.19	0.05	0.00	1.08	0.01
JF 0004	Subgroup of Oranges, juice (single strength, incl. concentrated)	PP	0.0036	0.08	0.00	0.26	0.00	12.61	0.05	0.14	0.00	0.33	0.00
FC 0005	Subgroup of Pummelo and grapefruits, raw (incl. grapefruit juice)	RAC	0.013	0.68	0.01	0.05	0.00	3.21	0.04	0.01	0.00	NC	–
FS 0013	Subgroup of Cherries, raw	RAC	0.26	0.01	0.00	0.01	0.00	5.96	1.55	0.01	0.00	NC	–
FS 0014	Subgroup of Plums, raw	RAC	0.045	0.07	0.00	0.01	0.00	15.56	0.70	0.01	0.00	NC	–
DF 0014	Plums, dried (prunes)	PP	0.13	0.01	0.00	0.01	0.00	0.37	0.05	0.01	0.00	NC	–
FS 2001	Subgroup of peaches, raw (incl. dried apricots)	RAC	0.16	0.02	0.00	0.01	0.00	10.76	1.72	0.01	0.00	NC	–
FB 2006	Subgroup of Bush berries, raw (including processed)	RAC	0.365	0.82	0.30	4.05	1.48	5.94	2.17	0.43	0.16	2.66	0.97
FB 0269	Grapes, raw (incl. must, incl. wine, excl. dried, excl. juice)	RAC	0.145	0.57	0.08	0.69	0.10	98.34	14.26	0.73	0.11	44.12	6.40
DF 0269	Grapes, dried (= currants, raisins and sultanas)	PP	0.188	0.01	0.00	0.13	0.02	1.06	0.20	0.01	0.00	0.03	0.01

PYRIPROXYFEN (200) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.1 mg/kg bw**

			STMR	Diets: g/person/day					Intake = daily intake: µg/person				
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
	(from table grapes)												
JF 0269	Grape juice (from wine grapes)	PP	0.0058	0.01	0.00	0.01	0.00	0.41	0.00	0.01	0.00	NC	–
FB 0275	Strawberry, raw	RAC	0.14	0.01	0.00	0.01	0.00	3.35	0.47	0.01	0.00	0.01	0.00
FI 0345	Mango, raw (incl. canned mango, incl. mango juice)	RAC	0.02	12.25	0.25	6.83	0.14	0.76	0.02	0.01	0.00	20.12	0.40
FI 0350	Papaya, raw	RAC	0.07	6.47	0.45	0.25	0.02	0.19	0.01	0.01	0.00	26.42	1.85
FI 0353	Pineapple, raw (incl. canned Pineapple, incl. pineapple juice, incl. dried pineapple)	RAC	0.01	8.51	0.09	6.27	0.06	6.89	0.07	0.18	0.00	24.94	0.25
VB 0404	Cauliflower, raw	RAC	0.02	0.01	0.00	0.01	0.00	2.73	0.05	0.01	0.00	NC	–
VB 0041	Cabbages, head, raw	RAC	0.02	3.82	0.08	2.99	0.06	49.16	0.98	0.01	0.00	NC	–
VC 0424	Cucumber, raw	RAC	0.01	0.68	0.01	1.81	0.02	10.40	0.10	0.01	0.00	0.04	0.00
VC 0425	Gherkin, raw	RAC	0.01	0.15	0.00	0.39	0.00	3.15	0.03	0.01	0.00	0.01	0.00
VC 0431	Squash, Summer (Courgette, Marrow, Zucchetti, Zucchini), raw	RAC	0.01	0.09	0.00	1.01	0.01	NC	–	1.91	0.02	NC	–
VC 0046	Melons, except watermelon, raw (Cantaloupe)	RAC	0.016	0.19	0.00	0.10	0.00	4.98	0.08	0.01	0.00	NC	–
VO 0448	Tomato, raw	RAC	0.1	12.99	1.30	4.79	0.48	58.40	5.84	0.92	0.09	0.09	0.01
–	Tomato, canned (& peeled)	PP	0.018	0.07	0.00	0.08	0.00	2.42	0.04	0.07	0.00	NC	–
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.12	0.58	0.07	0.22	0.03	2.21	0.27	0.24	0.03	3.10	0.37
JF 0448	Tomato, juice (single strength, incl. concentrated)	PP	0.018	0.05	0.00	0.01	0.00	0.42	0.01	0.01	0.00	0.02	0.00
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), excl. okra	RAC	0.17	8.97	1.52	14.13	2.40	25.14	4.27	0.91	0.15	NC	–
VO 2046	Subgroup of eggplants	RAC	0.17	1.31	0.22	8.26	1.40	3.95	0.67	0.01	0.00	NC	–
VL 0485	Mustard greens, raw (i.e. Indian mustard, Amsoi, mustard cabbage)	RAC	0.345	0.04	0.01	0.03	0.01	NC	–	0.01	0.00	NC	–
VP 2060	Subgroup of beans with pods (all commodities within this group)	RAC	0.02	NC	–	NC	–	NC	–	NC	–	NC	–
OR 0691	Cotton seed oil, edible	PP	0.002	1.28	0.00	0.05	0.00	0.45	0.00	0.42	0.00	0.15	0.00
HS 0444	Peppers, chili, dried	PP	1.7	0.58	0.99	1.27	2.16	1.21	2.06	0.12	0.20	NC	–
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0	23.34	0.00	40.71	0.00	97.15	0.00	18.06	0.00	57.71	0.00
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.0076	5.84	0.04	10.18	0.08	24.29	0.18	4.52	0.03	14.43	0.11
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.0076	1.05	0.01	1.14	0.01	18.69	0.14	0.94	0.01	3.12	0.02
MO 0105	Edible offal (mammalian), raw	RAC	0	4.64	0.00	1.97	0.00	10.01	0.00	3.27	0.00	3.98	0.00

PYRIPROXYFEN (200) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.1 mg/kg bw**

			STMR	Diets: g/person/day						Intake = daily intake: µg/person				
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
PM 0110	Poultry meat, raw (incl. prepared) – 90% as muscle	RAC	0.00052	3.53	0.00	10.83	0.01	51.36	0.03	4.53	0.00	50.00	0.03
PM 0110	Poultry meat, raw (incl. prepared) – 10% as fat	RAC	0.01	0.39	0.00	1.20	0.01	5.71	0.06	0.50	0.01	5.56	0.06
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0.01	NC	–	NC	–	0.32	0.00	NC	–	NC	–
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0.00046	0.10	0.00	0.70	0.00	0.97	0.00	0.10	0.00	NC	–
	Total intake (µg/person) =				5.7		8.5		36.5		0.8		10.5
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (µg/person) =				6000		6000		6000		6000		6000
	%ADI =				0.095%		0.142%		0.609%		0.014%		0.175%
	Rounded %ADI =				0%		0%		1%		0%		0%

SPINETORAM (233) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.05 mg/kg bw**

			STMR	Diets as g/person/day						Intake as µg/person/day					
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
FC 0003	Subgroup of Mandarins, raw	RAC	0.0605	6.18	0.37	3.66	0.22	0.25	0.02	6.82	0.41	3.49	0.21	19.38	1.17
FC 0004	Subgroup of Oranges, sweet, sour, raw	RAC	0.0435	20.66	0.90	5.23	0.23	11.90	0.52	37.90	1.65	21.16	0.92	56.46	2.46
JF 0004	Subgroup of Oranges, juice (single strength, incl. concentrated)	PP	0.003	1.27	0.00	2.20	0.01	0.09	0.00	11.81	0.04	0.46	0.00	1.69	0.01
FP 0009	Group of Pome fruits, raw (incl. apple cider, excl. apple juice)	RAC	0.025	19.35	0.48	34.06	0.85	17.87	0.45	25.74	0.64	7.69	0.19	56.85	1.42
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.011	0.32	0.00	3.07	0.03	0.07	0.00	5.00	0.06	0.29	0.00	5.57	0.06
FS 0013	Subgroup of Cherries, raw	RAC	0.0205	0.92	0.02	9.15	0.19	0.01	0.00	0.61	0.01	0.06	0.00	6.64	0.14
FS 0014	Subgroup of Plums, raw (incl. dried plums)	RAC	0.02	2.67	0.05	8.77	0.18	0.07	0.00	3.03	0.06	0.70	0.01	4.34	0.09
FS 0240	Apricot, raw (incl. dried)	RAC	0.0485	5.15	0.25	3.66	0.18	0.03	0.00	2.25	0.11	0.17	0.01	6.80	0.33
–	Peaches and nectarines, raw	RAC	0.055	2.87	0.16	2.21	0.12	0.15	0.01	5.94	0.33	1.47	0.08	15.66	0.86
FB 0272	Raspberries, red, black, raw	RAC	0.42	0.07	0.03	0.93	0.39	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00
FB 0020	Blueberries, raw	RAC	0.12	0.01	0.00	0.03	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00
FB 0021	Currants, Black, Red, White, raw	RAC	0.18	0.02	0.00	0.74	0.13	0.01	0.00	0.03	0.01	0.01	0.00	0.01	0.00
FB 0269	Grapes, raw (incl. must, incl. dried, incl. juice, incl. wine)	RAC	0.074	16.25	1.20	28.96	2.14	2.87	0.21	24.22	1.79	9.33	0.69	68.64	5.08
FB 0275	Strawberry, raw	RAC	0.026	0.70	0.02	2.01	0.05	0.04	0.00	1.36	0.04	0.37	0.01	2.53	0.07
FT 0305	Table olives, raw (incl. preserved)	RAC	0.02	0.70	0.01	0.32	0.01	0.01	0.00	1.53	0.03	0.17	0.00	1.85	0.04
FI 0343	Litchi, raw (incl. processed)	RAC	0.02	2.32	0.05	1.43	0.03	1.81	0.04	7.42	0.15	NC	–	4.54	0.09
FI 0326	Avocado, raw	RAC	0.02	0.13	0.00	0.03	0.00	2.05	0.04	2.54	0.05	2.34	0.05	0.12	0.00
FI 0345	Mango, raw (incl. canned mango, incl. mango juice)	RAC	0.02	10.48	0.21	0.01	0.00	7.24	0.14	6.87	0.14	19.98	0.40	6.25	0.13
FI 2540	Pitaya, raw (i.e dragon fruit or pitahaya)	RAC	0.0915	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	NC	–	0.01	0.00

PYRIPROXYFEN (200) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.1 mg/kg bw**

			STMR	Diets: g/person/day						Intake = daily intake: µg/person					
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**		
FI 0351	Passion fruit, raw	RAC	0.12	0.58	0.07	0.01	0.00	0.59	0.07	0.60	0.07	0.18	0.02	0.08	0.01
VA 2031	Subgroup of bulb onions	RAC	0.01	31.65	0.32	43.28	0.43	3.68	0.04	38.48	0.38	20.46	0.20	47.29	0.47
VA 0384	Leek, raw	RAC	0.026	0.18	0.00	1.59	0.04	0.03	0.00	0.28	0.01	0.01	0.00	3.21	0.08
–	Onions, green, raw	RAC	0.33	2.45	0.81	1.49	0.49	1.02	0.34	2.60	0.86	0.60	0.20	2.03	0.67
VB 0040	Group of Brassica vegetables (excl. Brassica leafy vegetables), raw	RAC	0.05	6.43	0.32	40.26	2.01	0.80	0.04	9.94	0.50	12.07	0.60	17.73	0.89
VC 2039	Subgroup of Cucumbers and Squashes, raw	RAC	0.02	10.52	0.21	39.36	0.79	2.07	0.04	25.74	0.51	2.80	0.06	44.83	0.90
VC 0046	Melons, except watermelon, raw (Cantaloupe)	RAC	0.02	8.90	0.18	8.64	0.17	0.80	0.02	17.90	0.36	2.80	0.06	29.17	0.58
VO 0448	Tomato, raw (incl. juice, incl. paste, incl. canned)	RAC	0.02	51.75	1.04	81.80	1.64	16.99	0.34	102.02	2.04	26.32	0.53	214.77	4.30
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), incl. okra	RAC	0.026	10.45	0.27	13.74	0.36	13.81	0.36	14.53	0.38	15.25	0.40	27.93	0.73
VO 0440	Eggplant, raw (i.e. aubergine)	RAC	0.026	5.58	0.15	4.31	0.11	0.89	0.02	9.31	0.24	13.64	0.35	20.12	0.52
VL 0483	Lettuce, leaf, raw	RAC	0.0895	0.53	0.05	0.36	0.03	0.16	0.01	6.21	0.56	1.90	0.17	6.05	0.54
VL 0502	Spinach, raw	RAC	1.6	0.74	1.18	0.22	0.35	0.02	0.03	0.91	1.46	0.04	0.06	2.92	4.67
VL 0401	Broccoli, Chinese, raw (i.e. kailan)	RAC	2.65	0.42	1.11	0.08	0.21	0.01	0.03	0.60	1.59	NC	–	0.52	1.38
VP 0061	Beans with pods (Phaseolus spp): (immature pods + succulent seeds)	RAC	0.024	0.68	0.02	NC	–	NC	–	0.39	0.01	0.22	0.01	0.49	0.01
VD 0541	Soya bean, dry, raw (incl. paste, incl. curd, incl. oil, incl. sauce)	RAC	0.02	72.79	1.46	59.05	1.18	20.55	0.41	74.20	1.48	61.12	1.22	73.24	1.46
VR 0596	Sugar beet, raw (incl. sugar)	RAC	0.02	0.13	0.00	NC	–	0.08	0.00	0.66	0.01	0.47	0.01	88.94	1.78
VR 0589	Potato, raw (incl. flour, incl. frozen, incl. starch, incl. tapioca)	RAC	0.02	59.74	1.19	316.14	6.32	9.78	0.20	60.26	1.21	54.12	1.08	119.82	2.40
VS 0624	Celery	RAC	0.3	2.14	0.64	3.79	1.14	2.35	0.71	5.69	1.71	0.02	0.01	2.75	0.83
VS 0621	Asparagus, raw	RAC	0.1566	0.01	0.00	0.01	0.00	0.01	0.00	0.03	0.00	0.07	0.01	0.21	0.03
CM 0649 (GC 0649)	Rice, husked, dry (incl. polished, incl. flour, incl. starch, incl. oil, incl. beverages)	REP	0.04	45.40	1.82	14.99	0.60	84.88	3.40	111.73	4.47	194.75	7.79	93.12	3.72
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. flour, incl. oil, incl. beer, incl. germ, incl. starch)	RAC	0.02	29.81	0.60	44.77	0.90	108.95	2.18	52.37	1.05	60.28	1.21	75.69	1.51
GC 0447	Sweet corn on the cob, raw (incl. frozen kernels, incl. canned kernels)	RAC	0.02	0.14	0.00	0.94	0.02	5.70	0.11	2.61	0.05	1.94	0.04	0.22	0.00
GS 0659	Sugar cane, raw (incl. sugar, incl. molasses)	RAC	0.03	99.68	2.99	86.27	2.59	31.38	0.94	80.36	2.41	84.18	2.53	99.10	2.97
TN 0085	Group of Tree nuts, raw (incl. processed)	RAC	0.02	4.06	0.08	3.27	0.07	7.01	0.14	13.93	0.28	14.01	0.28	9.36	0.19
SO 0691	Cotton seed, raw (incl. oil)	RAC	0	20.53	0.00	9.80	0.00	6.42	0.00	4.73	0.00	7.14	0.00	18.68	0.00
SB 0716	Coffee bean, raw (i.e. green coffee)	RAC	0.03	0.96	0.03	0.16	0.00	0.91	0.03	0.27	0.01	1.37	0.04	0.46	0.01
HS 0444	Peppers, chili, dried	PP	0.26	0.42	0.11	0.53	0.14	0.84	0.22	0.50	0.13	0.95	0.25	0.37	0.10
DT 1114	Tea, green or black, fermented and dried,	RAC	118	2.28	269.04	1.98	233.64	0.46	54.28	2.43	286.74	1.29	152.22	3.04	358.72

PYRIPROXYFEN (200) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.1 mg/kg bw**

			STMR	Diets: g/person/day											
				Intake = daily intake: µg/person											
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**		
	(including concentrates)														
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.009	24.96	0.22	57.95	0.52	16.70	0.15	38.38	0.35	26.46	0.24	29.00	0.26
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.045	6.24	0.28	14.49	0.65	4.18	0.19	9.60	0.43	6.62	0.30	7.25	0.33
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.045	3.29	0.15	6.14	0.28	0.82	0.04	1.57	0.07	2.23	0.10	1.07	0.05
MO 0105	Edible offal (mammalian), raw	RAC	0.009	4.79	0.04	9.68	0.09	2.97	0.03	5.49	0.05	3.84	0.03	5.03	0.05
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.0087	289.65	2.52	485.88	4.23	26.92	0.23	239.03	2.08	199.91	1.74	180.53	1.57
PM 0110	Poultry meat, raw (incl. prepared) – 90% as muscle	RAC	0.0002	13.17	0.00	26.78	0.01	7.24	0.00	116.71	0.03	22.54	0.00	32.09	0.01
PM 0110	Poultry meat, raw (incl. prepared) – 10% as fat	RAC	0.0053	1.46	0.01	2.98	0.02	0.80	0.00	12.97	0.07	2.50	0.01	3.57	0.02
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0.0053	0.10	0.00	0.10	0.00	NC	–	0.10	0.00	0.10	0.00	0.10	0.00
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0.0005	0.12	0.00	0.12	0.00	0.11	0.00	5.37	0.00	0.24	0.00	0.10	0.00
PE 0112	Eggs, raw, (incl. dried)	RAC	0.0005	7.84	0.00	23.08	0.01	2.88	0.00	14.89	0.01	9.81	0.00	14.83	0.01
	Total intake (µg/person) =				290.7		263.8		66.0		317.1		174.4		403.7
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (µg/person) =				3000		3000		3000		3000		3000		3000
	%ADI =				9.7%		8.8%		2.2%		10.6%		5.8%		13.5%
	Rounded %ADI =				10%		9%		2%		10%		6%		10%

SPINETORAM (233) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.05 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
FC 0003	Subgroup of Mandarins, raw	RAC	0.0605	12.34	0.75	14.99	0.91	16.08	0.97	10.76	0.65	9.94	0.60	NC	–
FC 0004	Subgroup of Oranges, sweet, sour, raw	RAC	0.0435	15.68	0.68	24.00	1.04	6.80	0.30	29.09	1.27	15.39	0.67	160.47	6.98
JF 0004	Subgroup of Oranges, juice (single strength, incl. concentrated)	PP	0.003	33.31	0.10	1.78	0.01	0.28	0.00	18.97	0.06	14.01	0.04	13.36	0.04
FP 0009	Group of Pome fruits, raw (incl. apple cider, excl. apple juice)	RAC	0.025	51.09	1.28	65.40	1.64	42.71	1.07	45.29	1.13	62.51	1.56	7.74	0.19
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.011	14.88	0.16	11.98	0.13	0.15	0.00	9.98	0.11	30.32	0.33	3.47	0.04

SPINETORAM (233) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.05 mg/kg bw**

			STMR	Diets as g/person/day						Intake as µg/person/day					
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
FS 0013	Subgroup of Cherries, raw	RAC	0.0205	1.40	0.03	4.21	0.09	0.04	0.00	2.93	0.06	1.50	0.03	NC	–
FS 0014	Subgroup of Plums, raw (incl. dried plums)	RAC	0.02	5.55	0.11	4.37	0.09	6.08	0.12	3.66	0.07	3.93	0.08	0.46	0.01
FS 0240	Apricot, raw (incl. dried)	RAC	0.0485	4.27	0.21	3.31	0.16	0.06	0.00	2.86	0.14	1.71	0.08	NC	–
–	Peaches and nectarines, raw	RAC	0.055	8.76	0.48	12.98	0.71	8.23	0.45	10.09	0.55	3.64	0.20	0.04	0.00
FB 0272	Raspberries, red, black, raw	RAC	0.42	0.47	0.20	0.91	0.38	0.01	0.00	0.99	0.42	1.14	0.48	NC	–
FB 0020	Blueberries, raw	RAC	0.12	0.04	0.00	0.23	0.03	0.01	0.00	0.83	0.10	0.33	0.04	NC	–
FB 0021	Currants, Black, Red, White, raw	RAC	0.18	0.48	0.09	4.23	0.76	NC	–	1.51	0.27	0.49	0.09	NC	–
FB 0269	Grapes, raw (incl. must, incl. dried, incl. juice, incl. wine)	RAC	0.074	142.23	10.53	105.77	7.83	7.87	0.58	52.44	3.88	109.22	8.08	10.96	0.81
FB 0275	Strawberry, raw	RAC	0.026	4.49	0.12	5.66	0.15	0.02	0.00	6.63	0.17	5.75	0.15	0.05	0.00
FT 0305	Table olives, raw (incl. preserved)	RAC	0.02	2.00	0.04	2.48	0.05	0.01	0.00	1.21	0.02	1.64	0.03	0.27	0.01
FI 0343	Litchi, raw (incl. processed)	RAC	0.02	8.00	0.16	3.70	0.07	2.91	0.06	0.05	0.00	11.86	0.24	9.83	0.20
FI 0326	Avocado, raw	RAC	0.02	2.65	0.05	0.87	0.02	0.46	0.01	1.64	0.03	1.30	0.03	0.96	0.02
FI 0345	Mango, raw (incl. canned mango, incl. mango juice)	RAC	0.02	1.80	0.04	0.63	0.01	10.05	0.20	1.07	0.02	3.52	0.07	16.44	0.33
FI 2540	Pitaya, raw (i.e dragon fruit or pitahaya)	RAC	0.0915	NC	–	NC	–	0.08	0.01	NC	–	NC	–	NC	–
FI 0351	Passion fruit, raw	RAC	0.12	0.01	0.00	0.01	0.00	NC	–	NC	–	0.02	0.00	NC	–
VA 2031	Subgroup of bulb onions	RAC	0.01	20.67	0.21	31.32	0.31	37.52	0.38	35.08	0.35	11.77	0.12	13.74	0.14
VA 0384	Leek, raw	RAC	0.026	4.01	0.10	4.41	0.11	0.72	0.02	0.54	0.01	16.41	0.43	0.03	0.00
–	Onions, green, raw	RAC	0.33	1.55	0.51	0.74	0.24	1.05	0.35	3.74	1.23	0.94	0.31	6.45	2.13
VB 0040	Group of Brassica vegetables (excl. Brassica leafy vegetables), raw	RAC	0.05	20.71	1.04	39.81	1.99	25.06	1.25	37.93	1.90	18.12	0.91	16.74	0.84
VC 2039	Subgroup of Cucumbers and Squashes, raw	RAC	0.02	7.14	0.14	16.92	0.34	37.58	0.75	15.16	0.30	4.42	0.09	12.67	0.25
VC 0046	Melons, except watermelon, raw (Cantaloupe)	RAC	0.02	9.20	0.18	11.95	0.24	14.63	0.29	8.99	0.18	7.86	0.16	2.46	0.05
VO 0448	Tomato, raw (incl. juice, incl. paste, incl. canned)	RAC	0.02	64.74	1.29	68.31	1.37	36.05	0.72	82.09	1.64	54.50	1.09	11.69	0.23
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), incl. okra	RAC	0.026	6.39	0.17	15.53	0.40	19.13	0.50	10.53	0.27	8.29	0.22	5.25	0.14
VO 0440	Eggplant, raw (i.e. aubergine)	RAC	0.026	1.01	0.03	1.69	0.04	21.37	0.56	3.00	0.08	1.40	0.04	NC	–
VL 0483	Lettuce, leaf, raw	RAC	0.0895	14.50	1.30	11.76	1.05	13.14	1.18	19.50	1.75	4.81	0.43	2.23	0.20
VL 0502	Spinach, raw	RAC	1.6	2.20	3.52	1.76	2.82	13.38	21.41	2.94	4.70	5.53	8.85	0.02	0.03
VL 0401	Broccoli, Chinese, raw (i.e. kailan)	RAC	2.65	NC	–	NC	–	9.03	23.93	NC	–	NC	–	0.12	0.32
VP 0061	Beans with pods (Phaseolus spp): (immature pods + succulent seeds)	RAC	0.024	5.07	0.12	0.83	0.02	0.17	0.00	3.70	0.09	NC	–	NC	–

SPINETORAM (233) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.05 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
VD 0541	Soya bean, dry, raw (incl. paste, incl. curd, incl. oil, incl. sauce)	RAC	0.02	106.33	2.13	117.78	2.36	42.12	0.84	195.70	3.91	222.52	4.45	80.47	1.61
VR 0596	Sugar beet, raw (incl. sugar)	RAC	0.02	0.01	0.00	NC	–	0.01	0.00	0.01	0.00	NC	–	NC	–
VR 0589	Potato, raw (incl. flour, incl. frozen, incl. starch, incl. tapioca)	RAC	0.02	225.03	4.50	234.24	4.68	71.48	1.43	177.55	3.55	234.55	4.69	37.71	0.75
VS 0624	Celery	RAC	0.3	7.68	2.30	2.85	0.86	NC	–	3.34	1.00	16.83	5.05	4.04	1.21
VS 0621	Asparagus, raw	RAC	0.15665	0.84	0.13	2.08	0.33	7.11	1.11	1.01	0.16	1.69	0.26	0.04	0.01
CM 0649 (GC 0649)	Rice, husked, dry (incl. polished, incl. flour, incl. starch, incl. oil, incl. beverages)	REP	0.04	20.96	0.84	16.04	0.64	339.67	13.59	75.51	3.02	16.86	0.67	86.13	3.45
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. flour, incl. oil, incl. beer, incl. germ, incl. starch)	RAC	0.02	18.51	0.37	26.18	0.52	26.04	0.52	39.99	0.80	7.36	0.15	64.58	1.29
GC 0447	Sweet corn on the cob, raw (incl. frozen kernels, incl. canned kernels)	RAC	0.02	11.43	0.23	3.71	0.07	0.74	0.01	13.63	0.27	3.07	0.06	1.50	0.03
GS 0659	Sugar cane, raw (incl. sugar, incl. molasses)	RAC	0.03	92.24	2.77	95.72	2.87	28.47	0.85	77.39	2.32	117.73	3.53	103.90	3.12
TN 0085	Group of Tree nuts, raw (incl. processed)	RAC	0.02	8.52	0.17	8.94	0.18	15.09	0.30	9.60	0.19	14.57	0.29	26.26	0.53
SO 0691	Cotton seed, raw (incl. oil)	RAC	0	10.71	0.00	4.23	0.00	7.19	0.00	7.54	0.00	5.66	0.00	2.38	0.00
SB 0716	Coffee bean, raw (i.e. green coffee)	RAC	0.03	0.60	0.02	NC	–	0.62	0.02	1.71	0.05	NC	–	3.51	0.11
HS 0444	Peppers, chili, dried	PP	0.26	0.11	0.03	0.21	0.05	0.36	0.09	0.21	0.05	0.25	0.07	0.15	0.04
DT 1114	Tea, green or black, fermented and dried, (including concentrates)	RAC	118	2.91	343.38	1.73	204.14	1.14	134.52	1.85	218.30	2.29	270.22	0.74	87.32
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.009	112.02	1.01	120.71	1.09	63.46	0.57	88.99	0.80	96.24	0.87	41.02	0.37
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.045	28.01	1.26	30.18	1.36	15.86	0.71	22.25	1.00	24.06	1.08	10.25	0.46
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.045	6.44	0.29	15.51	0.70	3.79	0.17	8.29	0.37	18.44	0.83	8.00	0.36
MO 0105	Edible offal (mammalian), raw	RAC	0.009	15.17	0.14	5.19	0.05	6.30	0.06	6.78	0.06	3.32	0.03	3.17	0.03
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.0087	388.92	3.38	335.88	2.92	49.15	0.43	331.25	2.88	468.56	4.08	245.45	2.14
PM 0110	Poultry meat, raw (incl. prepared) – 90% as muscle	RAC	0.0002	66.38	0.01	48.47	0.01	21.58	0.00	78.41	0.02	48.04	0.01	76.01	0.02
PM 0110	Poultry meat, raw (incl. prepared) – 10% as fat	RAC	0.0053	7.38	0.04	5.39	0.03	2.40	0.01	8.71	0.05	5.34	0.03	8.45	0.04
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0.005	0.10	0.00	0.10	0.00	NC	–	0.10	0.00	0.71	0.00	NC	–

SPINETORAM (233) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.05 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
			3												
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0.0005	0.33	0.00	0.72	0.00	0.27	0.00	0.35	0.00	0.80	0.00	NC	–
PE 0112	Eggs, raw, (incl. dried)	RAC	0.0005	25.84	0.01	29.53	0.01	28.05	0.01	33.19	0.02	36.44	0.02	8.89	0.00

Total intake (µg/person) =	386.6	245.9	210.4	260.3	321.8	115.8
Bodyweight per region (kg bw) =	60	60	55	60	60	60
ADI (µg/person) =	3000	3000	2750	3000	3000	3000
%ADI =	12.9%	8.2%	7.7%	8.7%	10.7%	3.9%
Rounded %ADI =	10%	8%	8%	9%	10%	4%

SPINETORAM (233) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.05 mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
FC 0003	Subgroup of Mandarins, raw	RAC	0.0605	0.16	0.01	0.27	0.02	9.06	0.55	0.01	0.00	0.02	0.00
FC 0004	Subgroup of Oranges, sweet, sour, raw	RAC	0.0435	1.18	0.05	1.11	0.05	14.28	0.62	0.05	0.00	1.08	0.05
JF 0004	Subgroup of Oranges, juice (single strength, incl. concentrated)	PP	0.003	0.08	0.00	0.26	0.00	12.61	0.04	0.14	0.00	0.33	0.00
FP 0009	Group of Pome fruits, raw (incl. apple cider, excl. apple juice)	RAC	0.025	68.85	1.72	10.93	0.27	70.82	1.77	189.78	4.74	19.56	0.49
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.011	0.03	0.00	0.10	0.00	7.19	0.08	0.03	0.00	NC	–
FS 0013	Subgroup of Cherries, raw	RAC	0.0205	0.01	0.00	0.01	0.00	5.96	0.12	0.01	0.00	NC	–
FS 0014	Subgroup of Plums, raw (incl. dried plums)	RAC	0.02	0.07	0.00	0.02	0.00	16.65	0.33	0.01	0.00	NC	–
FS 0240	Apricot, raw (incl. dried)	RAC	0.0485	0.01	0.00	0.01	0.00	3.29	0.16	0.01	0.00	NC	–
–	Peaches and nectarines, raw	RAC	0.055	0.02	0.00	0.01	0.00	7.47	0.41	0.01	0.00	NC	–
FB 0272	Raspberries, red, black, raw	RAC	0.42	0.01	0.00	0.01	0.00	2.04	0.86	0.01	0.00	NC	–
FB 0020	Blueberries, raw	RAC	0.12	NC	–	NC	–	0.20	0.02	NC	–	NC	–
FB 0021	Currants, Black, Red, White, raw	RAC	0.18	0.01	0.00	NC	–	0.74	0.13	NC	–	NC	–
FB 0269	Grapes, raw (incl. must, incl. dried, incl. juice, incl. wine)	RAC	0.074	0.60	0.04	1.26	0.09	103.25	7.64	0.74	0.05	44.23	3.27
FB 0275	Strawberry, raw	RAC	0.026	0.01	0.00	0.01	0.00	3.35	0.09	0.01	0.00	0.01	0.00
FT 0305	Table olives, raw (incl. preserved)	RAC	0.02	0.01	0.00	0.01	0.00	1.75	0.04	0.01	0.00	0.24	0.00
FI 0343	Litchi, raw (incl. processed)	RAC	0.02	3.74	0.07	18.51	0.37	4.87	0.10	1.97	0.04	12.17	0.24
FI 0326	Avocado, raw	RAC	0.02	1.12	0.02	0.01	0.00	0.84	0.02	0.01	0.00	6.60	0.13
FI 0345	Mango, raw (incl. canned mango, incl. mango juice)	RAC	0.02	12.25	0.25	6.83	0.14	0.76	0.02	0.01	0.00	20.12	0.40
FI 2540	Pitaya, raw (i.e dragon fruit or pitahaya)	RAC	0.0915	0.01	0.00	0.01	0.00	NC	–	0.01	0.00	0.04	0.00

SPINETORAM (233) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.05 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
FI 0351	Passion fruit, raw	RAC	0.12	0.12	0.01	0.10	0.01	0.01	0.00	0.18	0.02	3.81	0.46
VA 2031	Subgroup of bulb onions	RAC	0.01	9.83	0.10	22.30	0.22	34.69	0.35	9.65	0.10	2.39	0.02
VA 0384	Leek, raw	RAC	0.026	0.02	0.00	1.44	0.04	1.22	0.03	0.01	0.00	NC	–
–	Onions, green, raw	RAC	0.33	1.43	0.47	0.05	0.02	0.20	0.07	NC	–	6.30	2.08
VB 0040	Group of Brassica vegetables (excl. Brassica leafy vegetables), raw	RAC	0.05	5.46	0.27	4.28	0.21	58.72	2.94	0.02	0.00	NC	–
VC 2039	Subgroup of Cucumbers and Squashes, raw	RAC	0.02	0.92	0.02	3.20	0.06	13.55	0.27	1.91	0.04	0.05	0.00
VC 0046	Melons, except watermelon, raw (Cantaloupe)	RAC	0.02	0.19	0.00	0.10	0.00	4.98	0.10	0.01	0.00	NC	–
VO 0448	Tomato, raw (incl. juice, incl. paste, incl. canned)	RAC	0.02	15.50	0.31	5.78	0.12	71.52	1.43	2.00	0.04	12.50	0.25
VO 0051	Subgroup of peppers, raw (incl. dried sweet peppers, excl. dried chilipeppers), incl. okra	RAC	0.026	15.20	0.40	14.23	0.37	25.14	0.65	0.91	0.02	NC	–
VO 0440	Eggplant, raw (i.e. aubergine)	RAC	0.026	1.31	0.03	8.26	0.21	3.95	0.10	0.01	0.00	NC	–
VL 0483	Lettuce, leaf, raw	RAC	0.0895	0.29	0.03	0.03	0.00	6.71	0.60	0.01	0.00	NC	–
VL 0502	Spinach, raw	RAC	1.6	0.17	0.27	0.01	0.02	0.81	1.30	0.01	0.02	NC	–
VL 0401	Broccoli, Chinese, raw (i.e. kailan)	RAC	2.65	0.01	0.03	0.01	0.03	NC	–	0.01	0.03	NC	–
VP 0061	Beans with pods (Phaseolus spp): (immature pods + succulent seeds)	RAC	0.024	NC	–	NC	–	NC	–	NC	–	NC	–
VD 0541	Soya bean, dry, raw (incl. paste, incl. curd, incl. oil, incl. sauce)	RAC	0.02	15.80	0.32	14.29	0.29	104.36	2.09	17.11	0.34	35.20	0.70
VR 0596	Sugar beet, raw (incl. sugar)	RAC	0.02	3.93	0.08	1.68	0.03	NC	–	NC	–	36.12	0.72
VR 0589	Potato, raw (incl. flour, incl. frozen, incl. starch, incl. tapioca)	RAC	0.02	23.96	0.48	13.56	0.27	213.41	4.27	104.35	2.09	8.56	0.17
VS 0624	Celery	RAC	0.3	3.66	1.10	2.65	0.80	4.84	1.45	2.47	0.74	4.94	1.48
VS 0621	Asparagus, raw	RAC	0.15665	0.01	0.00	0.01	0.00	0.17	0.03	0.01	0.00	NC	–
CM 0649 (GC 0649)	Rice, husked, dry (incl. polished, incl. flour, incl. starch, incl. oil, incl. beverages)	REP	0.04	52.55	2.10	286.02	11.44	18.64	0.75	19.67	0.79	75.09	3.00
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. flour, incl. oil, incl. beer, incl. germ, incl. starch)	RAC	0.02	116.66	2.33	10.52	0.21	38.46	0.77	76.60	1.53	34.44	0.69
GC 0447	Sweet corn on the cob, raw (incl. frozen kernels, incl. canned kernels)	RAC	0.02	3.63	0.07	20.50	0.41	8.78	0.18	0.02	0.00	0.17	0.00
GS 0659	Sugar cane, raw (incl. sugar, incl. molasses)	RAC	0.03	33.75	1.01	106.29	3.19	78.09	2.34	29.09	0.87	45.70	1.37
TN 0085	Group of Tree nuts, raw (incl. processed)	RAC	0.02	4.39	0.09	135.53	2.71	6.11	0.12	0.72	0.01	317.74	6.35
SO 0691	Cotton seed, raw (incl. oil)	RAC	0	8.14	0.00	0.32	0.00	2.84	0.00	2.69	0.00	0.97	0.00
SB 0716	Coffee bean, raw (i.e. green coffee)	RAC	0.03	0.83	0.02	0.69	0.02	1.09	0.03	2.91	0.09	0.82	0.02
HS 0444	Peppers, chili, dried	PP	0.26	0.58	0.15	1.27	0.33	1.21	0.31	0.12	0.03	NC	–
DT 1114	Tea, green or black, fermented and dried, (including	RAC	118	0.53	62.54	5.25	619.50	0.86	101.48	0.56	66.08	0.88	103.84

SPINETORAM (233) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.05 mg/kg bw**

			STMR	Diets as g/person/day						Intake as µg/person/day						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
	concentrates)														
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.009	23.34	0.21	40.71	0.37	97.15	0.87	18.06	0.16	57.71	0.52		
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.045	5.84	0.26	10.18	0.46	24.29	1.09	4.52	0.20	14.43	0.65		
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.045	1.05	0.05	1.14	0.05	18.69	0.84	0.94	0.04	3.12	0.14		
MO 0105	Edible offal (mammalian), raw	RAC	0.009	4.64	0.04	1.97	0.02	10.01	0.09	3.27	0.03	3.98	0.04		
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.0087	108.75	0.95	70.31	0.61	436.11	3.79	61.55	0.54	79.09	0.69		
PM 0110	Poultry meat, raw (incl. prepared) – 90% as muscle	RAC	0.00022	3.53	0.00	10.83	0.00	51.36	0.01	4.53	0.00	50.00	0.01		
PM 0110	Poultry meat, raw (incl. prepared) – 10% as fat	RAC	0.0053	0.39	0.00	1.20	0.01	5.71	0.03	0.50	0.00	5.56	0.03		
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0.0053	NC	–	NC	–	0.32	0.00	NC	–	NC	–		
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0.00049	0.10	0.00	0.70	0.00	0.97	0.00	0.10	0.00	NC	–		
PE 0112	Eggs, raw, (incl. dried)	RAC	0.00047	3.84	0.00	4.41	0.00	27.25	0.01	1.13	0.00	7.39	0.00		
	Total intake (µg/person) =				75.9		643.0		141.4		78.7		127.9		
	Bodyweight per region (kg bw) =				60		60		60		60		60		
	ADI (µg/person) =				3000		3000		3000		3000		3000		
	%ADI =				2.5%		21.4%		4.7%		2.6%		4.3%		
	Rounded %ADI =				3%		20%		5%		3%		4%		

TIAFENACIL (349) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.004 mg/kg bw**

			STMR	Diets as g/person/day						Intake as µg/person/day					
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
VD 0541	Soya bean, dry, raw (incl. paste, incl. curd, incl. oil, incl. sauce)	RAC	0.02	72.79	1.46	59.05	1.18	20.55	0.41	74.20	1.48	61.12	1.22	73.24	1.46
GC 0654	Wheat, raw (incl. bulgur, incl. fermented beverages, incl. germ, incl. wholemeal bread, incl. white flour products, incl. white bread)	RAC	0.02	381.15	7.62	341.55	6.83	38.35	0.77	281.89	5.64	172.83	3.46	434.07	8.68
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. flour, incl. oil, incl. beer, incl. germ, incl. starch)	RAC	0.02	29.81	0.60	44.77	0.90	108.95	2.18	52.37	1.05	60.28	1.21	75.69	1.51
SB 0716	Coffee bean raw (incl. roasted, incl. instant coffee, incl. substitutes)	RAC	0.02	1.36	0.03	3.59	0.07	1.44	0.03	5.18	0.10	2.02	0.04	1.70	0.03

TIAFENACIL (349) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.004 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat)	RAC	0.0003	31.20	0.01	72.44	0.02	20.88	0.01	47.98	0.01	33.08	0.01	36.25	0.01
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.0003	3.29	0.00	6.14	0.00	0.82	0.00	1.57	0.00	2.23	0.00	1.07	0.00
MO 0105	Edible offal (mammalian), raw	RAC	0.0003	4.79	0.00	9.68	0.00	2.97	0.00	5.49	0.00	3.84	0.00	5.03	0.00
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.0003	289.65	0.09	485.88	0.15	26.92	0.01	239.03	0.07	199.91	0.06	180.53	0.05
PM 0110	Poultry meat, raw (incl. prepared) – 90% as muscle	RAC	0	13.17	0.00	26.78	0.00	7.24	0.00	116.71	0.00	22.54	0.00	32.09	0.00
PM 0110	Poultry meat, raw (incl. prepared) – 10% as fat	RAC	0	1.46	0.00	2.98	0.00	0.80	0.00	12.97	0.00	2.50	0.00	3.57	0.00
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0	0.10	0.00	0.10	0.00	NC	–	0.10	0.00	0.10	0.00	0.10	0.00
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0	0.12	0.00	0.12	0.00	0.11	0.00	5.37	0.00	0.24	0.00	0.10	0.00
PE 0112	Eggs, raw, (incl. dried)	RAC	0	7.84	0.00	23.08	0.00	2.88	0.00	14.89	0.00	9.81	0.00	14.83	0.00
	Total intake (µg/person) =				9.8		9.2		3.4		8.4		6.0		11.8
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (µg/person) =				240		240		240		240		240		240
	%ADI =				4.084%		3.813%		1.417%		3.484%		2.499%		4.900%
	Rounded %ADI =				4%		4%		1%		3%		2%		5%

TIAFENACIL (349) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.004 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
VD 0541	Soya bean, dry, raw (incl. paste, incl. curd, incl. oil, incl. sauce)	RAC	0.02	106.33	2.13	117.78	2.36	42.12	0.84	195.70	3.91	222.52	4.45	80.47	1.61
GC 0654	Wheat, raw (incl. bulgur, incl. fermented beverages, incl. germ, incl. wholemeal bread, incl. white flour products, incl. white bread)	RAC	0.02	253.07	5.06	244.73	4.89	134.44	2.69	235.10	4.70	216.39	4.33	167.40	3.35
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. flour, incl. oil, incl. beer, incl. germ, incl. starch)	RAC	0.02	18.51	0.37	26.18	0.52	26.04	0.52	39.99	0.80	7.36	0.15	64.58	1.29
SB 0716	Coffee bean raw (incl. roasted, incl. instant coffee, incl. substitutes)	RAC	0.02	10.90	0.22	12.44	0.25	0.77	0.02	9.48	0.19	22.07	0.44	8.15	0.16

TIAFENACIL (349) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.004 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat)	RAC	0.0003	140.03	0.04	150.89	0.05	79.32	0.02	111.24	0.03	120.30	0.04	51.27	0.02
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.0003	6.44	0.00	15.51	0.00	3.79	0.00	8.29	0.00	18.44	0.01	8.00	0.00
MO 0105	Edible offal (mammalian), raw	RAC	0.0003	15.17	0.00	5.19	0.00	6.30	0.00	6.78	0.00	3.32	0.00	3.17	0.00
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.0003	388.92	0.12	335.88	0.10	49.15	0.01	331.25	0.10	468.56	0.14	245.45	0.07
PM 0110	Poultry meat, raw (incl. prepared) – 90% as muscle	RAC	0	66.38	0.00	48.47	0.00	21.58	0.00	78.41	0.00	48.04	0.00	76.01	0.00
PM 0110	Poultry meat, raw (incl. prepared) – 10% as fat	RAC	0	7.38	0.00	5.39	0.00	2.40	0.00	8.71	0.00	5.34	0.00	8.45	0.00
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0	0.10	0.00	0.10	0.00	NC	–	0.10	0.00	0.71	0.00	NC	–
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0	0.33	0.00	0.72	0.00	0.27	0.00	0.35	0.00	0.80	0.00	NC	–
PE 0112	Eggs, raw, (incl. dried)	RAC	0	25.84	0.00	29.53	0.00	28.05	0.00	33.19	0.00	36.44	0.00	8.89	0.00
	Total intake (µg/person) =				7.9		8.2		4.1		9.7		9.5		6.5
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (µg/person) =				240		240		220		240		240		240
	%ADI =				3.309%		3.406%		1.868%		4.059%		3.979%		2.710%
	Rounded %ADI =				3%		3%		2%		4%		4%		3%

TIAFENACIL (349) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.004 mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
VD 0541	Soya bean, dry, raw (incl. paste, incl. curd, incl. oil, incl. sauce)	RAC	0.02	15.80	0.32	14.29	0.29	104.36	2.09	17.11	0.34	35.20	0.70
GC 0654	Wheat, raw (incl. bulgur, incl. fermented beverages, incl. germ, incl. wholemeal bread, incl. white flour products, incl. white bread)	RAC	0.02	57.20	1.14	110.47	2.21	272.62	5.45	25.82	0.52	132.04	2.64
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. flour, incl. oil, incl. beer, incl. germ, incl. starch)	RAC	0.02	116.66	2.33	10.52	0.21	38.46	0.77	76.60	1.53	34.44	0.69

TIAFENACIL (349) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.004 mg/kg bw**

			STMR	Diets: g/person/day									
				Intake = daily intake: µg/person									
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
SB 0716	Coffee bean raw (incl. roasted, incl. instant coffee, incl. substitutes)	RAC	0.02	0.95	0.02	1.32	0.03	11.64	0.23	2.96	0.06	14.73	0.29
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat)	RAC	0.0003	29.18	0.01	50.89	0.02	121.44	0.04	22.58	0.01	72.14	0.02
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.0003	1.05	0.00	1.14	0.00	18.69	0.01	0.94	0.00	3.12	0.00
MO 0105	Edible offal (mammalian), raw	RAC	0.0003	4.64	0.00	1.97	0.00	10.01	0.00	3.27	0.00	3.98	0.00
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.0003	108.75	0.03	70.31	0.02	436.11	0.13	61.55	0.02	79.09	0.02
PM 0110	Poultry meat, raw (incl. prepared) – 90% as muscle	RAC	0	3.53	0.00	10.83	0.00	51.36	0.00	4.53	0.00	50.00	0.00
PM 0110	Poultry meat, raw (incl. prepared) – 10% as fat	RAC	0	0.39	0.00	1.20	0.00	5.71	0.00	0.50	0.00	5.56	0.00
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0	NC	–	NC	–	0.32	0.00	NC	–	NC	–
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0	0.10	0.00	0.70	0.00	0.97	0.00	0.10	0.00	NC	–
PE 0112	Eggs, raw, (incl. dried)	RAC	0	3.84	0.00	4.41	0.00	27.25	0.00	1.13	0.00	7.39	0.00
	Total intake (µg/person) =				3.9		2.8		8.7		2.5		4.4
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (µg/person) =				240		240		240		240		240
	%ADI =				1.606%		1.154%		3.632%		1.032%		1.823%
	Rounded %ADI =				2%		1%		4%		1%		2%

TRIFLOXYSTROBIN (213) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets as g/person/day											
				Intake as µg/person/day											
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
FC 0002	Subgroup of Lemons and limes, raw (incl. lemon juice) (incl. kumquat commodities)	RAC	0.171	4.82	0.82	2.45	0.42	3.93	0.67	25.44	4.35	8.74	1.49	16.23	2.78
FC 0004	Subgroup of Oranges, sweet, sour, raw	RAC	0.114	20.66	2.36	5.23	0.60	11.90	1.36	37.90	4.32	21.16	2.41	56.46	6.44
FP 0009	Group of Pome fruits, raw (incl. apple cider, excl. apple juice)	RAC	0.11	19.35	2.13	34.06	3.75	17.87	1.97	25.74	2.83	7.69	0.85	56.85	6.25
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.018	0.32	0.01	3.07	0.06	0.07	0.00	5.00	0.09	0.29	0.01	5.57	0.10
FS 0012	Group of Stone fruits, raw (incl. dried apricots, excl. dried plums)	RAC	0.38	11.33	4.31	23.62	8.98	0.24	0.09	11.32	4.30	2.28	0.87	33.26	12.64
DF 0014	Plums, dried (prunes)	PP	0.57	0.09	0.05	0.06	0.03	0.01	0.01	0.18	0.10	0.04	0.02	0.06	0.03
FB 2005	Subgroup of Caneberries, raw	RAC	0.56	0.42	0.24	1.05	0.59	0.01	0.01	0.02	0.01	0.02	0.01	1.24	0.69
FB 0020	Blueberries, raw	RAC	0.33	0.01	0.00	0.03	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00
FB 0021	Currants, Black, Red, White, raw	RAC	0.33	0.02	0.01	0.74	0.24	0.01	0.00	0.03	0.01	0.01	0.00	0.01	0.00

TRIFLOXYSTROBIN (213) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
FB 0268	Gooseberry, raw	RAC	0.33	0.01	0.00	0.24	0.08	NC	–	0.01	0.00	0.01	0.00	NC	–
FB 0273	Rose hips, raw (incl. processed)	RAC	0.33	0.51	0.17	0.31	0.10	0.39	0.13	1.62	0.53	NC	–	0.99	0.33
FB 0269	Grapes, raw (i.e. table grapes)	RAC	0.15	12.68	1.90	9.12	1.37	0.03	0.00	16.88	2.53	3.70	0.56	54.42	8.16
DF 0269	Grapes, dried (= currants, raisins and sultanas) (from table grapes)	PP	0.345	0.51	0.18	0.51	0.18	0.01	0.00	1.27	0.44	0.12	0.04	2.07	0.71
JF 0269	Grape juice (from wine grapes)	PP	0.036	0.14	0.01	0.29	0.01	0.05	0.00	0.30	0.01	0.24	0.01	0.05	0.00
–	Graps must (from wine grapes)	PP	0.07	0.33	0.02	0.13	0.01	0.01	0.00	0.02	0.00	0.01	0.00	0.02	0.00
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.023	0.67	0.02	12.53	0.29	2.01	0.05	1.21	0.03	3.53	0.08	4.01	0.09
FB 0275	Strawberry, raw	RAC	0.335	0.70	0.23	2.01	0.67	0.04	0.01	1.36	0.46	0.37	0.12	2.53	0.85
FT 0305	Table olives, raw	RAC	0.085	0.08	0.01	0.16	0.01	NC	–	0.24	0.02	0.01	0.00	0.65	0.06
DM 0305	Table olives, preserved	PP	0.353	0.58	0.20	0.15	0.05	0.01	0.00	1.22	0.43	0.15	0.05	1.13	0.40
FI 0327	Banana, raw (incl, raw plantains)	RAC	0.02	4.90	0.10	6.94	0.14	99.37	1.99	32.44	0.65	48.24	0.96	24.67	0.49
FI 0345	Mango, raw	RAC	0.043	10.38	0.45	0.01	0.00	7.24	0.31	6.85	0.29	19.53	0.84	4.52	0.19
FI 0350	Papaya, raw	RAC	0.2	0.35	0.07	0.01	0.00	3.05	0.61	0.80	0.16	7.28	1.46	1.00	0.20
VA 0384	Leek, raw	RAC	0.31	0.18	0.06	1.59	0.49	0.03	0.01	0.28	0.09	0.01	0.00	3.21	1.00
VB 0042	Subgroup of Flowerhead Brassica, raw	RAC	0.17	2.54	0.43	0.49	0.08	0.01	0.00	3.57	0.61	7.79	1.32	3.12	0.53
VB 0402	Brussels sprouts, raw	RAC	0.17	0.63	0.11	6.41	1.09	0.13	0.02	1.03	0.18	NC	–	2.35	0.40
VB 0041	Cabbages, head, raw	RAC	0.17	2.73	0.46	27.92	4.75	0.55	0.09	4.47	0.76	4.27	0.73	10.25	1.74
VC 0045	Group of Fruiting vegetables, cucurbits, raw	RAC	0.095	53.14	5.05	86.21	8.19	6.28	0.60	92.76	8.81	15.64	1.49	155.30	14.75
VO 0448	Tomato, raw (incl. juice, incl. canned, excl. paste)	RAC	0.08	42.41	3.39	76.50	6.12	10.69	0.86	85.07	6.81	24.98	2.00	203.44	16.28
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.13	2.34	0.30	1.33	0.17	1.57	0.20	4.24	0.55	0.34	0.04	2.83	0.37
VO 0445	Peppers, sweet, raw	RAC	0.1	1.43	0.14	2.61	0.26	1.05	0.11	2.01	0.20	2.59	0.26	6.24	0.62
VO 0440	Eggplant, raw (i.e. aubergine)	RAC	0.08	5.58	0.45	4.31	0.34	0.89	0.07	9.31	0.74	13.64	1.09	20.12	1.61
VL 0470	Corn salad (Lambs lettuce)	RAC	3.3	0.64	2.11	1.13	3.73	0.70	2.31	1.70	5.61	NC	–	0.82	2.71
VL 0483	Lettuce, leaf, raw	RAC	3.3	0.53	1.75	0.36	1.19	0.16	0.53	6.21	20.49	1.90	6.27	6.05	19.97
VL 0502	Spinach, raw	RAC	7.6	0.74	5.62	0.22	1.67	0.02	0.15	0.91	6.92	0.04	0.30	2.92	22.19
VL 0494	Radish leaves, raw	RAC	1.4	0.26	0.36	0.45	0.63	0.28	0.39	0.68	0.95	NC	–	0.33	0.46
VP 2060	Subgroup of beans with pods (all commodities within this group)	RAC	0.09	0.68	0.06	NC	–	NC	–	0.39	0.04	0.22	0.02	0.49	0.04
VP 2062	Subgroup of succulent beans without pods (all commodities within this group)	RAC	0.073	5.07	0.37	1.02	0.07	0.49	0.04	1.78	0.13	1.19	0.09	8.57	0.63
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.021	2.39	0.05	1.61	0.03	10.47	0.22	1.84	0.04	12.90	0.27	7.44	0.16
VD 0541	Soya bean, dry, raw (incl. paste, incl. curd, incl. oil, incl. sauce)	RAC	0.01	72.79	0.73	59.05	0.59	20.55	0.21	74.20	0.74	61.12	0.61	73.24	0.73
VD 0072	Peas (dry) (Pisum spp), raw	RAC	0.021	1.62	0.03	3.22	0.07	0.92	0.02	1.50	0.03	2.90	0.06	0.17	0.00
VD 0533	Lentil (dry) (Lens spp), raw	RAC	0.021	2.12	0.04	0.01	0.00	0.03	0.00	3.21	0.07	1.60	0.03	4.90	0.10

TRIFLOXYSTROBIN (213) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
VR 0577	Carrots, raw	RAC	0.035	9.51	0.33	30.78	1.08	0.37	0.01	8.75	0.31	2.80	0.10	6.10	0.21
VR 0494	Radish roots, raw	RAC	0.065	2.31	0.15	4.09	0.27	2.53	0.16	6.15	0.40	5.88	0.38	2.97	0.19
VR 0596	Sugar beet, raw	RAC	0.02	NC	–	NC	–	NC	–	NC	–	0.01	0.00	NC	–
–	Sugar beet, sugar	PP	0.0036	0.02	0.00	NC	–	0.01	0.00	0.09	0.00	0.07	0.00	12.63	0.05
VR 0589	Potato, raw (incl. flour, incl. frozen, incl. starch, incl. tapioca)	RAC	0.02	59.74	1.19	316.14	6.32	9.78	0.20	60.26	1.21	54.12	1.08	119.82	2.40
VS 0624	Celery	RAC	0.18	2.14	0.39	3.79	0.68	2.35	0.42	5.69	1.02	0.02	0.00	2.75	0.50
VS 0621	Asparagus, raw	RAC	0	0.01	0.00	0.01	0.00	0.01	0.00	0.03	0.00	0.07	0.00	0.21	0.00
GC 0654	Wheat, raw (incl. bulgur, incl. fermented beverages, incl. white flour products, incl. white bread, excl. germ, excl. wholemeal bread)	RAC	0.02	381.15	7.62	341.54	6.83	38.34	0.77	281.87	5.64	172.65	3.45	434.06	8.68
CF 1210	Wheat, germ	PP	0.013	NC	–	NC	–	0.01	0.00	0.01	0.00	0.14	0.00	0.01	0.00
CP 1212	Wheat, wholemeal bread	PP	0.005	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.03	0.00	0.01	0.00
CF 1211	Wheat, white flour (incl. white flour products: starch, gluten, macaroni, pastry)	PP	0.008	301.24	2.41	268.64	2.15	30.21	0.24	222.51	1.78	134.73	1.08	343.12	2.74
GC 0640	Barley, raw (incl. malt extract, incl. pot&pearled, incl. flour & grits, incl. beer, incl. malt)	RAC	0.04	19.91	0.80	31.16	1.25	5.04	0.20	3.10	0.12	9.77	0.39	4.31	0.17
CM 0649 (GC 0649)	Rice, husked, dry (incl. flour, incl. oil, incl. beverages, incl. starch, excl. polished)	REP	0.16	1.26	0.20	1.58	0.25	31.05	4.97	5.43	0.87	0.90	0.14	2.18	0.35
CM 1205	Rice polished, dry	PP	0.029	34.21	0.99	10.39	0.30	41.72	1.21	82.38	2.39	150.24	4.36	70.47	2.04
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. flour, incl. oil, incl. beer, incl. germ, incl. starch)	RAC	0.02	29.81	0.60	44.77	0.90	108.95	2.18	52.37	1.05	60.28	1.21	75.69	1.51
TN 0085	Group of Tree nuts, raw (incl. processed)	RAC	0	4.06	0.00	3.27	0.00	7.01	0.00	13.93	0.00	14.01	0.00	9.36	0.00
SO 0693	Linseed, raw	RAC	0.015	0.01	0.00	NC	–	NC	–	0.01	0.00	0.02	0.00	NC	–
–	Linseed oil	PP	0.012	0.01	0.00	NC	–	NC	–	0.01	0.00	0.03	0.00	NC	–
SO 0691	Cotton seed, raw (incl. oil)	RAC	0.03	20.53	0.62	9.80	0.29	6.42	0.19	4.73	0.14	7.14	0.21	18.68	0.56
OR 0691	Cotton seed oil, edible	PP	0.0006	3.22	0.00	1.54	0.00	1.01	0.00	0.74	0.00	1.12	0.00	2.93	0.00
SO 0697	Peanuts, nutmeat, raw (incl. roasted, incl. oil, incl. butter)	RAC	0	1.30	0.00	1.23	0.00	12.62	0.00	2.87	0.00	6.59	0.00	2.67	0.00
–	Olive oil (virgin and residue oil)	PP	0.353	2.17	0.77	0.13	0.05	0.05	0.02	1.32	0.47	0.10	0.04	2.76	0.97
SB 0716	Coffee bean, raw (i.e. green coffee)	RAC	0.01	0.96	0.01	0.16	0.00	0.91	0.01	0.27	0.00	1.37	0.01	0.46	0.00
SM 0716	Coffee bean, roasted	PP	0.0015	0.19	0.00	0.91	0.00	0.16	0.00	2.50	0.00	0.39	0.00	0.40	0.00
–	Coffee bean, instant coffee (incl. essences and concentrates)	PP	0.0015	0.07	0.00	0.94	0.00	0.07	0.00	0.70	0.00	0.07	0.00	0.29	0.00
DH 1100	Hops, dry	RAC	9.95	0.01	0.10	0.04	0.40	0.01	0.10	0.01	0.10	NC	–	0.01	0.10
MM 0095	Meat from mammals other than marine mammals,	RAC	0.01	24.96	0.25	57.95	0.58	16.70	0.17	38.38	0.38	26.46	0.26	29.00	0.29

TRIFLOXYSTROBIN (213) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G01 diet**	**G01 intake**	**G02 diet**	**G02 intake**	**G03 diet**	**G03 intake**	**G04 diet**	**G04 intake**	**G05 diet**	**G05 intake**	**G06 diet**	**G06 intake**
	raw (incl. prepared meat) –80% as muscle														
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.04	6.24	0.25	14.49	0.58	4.18	0.17	9.60	0.38	6.62	0.26	7.25	0.29
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.04	3.29	0.13	6.14	0.25	0.82	0.03	1.57	0.06	2.23	0.09	1.07	0.04
MO 0105	Edible offal (mammalian), raw	RAC	0.04	4.79	0.19	9.68	0.39	2.97	0.12	5.49	0.22	3.84	0.15	5.03	0.20
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.005	289.65	1.45	485.88	2.43	26.92	0.13	239.03	1.20	199.91	1.00	180.53	0.90
PM 0110	Poultry meat, raw (incl. prepared)	RAC	0	14.63	0.00	29.76	0.00	8.04	0.00	129.68	0.00	25.04	0.00	35.66	0.00
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0	0.10	0.00	0.10	0.00	NC	–	0.10	0.00	0.10	0.00	0.10	0.00
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0	0.12	0.00	0.12	0.00	0.11	0.00	5.37	0.00	0.24	0.00	0.10	0.00
PE 0112	Eggs, raw, (incl. dried)	RAC	0	7.84	0.00	23.08	0.00	2.88	0.00	14.89	0.00	9.81	0.00	14.83	0.00
	Total intake (µg/person) =				53.2		72.1		24.3		93.1		38.6		146.9
	Bodyweight per region (kg bw) =				60		60		60		60		60		60
	ADI (µg/person) =				2400		2400		2400		2400		2400		2400
	%ADI =				2.2%		3.0%		1.0%		3.9%		1.6%		6.1%
	Rounded %ADI =				2%		3%		1%		4%		2%		6%

TRIFLOXYSTROBIN (213) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
FC 0002	Subgroup of Lemons and limes, raw (incl. lemon juice) (incl. kumquat commodities)	RAC	0.171	10.12	1.73	15.69	2.68	2.88	0.49	12.30	2.10	22.32	3.82	6.59	1.13
FC 0004	Subgroup of Oranges, sweet, sour, raw	RAC	0.114	15.68	1.79	24.00	2.74	6.80	0.78	29.09	3.32	15.39	1.75	160.47	18.29
FP 0009	Group of Pome fruits, raw (incl. apple cider, excl. apple juice)	RAC	0.11	51.09	5.62	65.40	7.19	42.71	4.70	45.29	4.98	62.51	6.88	7.74	0.85
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.018	14.88	0.27	11.98	0.22	0.15	0.00	9.98	0.18	30.32	0.55	3.47	0.06
FS 0012	Group of Stone fruits, raw (incl. dried apricots, excl. dried plums)	RAC	0.38	18.18	6.91	23.83	9.06	14.27	5.42	18.52	7.04	9.35	3.55	0.11	0.04
DF 0014	Plums, dried (prunes)	PP	0.57	0.61	0.35	0.35	0.20	0.05	0.03	0.35	0.20	0.49	0.28	0.13	0.07
FB 2005	Subgroup of Caneberries, raw	RAC	0.56	0.56	0.31	1.43	0.80	0.14	0.08	1.23	0.69	1.14	0.64	0.01	0.01
FB 0020	Blueberries, raw	RAC	0.33	0.04	0.01	0.23	0.08	0.01	0.00	0.83	0.27	0.33	0.11	NC	–
FB 0021	Currants, Black, Red, White, raw	RAC	0.33	0.48	0.16	4.23	1.40	NC	–	1.51	0.50	0.49	0.16	NC	–
FB 0268	Gooseberry, raw	RAC	0.33	0.03	0.01	1.04	0.34	0.01	0.00	0.23	0.08	NC	–	NC	–

TRIFLOXYSTROBIN (213) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets as g/person/day			Intake as µg/person/day								
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
FB 0273	Rose hips, raw (incl. processed)	RAC	0.33	0.76	0.25	NC	–	NC	–	NC	–	NC	–	2.15	0.71
FB 0269	Grapes, raw (i.e. table grapes)	RAC	0.15	6.33	0.95	11.22	1.68	5.21	0.78	9.38	1.41	4.55	0.68	0.78	0.12
DF 0269	Grapes, dried (= currants, raisins and sultanas) (from table grapes)	PP	0.345	3.09	1.07	1.51	0.52	0.03	0.01	1.38	0.48	4.26	1.47	0.42	0.14
JF 0269	Grape juice (from wine grapes)	PP	0.036	0.56	0.02	1.96	0.07	0.02	0.00	2.24	0.08	2.27	0.08	0.34	0.01
–	Graps must (from wine grapes)	PP	0.07	0.16	0.01	0.09	0.01	0.01	0.00	0.12	0.01	0.11	0.01	NC	–
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.023	88.93	2.05	62.41	1.44	1.84	0.04	25.07	0.58	61.17	1.41	5.84	0.13
FB 0275	Strawberry, raw	RAC	0.335	4.49	1.50	5.66	1.90	0.02	0.01	6.63	2.22	5.75	1.93	0.05	0.02
FT 0305	Table olives, raw	RAC	0.085	0.04	0.00	0.01	0.00	0.01	0.00	0.03	0.00	0.01	0.00	NC	–
DM 0305	Table olives, preserved	PP	0.353	1.85	0.65	2.34	0.83	0.01	0.00	1.11	0.39	1.54	0.54	0.26	0.09
FI 0327	Banana, raw (incl, raw plantains)	RAC	0.02	25.61	0.51	23.59	0.47	23.58	0.47	24.26	0.49	18.88	0.38	101.55	2.03
FI 0345	Mango, raw	RAC	0.043	1.80	0.08	0.63	0.03	9.73	0.42	1.07	0.05	3.52	0.15	16.44	0.71
FI 0350	Papaya, raw	RAC	0.2	0.31	0.06	0.18	0.04	1.50	0.30	0.51	0.10	0.54	0.11	1.08	0.22
VA 0384	Leek, raw	RAC	0.31	4.01	1.24	4.41	1.37	0.72	0.22	0.54	0.17	16.41	5.09	0.03	0.01
VB 0042	Subgroup of Flowerhead Brassica, raw	RAC	0.17	9.50	1.62	6.77	1.15	NC	–	3.21	0.55	9.36	1.59	0.75	0.13
VB 0402	Brussels sprouts, raw	RAC	0.17	2.24	0.38	2.67	0.45	6.23	1.06	0.32	0.05	4.19	0.71	2.58	0.44
VB 0041	Cabbages, head, raw	RAC	0.17	8.97	1.52	27.12	4.61	1.44	0.24	24.96	4.24	4.55	0.77	11.23	1.91
VC 0045	Group of Fruiting vegetables, cucurbits, raw	RAC	0.095	27.81	2.64	41.93	3.98	123.30	11.71	49.47	4.70	15.95	1.52	35.99	3.42
VO 0448	Tomato, raw (incl. juice, incl. canned, excl. paste)	RAC	0.08	44.88	3.59	55.49	4.44	35.44	2.84	75.65	6.05	27.00	2.16	9.61	0.77
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.13	4.96	0.64	3.20	0.42	0.15	0.02	1.61	0.21	6.88	0.89	0.52	0.07
VO 0445	Peppers, sweet, raw	RAC	0.1	NC	–	NC	–	8.25	0.83	3.03	0.30	NC	–	0.91	0.09
VO 0440	Eggplant, raw (i.e. aubergine)	RAC	0.08	1.01	0.08	1.69	0.14	21.37	1.71	3.00	0.24	1.40	0.11	NC	–
VL 0470	Corn salad (Lambs lettuce)	RAC	3.3	1.41	4.65	4.28	14.12	NC	–	0.03	0.10	5.11	16.86	1.20	3.96
VL 0483	Lettuce, leaf, raw	RAC	3.3	14.50	47.85	11.76	38.81	13.14	43.36	19.50	64.35	4.81	15.87	2.23	7.36
VL 0502	Spinach, raw	RAC	7.6	2.20	16.72	1.76	13.38	13.38	101.69	2.94	22.34	5.53	42.03	0.02	0.15
VL 0494	Radish leaves, raw	RAC	1.4	NC	–	NC	–	NC	–	3.78	5.29	NC	–	0.48	0.67
VP 2060	Subgroup of beans with pods (all commodities within this group)	RAC	0.09	5.07	0.46	0.83	0.07	0.17	0.02	3.70	0.33	NC	–	NC	–
VP 2062	Subgroup of succulent beans without pods (all commodities within this group)	RAC	0.073	2.42	0.18	6.09	0.44	4.33	0.32	2.09	0.15	18.99	1.39	0.17	0.01
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.021	1.51	0.03	1.50	0.03	1.90	0.04	5.11	0.11	1.36	0.03	23.43	0.49
VD 0541	Soya bean, dry, raw (incl. paste, incl. curd, incl. oil, incl. sauce)	RAC	0.01	106.33	1.06	117.78	1.18	42.12	0.42	195.70	1.96	222.52	2.23	80.47	0.80
VD 0072	Peas (dry) (Pisum spp), raw	RAC	0.021	3.80	0.08	1.25	0.03	0.90	0.02	2.33	0.05	2.70	0.06	3.83	0.08
VD 0533	Lentil (dry) (Lens spp), raw	RAC	0.021	0.95	0.02	1.18	0.02	0.40	0.01	0.96	0.02	0.71	0.01	1.28	0.03

TRIFLOXYSTROBIN (213) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets as g/person/day						Intake as µg/person/day					
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
VR 0577	Carrots, raw	RAC	0.035	26.26	0.92	27.13	0.95	10.07	0.35	16.49	0.58	44.69	1.56	8.75	0.31
VR 0494	Radish roots, raw	RAC	0.065	3.83	0.25	11.99	0.78	NC	–	5.26	0.34	2.19	0.14	4.37	0.28
VR 0596	Sugar beet, raw	RAC	0.02	0.01	0.00	NC	–	0.01	0.00	0.01	0.00	NC	–	NC	–
–	Sugar beet, sugar	PP	0.0036	0.01	0.00	NC	–	0.01	0.00	NC	–	NC	–	NC	–
VR 0589	Potato, raw (incl. flour, incl. frozen, incl. starch, incl. tapioca)	RAC	0.02	225.03	4.50	234.24	4.68	71.48	1.43	177.55	3.55	234.55	4.69	37.71	0.75
VS 0624	Celery	RAC	0.18	7.68	1.38	2.85	0.51	NC	–	3.34	0.60	16.83	3.03	4.04	0.73
VS 0621	Asparagus, raw	RAC	0	0.84	0.00	2.08	0.00	7.11	0.00	1.01	0.00	1.69	0.00	0.04	0.00
GC 0654	Wheat, raw (incl. bulgur, incl. fermented beverages, incl. white flour products, incl. white bread, excl. germ, excl. wholemeal bread)	RAC	0.02	252.06	5.04	244.62	4.89	134.41	2.69	235.10	4.70	216.33	4.33	167.34	3.35
CF 1210	Wheat, germ	PP	0.013	0.97	0.01	0.10	0.00	0.03	0.00	0.01	0.00	NC	–	0.04	0.00
CP 1212	Wheat, wholemeal bread	PP	0.005	0.03	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.05	0.00	0.02	0.00
CF 1211	Wheat, white flour (incl. white flour products: starch, gluten, macaroni, pastry)	PP	0.008	198.08	1.58	193.03	1.54	106.24	0.85	185.09	1.48	168.67	1.35	131.59	1.05
GC 0640	Barley, raw (incl. malt extract, incl. pot&pearled, incl. flour & grits, incl. beer, incl. malt)	RAC	0.04	36.18	1.45	53.45	2.14	9.39	0.38	35.25	1.41	46.68	1.87	15.92	0.64
CM 0649 (GC 0649)	Rice, husked, dry (incl. flour, incl. oil, incl. beverages, incl. starch, excl. polished)	REP	0.16	3.70	0.59	2.11	0.34	1.51	0.24	1.75	0.28	0.29	0.05	5.12	0.82
CM 1205	Rice polished, dry	PP	0.029	13.38	0.39	10.80	0.31	262.08	7.60	57.16	1.66	12.83	0.37	62.78	1.82
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. flour, incl. oil, incl. beer, incl. germ, incl. starch)	RAC	0.02	18.51	0.37	26.18	0.52	26.04	0.52	39.99	0.80	7.36	0.15	64.58	1.29
TN 0085	Group of Tree nuts, raw (incl. processed)	RAC	0	8.52	0.00	8.94	0.00	15.09	0.00	9.60	0.00	14.57	0.00	26.26	0.00
SO 0693	Linseed, raw	RAC	0.015	NC	–	NC	–	NC	–	NC	–	NC	–	NC	–
–	Linseed oil	PP	0.012	NC	–	NC	–	0.01	0.00	0.01	0.00	NC	–	NC	–
SO 0691	Cotton seed, raw (incl. oil)	RAC	0.03	10.71	0.32	4.23	0.13	7.19	0.22	7.54	0.23	5.66	0.17	2.38	0.07
OR 0691	Cotton seed oil, edible	PP	0.0006	1.68	0.00	0.66	0.00	1.13	0.00	1.18	0.00	0.89	0.00	0.37	0.00
SO 0697	Peanuts, nutmeat, raw (incl. roasted, incl. oil, incl. butter)	RAC	0	5.63	0.00	2.75	0.00	9.58	0.00	5.82	0.00	13.71	0.00	1.84	0.00
–	Olive oil (virgin and residue oil)	PP	0.353	3.40	1.20	9.49	3.35	0.02	0.01	4.28	1.51	2.74	0.97	0.48	0.17
SB 0716	Coffee bean, raw (i.e. green coffee)	RAC	0.01	0.60	0.01	NC	–	0.62	0.01	1.71	0.02	NC	–	3.51	0.04
SM 0716	Coffee bean, roasted	PP	0.0015	7.02	0.01	9.75	0.01	0.02	0.00	5.09	0.01	13.38	0.02	0.77	0.00

TRIFLOXYSTROBIN (213) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets as g/person/day						Intake as µg/person/day					
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G07 diet**	**G07 intake**	**G08 diet**	**G08 intake**	**G09 diet**	**G09 intake**	**G10 diet**	**G10 intake**	**G11 diet**	**G11 intake**	**G12 diet**	**G12 intake**
–	Coffee bean, instant coffee (incl. essences and concentrates)	PP	0.0015	0.75	0.00	0.30	0.00	0.04	0.00	0.67	0.00	2.43	0.00	1.43	0.00
DH 1100	Hops, dry	RAC	9.95	NC	–	NC	–	0.02	0.20	0.02	0.20	NC	–	NC	–
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.01	112.02	1.12	120.71	1.21	63.46	0.63	88.99	0.89	96.24	0.96	41.02	0.41
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.04	28.01	1.12	30.18	1.21	15.86	0.63	22.25	0.89	24.06	0.96	10.25	0.41
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.04	6.44	0.26	15.51	0.62	3.79	0.15	8.29	0.33	18.44	0.74	8.00	0.32
MO 0105	Edible offal (mammalian), raw	RAC	0.04	15.17	0.61	5.19	0.21	6.30	0.25	6.78	0.27	3.32	0.13	3.17	0.13
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.005	388.92	1.94	335.88	1.68	49.15	0.25	331.25	1.66	468.56	2.34	245.45	1.23
PM 0110	Poultry meat, raw (incl. prepared)	RAC	0	73.76	0.00	53.86	0.00	23.98	0.00	87.12	0.00	53.38	0.00	84.45	0.00
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0	0.10	0.00	0.10	0.00	NC	–	0.10	0.00	0.71	0.00	NC	–
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0	0.33	0.00	0.72	0.00	0.27	0.00	0.35	0.00	0.80	0.00	NC	–
PE 0112	Eggs, raw, (incl. dried)	RAC	0	25.84	0.00	29.53	0.00	28.05	0.00	33.19	0.00	36.44	0.00	8.89	0.00
	Total intake (µg/person) =				130.2		141.4		194.4		157.8		139.6		58.8
	Bodyweight per region (kg bw) =				60		60		55		60		60		60
	ADI (µg/person) =				2400		2400		2200		2400		2400		2400
	%ADI =				5.4%		5.9%		8.8%		6.6%		5.8%		2.5%
	Rounded %ADI =				5%		6%		9%		7%		6%		2%

TRIFLOXYSTROBIN (213) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets: g/person/day					Intake = daily intake: µg/person				
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
FC 0002	Subgroup of Lemons and limes, raw (incl. lemon juice) (incl. kumquat commodities)	RAC	0.171	18.97	3.24	0.97	0.17	6.23	1.07	0.09	0.02	3.35	0.57
FC 0004	Subgroup of Oranges, sweet, sour, raw	RAC	0.114	1.18	0.13	1.11	0.13	14.28	1.63	0.05	0.01	1.08	0.12
FP 0009	Group of Pome fruits, raw (incl. apple cider, excl. apple juice)	RAC	0.11	68.85	7.57	10.93	1.20	70.82	7.79	189.78	20.88	19.56	2.15
JF 0226	Apple juice, single strength (incl. concentrated)	PP	0.018	0.03	0.00	0.10	0.00	7.19	0.13	0.03	0.00	NC	–
FS 0012	Group of Stone fruits, raw (incl. dried apricots, excl. dried plums)	RAC	0.38	0.09	0.03	0.02	0.01	32.27	12.26	0.01	0.00	NC	–
DF 0014	Plums, dried (prunes)	PP	0.57	0.01	0.01	0.01	0.01	0.37	0.21	0.01	0.01	NC	–

TRIFLOXYSTROBIN (213) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets: g/person/day				Intake = daily intake: µg/person					
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
FB 2005	Subgroup of Caneberries, raw	RAC	0.56	0.01	0.01	7.30	4.09	2.29	1.28	0.01	0.01	NC	–
FB 0020	Blueberries, raw	RAC	0.33	NC	–	NC	–	0.20	0.07	NC	–	NC	–
FB 0021	Currants, Black, Red, White, raw	RAC	0.33	0.01	0.00	NC	–	0.74	0.24	NC	–	NC	–
FB 0268	Gooseberry, raw	RAC	0.33	NC	–	NC	–	0.12	0.04	NC	–	NC	–
FB 0273	Rose hips, raw (incl. processed)	RAC	0.33	0.82	0.27	4.05	1.34	4.87	1.61	0.43	0.14	2.66	0.88
FB 0269	Grapes, raw (i.e. table grapes)	RAC	0.15	0.14	0.02	0.36	0.05	15.22	2.28	0.01	0.00	0.09	0.01
DF 0269	Grapes, dried (= currants, raisins and sultanas) (from table grapes)	PP	0.345	0.01	0.00	0.13	0.04	1.06	0.37	0.01	0.00	0.03	0.01
JF 0269	Grape juice (from wine grapes)	PP	0.036	0.01	0.00	0.01	0.00	0.41	0.01	0.01	0.00	NC	–
–	Graps must (from wine grapes)	PP	0.07	0.01	0.00	0.01	0.00	0.11	0.01	0.01	0.00	0.19	0.01
–	Grape wine (incl. vermouths) (from wine grapes)	PP	0.023	0.31	0.01	0.23	0.01	60.43	1.39	0.52	0.01	31.91	0.73
FB 0275	Strawberry, raw	RAC	0.335	0.01	0.00	0.01	0.00	3.35	1.12	0.01	0.00	0.01	0.00
FT 0305	Table olives, raw	RAC	0.085	NC	–	NC	–	0.01	0.00	NC	–	NC	–
DM 0305	Table olives, preserved	PP	0.353	0.01	0.00	0.01	0.00	1.65	0.58	0.01	0.00	0.23	0.08
FI 0327	Banana, raw (incl, raw plantains)	RAC	0.02	44.76	0.90	118.16	2.36	25.19	0.50	454.49	9.09	310.23	6.20
FI 0345	Mango, raw	RAC	0.043	12.25	0.53	6.74	0.29	0.76	0.03	0.01	0.00	20.12	0.87
FI 0350	Papaya, raw	RAC	0.2	6.47	1.29	0.25	0.05	0.19	0.04	0.01	0.00	26.42	5.28
VA 0384	Leek, raw	RAC	0.31	0.02	0.01	1.44	0.45	1.22	0.38	0.01	0.00	NC	–
VB 0042	Subgroup of Flowerhead Brassica, raw	RAC	0.17	0.02	0.00	0.02	0.00	4.86	0.83	0.01	0.00	NC	–
VB 0402	Brussels sprouts, raw	RAC	0.17	0.88	0.15	0.69	0.12	2.89	0.49	0.01	0.00	NC	–
VB 0041	Cabbages, head, raw	RAC	0.17	3.82	0.65	2.99	0.51	49.16	8.36	0.01	0.00	NC	–
VC 0045	Group of Fruiting vegetables, cucurbits, raw	RAC	0.095	5.96	0.57	9.74	0.93	51.82	4.92	13.61	1.29	0.05	0.00
VO 0448	Tomato, raw (incl. juice, incl. canned, excl. paste)	RAC	0.08	13.17	1.05	4.92	0.39	62.69	5.02	1.04	0.08	0.11	0.01
–	Tomato, paste (i.e. concentrated tomato sauce/puree)	PP	0.13	0.58	0.08	0.22	0.03	2.21	0.29	0.24	0.03	3.10	0.40
VO 0445	Peppers, sweet, raw	RAC	0.1	1.24	0.12	1.27	0.13	NC	–	0.01	0.00	NC	–
VO 0440	Eggplant, raw (i.e. aubergine)	RAC	0.08	1.31	0.10	8.26	0.66	3.95	0.32	0.01	0.00	NC	–
VL 0470	Corn salad (Lambs lettuce)	RAC	3.3	1.09	3.60	0.79	2.61	NC	–	0.74	2.44	1.47	4.85
VL 0483	Lettuce, leaf, raw	RAC	3.3	0.29	0.96	0.03	0.10	6.71	22.14	0.01	0.03	NC	–
VL 0502	Spinach, raw	RAC	7.6	0.17	1.29	0.01	0.08	0.81	6.16	0.01	0.08	NC	–
VL 0494	Radish leaves, raw	RAC	1.4	0.44	0.62	0.32	0.45	NC	–	0.30	0.42	0.59	0.83
VP 2060	Subgroup of beans with pods (all commodities within this group)	RAC	0.09	NC	–	NC	–	NC	–	NC	–	NC	–
VP 2062	Subgroup of succulent beans without pods (all commodities within this group)	RAC	0.073	0.37	0.03	3.14	0.23	4.88	0.36	0.01	0.00	NC	–
VD 0071	Beans, dry, raw (Phaseolus spp)	RAC	0.021	7.11	0.15	2.33	0.05	3.76	0.08	44.70	0.94	3.27	0.07
VD 0541	Soya bean, dry, raw (incl. paste, incl. curd, incl. oil, incl. sauce)	RAC	0.01	15.80	0.16	14.29	0.14	104.36	1.04	17.11	0.17	35.20	0.35

TRIFLOXYSTROBIN (213) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets: g/person/day				Intake = daily intake: µg/person					
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
VD 0072	Peas (dry) (Pisum spp), raw	RAC	0.021	1.53	0.03	2.52	0.05	3.52	0.07	3.56	0.07	0.74	0.02
VD 0533	Lentil (dry) (Lens spp), raw	RAC	0.021	0.67	0.01	7.26	0.15	0.37	0.01	0.08	0.00	NC	–
VR 0577	Carrots, raw	RAC	0.035	2.07	0.07	3.00	0.11	25.29	0.89	0.05	0.00	NC	–
VR 0494	Radish roots, raw	RAC	0.065	3.96	0.26	2.86	0.19	3.30	0.21	2.67	0.17	5.34	0.35
VR 0596	Sugar beet, raw	RAC	0.02	0.01	0.00	NC	–	NC	–	NC	–	NC	–
–	Sugar beet, sugar	PP	0.0036	0.56	0.00	0.24	0.00	NC	–	NC	–	5.13	0.02
VR 0589	Potato, raw (incl. flour, incl. frozen, incl. starch, incl. tapioca)	RAC	0.02	23.96	0.48	13.56	0.27	213.41	4.27	104.35	2.09	8.56	0.17
VS 0624	Celery	RAC	0.18	3.66	0.66	2.65	0.48	4.84	0.87	2.47	0.44	4.94	0.89
VS 0621	Asparagus, raw	RAC	0	0.01	0.00	0.01	0.00	0.17	0.00	0.01	0.00	NC	–
GC 0654	Wheat, raw (incl. bulgur, incl. fermented beverages, incl. white flour products, incl. white bread, excl. germ, excl. wholemeal bread)	RAC	0.02	57.15	1.14	110.46	2.21	272.58	5.45	25.81	0.52	132.04	2.64
CF 1210	Wheat, germ	PP	0.013	0.04	0.00	0.01	0.00	0.01	0.00	0.01	0.00	NC	–
CP 1212	Wheat, wholemeal bread	PP	0.005	0.01	0.00	0.01	0.00	0.03	0.00	0.01	0.00	0.01	0.00
CF 1211	Wheat, white flour (incl. white flour products: starch, gluten, macaroni, pastry)	PP	0.008	44.78	0.36	86.96	0.70	214.05	1.71	20.31	0.16	103.60	0.83
GC 0640	Barley, raw (incl. malt extract, incl. pot&pearled, incl. flour & grits, incl. beer, incl. malt)	RAC	0.04	11.58	0.46	2.33	0.09	46.71	1.87	3.72	0.15	16.26	0.65
CM 0649 (GC 0649)	Rice, husked, dry (incl. flour, incl. oil, incl. beverages, incl. starch, excl. polished)	REP	0.16	13.58	2.17	4.29	0.69	2.17	0.35	0.01	0.00	8.84	1.41
CM 1205	Rice polished, dry	PP	0.029	30.20	0.88	218.34	6.33	12.77	0.37	15.24	0.44	51.35	1.49
GC 0645	Maize, raw (incl. glucose & dextrose & isoglucose, incl. flour, incl. oil, incl. beer, incl. germ, incl. starch)	RAC	0.02	116.66	2.33	10.52	0.21	38.46	0.77	76.60	1.53	34.44	0.69
TN 0085	Group of Tree nuts, raw (incl. processed)	RAC	0	4.39	0.00	135.53	0.00	6.11	0.00	0.72	0.00	317.74	0.00
SO 0693	Linseed, raw	RAC	0.015	0.07	0.00	NC	–	NC	–	NC	–	NC	–
–	Linseed oil	PP	0.012	NC	–	NC	–	0.01	0.00	NC	–	NC	–
SO 0691	Cotton seed, raw (incl. oil)	RAC	0.03	8.14	0.24	0.32	0.01	2.84	0.09	2.69	0.08	0.97	0.03
OR 0691	Cotton seed oil, edible	PP	0.0006	1.28	0.00	0.05	0.00	0.45	0.00	0.42	0.00	0.15	0.00
SO 0697	Peanuts, nutmeat, raw (incl. roasted, incl. oil, incl. butter)	RAC	0	18.82	0.00	0.57	0.00	2.28	0.00	6.90	0.00	0.53	0.00
–	Olive oil (virgin and residue oil)	PP	0.353	0.03	0.01	0.02	0.01	2.14	0.76	0.01	0.00	0.10	0.04
SB 0716	Coffee bean, raw (i.e. green coffee)	RAC	0.01	0.83	0.01	0.69	0.01	1.09	0.01	2.91	0.03	0.82	0.01
SM 0716	Coffee bean, roasted	PP	0.0015	0.02	0.00	0.41	0.00	7.50	0.01	0.01	0.00	0.06	0.00
–	Coffee bean, instant coffee (incl. essences and concentrates)	PP	0.0015	0.03	0.00	0.05	0.00	0.60	0.00	0.01	0.00	5.53	0.01
DH 1100	Hops, dry	RAC	9.95	NC	–	NC	–	0.04	0.40	NC	–	NC	–

TRIFLOXYSTROBIN (213) **International Estimated Daily Intake (IEDI)** **ADI = 0–0.04 mg/kg bw**

			STMR	Diets: g/person/day			Intake = daily intake: µg/person						
Codex code	**Commodity description**	**Expr. as**	**mg/kg**	**G13 diet**	**G13 intake**	**G14 diet**	**G14 intake**	**G15 diet**	**G15 intake**	**G16 diet**	**G16 intake**	**G17 diet**	**G17 intake**
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) –80% as muscle	RAC	0.01	23.34	0.23	40.71	0.41	97.15	0.97	18.06	0.18	57.71	0.58
MM 0095	Meat from mammals other than marine mammals, raw (incl. prepared meat) – 20% as fat	RAC	0.04	5.84	0.23	10.18	0.41	24.29	0.97	4.52	0.18	14.43	0.58
MF 0100	Mammalian fats, raw, excl. milk fats (incl. rendered fats)	RAC	0.04	1.05	0.04	1.14	0.05	18.69	0.75	0.94	0.04	3.12	0.12
MO 0105	Edible offal (mammalian), raw	RAC	0.04	4.64	0.19	1.97	0.08	10.01	0.40	3.27	0.13	3.98	0.16
ML 0106	Milks, raw or skimmed (incl. dairy products)	RAC	0.005	108.75	0.54	70.31	0.35	436.11	2.18	61.55	0.31	79.09	0.40
PM 0110	Poultry meat, raw (incl. prepared)	RAC	0	3.92	0.00	12.03	0.00	57.07	0.00	5.03	0.00	55.56	0.00
PF 0111	Poultry fat, raw (incl. rendered)	RAC	0	NC	–	NC	–	0.32	0.00	NC	–	NC	–
PO 0111	Poultry edible offal, raw (incl. prepared)	RAC	0	0.10	0.00	0.70	0.00	0.97	0.00	0.10	0.00	NC	–
PE 0112	Eggs, raw (incl. dried)	RAC	0	3.84	0.00	4.41	0.00	27.25	0.00	1.13	0.00	7.39	0.00
	Total intake (µg/person) =				33.9		29.4		106.4		42.2		34.5
	Bodyweight per region (kg bw) =				60		60		60		60		60
	ADI (µg/person) =				2400		2400		2400		2400		2400
	%ADI =				1.4%		1.2%		4.4%		1.8%		1.4%
	Rounded %ADI =				1%		1%		4%		2%		1%

Annex 4. International Estimate of Short-term Intakes (IESTIs) of pesticide residues

In Table A4.1, each country is listed by its International Organization for Standardization (ISO) Country Alpha-2 Code:

- AU – Australia
- BE – Belgium
- BR – Brazil
- CA – Canada
- CN – China
- CZ – Czechia
- DE – Germany
- FR – France
- JP – Japan
- NL – Netherlands (the Kingdom of the)
- TH – Thailand
- UK – United Kingdom
- ZA – South Africa

Table A4.1 International Estimate of Short-term Intakes (IESTIs) of pesticide residues

BIFENTHRIN (178) **ARfD= 0.01 mg/kg bw (10 µg/kg bw)**			**International Estimate of Short-term Intake of pesticide residues (IESTI)**											**Maximum %ARfD:**		
														70% all	**40% gen. pop.**	**70% child**
Codex code	**Commodity**	**Processing**	**STMR or STMR-P mg/kg**	**HR or HR-P mg/kg**	**DCF**	**Country**	**Population group**	**n**	**Large portion, g/person**	**Unit weight, edible portion, g**	**Varia-bility factor**	**Case**	**IESTI µg/kg bw/day**	**% ARfD rounded**	**% ARfD rounded**	**% ARfD rounded**
FC 0204	Lemon	Total	0.05	0.05	1.000	PRIMO-DE	child	P95	125.50	71	3	2a	0.830	8%	3%	8%
FC 0205	Lime	Total	0.05	0.05	1.000	AU	Gen. pop. > 2 yrs..	579	259.21	49	3	2a	0.267	3%	3%	4%
FC 0003	Subgroup of Mandarins (incl. mandarin-like hybrids) (all commodities)	Highest utilization: raw, without peel	0.05	0.05	1.000	CN	Child. 1–6 yrs..	151	586.75	124	3	2a	1.79–2.59	20–30%	7–10%	20–30%
FC 0004	Subgroup of Oranges, sweet, sour (incl. orange-like hybrids) (all commodities)	Highest utilization: Total	0.0012–0.06	0.06	1.000	AU	Child. 2–6 yrs..	1735	800.83	156	3	2a	0.04–3.51	0–40%	0–20%	0–40%
FC 0005	Subgroup of Pummelo and Grapefruits (incl. Shaddock-like hybrids, among others Grapefruit) (all commodities)	Highest utilization: Total	0.05	0.05	1.000	PRIMO-DE	child	P90	253.56	270	3	2b	2.22–2.36	20–20%	10–10%	20–20%
FB 0265	Cranberry (all commodities)	Highest utilization: Total	0.56	0.76	1.000	AU	Child. 2–16 yrs..	103	279.66	<25	NR	1	0.01–5.59	0–60%	0–20%	0–60%
MM 0095	Meat from mammals other than marine mammals: 20% as fat	Total	0.59	1.9	1.000	CN	Child. 1–6 yrs..	4329	52.29	NR	NR	1	6.157	60%	40%	60%
MM 0095	Meat from mammals other than marine mammals: 80% as muscle	Total	0.07	0.104	1.000	CN	Child. 1–6 yrs..	4329	209.17	NR	NR	1	1.348	10%	10%	10%
MF 0100	Mammalian fats (except milk fats)	Total	0.59	1.9	1.000	PRIMO-UK	infant	P97.5	18.10	NR	NR	1	3.953	40%	40%	40%

BIFENTHRIN (178) ARfD= 0.01 mg/kg bw (10 µg/kg bw)			International Estimate of Short-term Intake of pesticide residues (IESTI)											Maximum %ARfD:		
														70% all	40% gen. pop.	70% child
Codex code	**Commodity**	**Processing**	**STMR or STMR-P mg/kg**	**HR or HR-P mg/kg**	**DCF**	**Country**	**Population group**	**n**	**Large portion, g/person**	**Unit weight, edible portion, g**	**Varia-bility factor**	**Case**	**IESTI µg/kg bw/day**	**% ARfD rounded**	**% ARfD rounded**	**% ARfD rounded**
MO 0105	Edible offal (mammalian)	Total	0.07	0.165	1.000	ZA	Gen. pop. > 10 yrs..	–	523.58	NR	NR	1	1.551	20%	20%	10%
ML 0106	Milks	Total	0.053	–	1.000	PRIMO-UK	infant	P97.5	1080.70	NR	NR	3	6.584	70%	30%	70%
FM 0812	Cttle milk fat	Total	0.49	–	1.000	BR	Gen. pop. > 10 yrs.	441	150.00	NR	NR	3	1.138	10%	10%	10%

CYFLUTHRIN (157)/BETA-CYFLUTHRIN (228) ARfD= 0.04 mg/kg bw (40 µg/kg bw)			International Estimate of Short-term Intake of pesticide residues (IESTI)											Maximum %ARfD		
														40% all	20% gen pop	40% child
Codex code	**Commodity**	**Processing**	**STMR or STMR-P mg/kg**	**HR or HR-P mg/kg**	**DCF**	**Country**	**Population group**	**n**	**Large portion, g/person**	**Unit weight, edible portion, g**	**Varia-bility factor**	**Case**	**IESTI µg/kg bw/day**	**% ARfD rounded**	**% ARfD rounded**	**% ARfD rounded**
FB 0269	Grapes (all commodities)	Highest utilization: dried (currants, raisins, sultanas)	0.0024–0.1165	0.223–0.82	4.70	AU	Child. 2–6 yrs.	918	83.50	<25	NR	1	0.04–16.94	0–40%	0–20%	0–40%
GC 0654	Wheat (all commodities)	Highest utilization: Total	0.0049–0.0155	0	1.00	CA	Child. <6 yrs.	34	335.06	<25	NR	3	0.03–0.23	0–1%	0–0%	0–1%
MM 0095	Meat from mammals other than marine mammals	Total	NA	NA	1.00	CN	Child. 1–6 yrs.	4329	261.46	NR	NR	1	NA	6%	4%	6%
MM 0095	Meat from mammals other than marine mammals: 20% as fat	Total	–	0.01	1.00	CN	Child. 1–6 yrs.	4329	52.29	NR	NR	1	0.032	0%	0%	0%
MM 0095	Meat from mammals other than marine mammals: 80% as muscle	Total	–	0.19	1.000	CN	Child. 1–6 yrs.	4329	209.17	NR	NR	1	2.463	6%	4%	6%
MF 0100	Mammalian fats (except milk fats)	Total	–	0.19	1.000	PRIMO-UK	infant	P97.5	18.10	NR	NR	1	0.395	1%	1%	1%
MO 0105	Edible offal (mammalian)	Total	–	0.013	1.000	ZA	Gen. pop. > 10 yrs.	–	523.58	NR	NR	1	0.122	0%	0%	0%
ML 0106	Milks	Total	0.007	–	1.0	PRIMO-	infant	P97.5	1080.70	NR	NR	3	0.870	2%	1%	2%

CYFLUTHRIN (157)/BETA-CYFLUTHRIN (228) International Estimate of Short-term Intake of pesticide residues (IESTI) ARfD= 0.04 mg/kg bw (40 µg/kg bw)														Maximum %ARfD		
														40% all	20% gen pop	40% child
Codex code	**Commodity**	**Processing**	**STMR or STMR-P mg/kg**	**HR or HR-P mg/kg**	**DCF**	**Country**	**Population group**	**n**	**Large portion, g/person**	**Unit weight, edible portion, g**	**Varia-bility factor**	**Case**	**IESTI µg/kg bw/day**	**% ARfD rounded**	**% ARfD rounded**	**% ARfD rounded**
					00	UK										
FM 0812	Cattle milk fat	Total	0.175	–	1.000	BR	Gen. pop. > 10 yrs.	441	150.00	NR	NR	3	0.407	1%	1%	1%

DIFENOCONAZOLE (224) ARfD= 0.3 mg/kg bw (300 µg/kg bw)														Maximum %ARfD		
														0% all	0% gen pop	0% child
Codex code	**Commodity**	**Processing**	**STMR or STMR-P mg/kg**	**HR or HR-P mg/kg**	**DCF**	**Country**	**Population group**	**n**	**Large portion, g/person**	**Unit weight, edible portion, g**	**Varia-bility factor**	**Case**	**IESTI µg/kg bw/day**	**% ARfD rounded**	**% ARfD rounded**	**% ARfD rounded**
HS 0771	Anise, seed (all commodities)	Highest utilization: Total	0	0.86	1.000	PRIMO-DE	Gen pop	P95	7.64	<25	NR	1	0–0.09	0–0%	0– 0%	0– 0%
HS 3285	Black caraway (all commodities)	Highest utilization: Total	0	0.86	1.000	PRIMO-DE	women, 14– 50 yrs.	P97.5	6.75	<25	NR	1	0.09–0.09	0–0%	0– 0%	0– 0%
HS 0774	Caraway, seed (all commodities)	Highest utilization: Total	0	0.86	1.000	PRIMO-CZ	child. 14– 6 yrs.	P97.5	0.43	<25	NR	1	0–0.02	0– 0%	0– 0%	0–0%
HS 0779	Coriander, seed (all commodities)	Highest utilization: Total	0	0.86	1.000	AU	Gen. pop. > 2 yrs.	129	7.76	<25	NR	1	0–0.1	0– 0%	0– 0%	0–0%
HS 0780	Cumin, seed (all commodities)	Highest utilization: Total	0.16	0.86	1.000	AU	Child. 2– 16 yrs.	584	3.99	<25	NR	1	0–0.09	0– 0%	0– 0%	0–0%
HS 0730	Dill, seed	Total	–	0.86	1.000	US	Child. < 6 yrs.	325	1.89	<25	NR	1	0.112	0%	0%	0%
HS 0731	Fennel, seed (all commodities)	Highest utilization: Total	0	0.86	1.000	PRIMO-DE	child	P97.5	12.44	<25	NR	1	0–0.66	0– 0%	0– 0%	0–0%
HS 0782	Fenugreek, seed (all commodities)	Highest utilization: Total	0	0.86	1.000	AU	Gen. pop. > 2 yrs.	129	7.76	<25	NR	1	0–0.1	0– 0%	0– 0%	0–0%
HS 3296	Guarana	Total	0.16	–	1.000	PRIMO-DE	women. 14–50 yrs.	P97.5	40.48	<25	NR	3	0.096	0– 0%	0– 0%	0%
HS 0789	Nutmeg (all commodities)	Highest utilization: Total	0	0.86	1.000	PRIMO-DE	women. 14–50 yrs.	P97.5	6.75	<25	NR	1	0–0.09	0– 0%	0– 0%	0–0%

DINOTEFURAN (255) ARfD= 1 mg/kg bw (1000 µg/kg bw)						International Estimate of Short-term Intake of pesticide residues (IESTI)								Maximum %ARfD		
														1% all	0% gen pop	1% child
Codex code	**Commodity**	**Processing**	**STMR or STMR-P mg/kg**	**HR or HR-P mg/kg**	**DCF**	**Country**	**Population group**	**n**	**Large portion, g/person**	**Unit weight, edible portion, g**	**Varia-bility factor**	**Case**	**IESTI µg/kg bw/day**	**% ARfD rounded**	**% ARfD rounded**	**% ARfD rounded**
FI 0345	Mango (all commodities)	Highest utilization: Total	0.12–0.22	0.16–0.3	1.000	PRIMO-NL	toddler	P90	160.40	289	3	2b	0.06–14.15	0–1%	0–0%	0–1%
FI 0334	Durian (all commodities)	Highest utilization: raw without peel	0.036	0.036 – 0.53	1.000	TH	Child. 3-6 yrs.	1185	288.82	930	3	2b	1.82–1.82	0– 0%	0– 0%	0– 0%
MM 0095	Meat from mammals other than marine mammals: 20% as fat	Total	–	0.067	1.000	CN	Child. 1-6 yrs.	302	52.97	NR	NR	1	0.220	0%	0%	0%
MM 0095	Meat from mammals other than marine mammals: 80% as muscle	Total	–	0.065	1.000	CN	Child. 1-6 yrs.	302	211.87	NR	NR	1	0.854	0%	0%	0%
MF 0100	Mammalian fats (except milk fats)	Total	–	0.067	1.000	PRIMO-FR	adult	P97.5	134.79	NR	NR	1	0.136	0%	0%	0%
MO 0105	Edible offal (mammalian)	Total	–	0.08	1.000	ZA	Gen. pop. > 10 yrs.	-	523.58	NR	NR	1	0.752	0%	0%	0%

FLUBENDIAMIDE (242) ARfD= 1 mg/kg bw (1000 µg/kg bw)						International Estimate of Short-term Intake of pesticide residues (IESTI)								Maximum %ARfD:		
														5% all	3% gen pop	5% child
Codex code	**Commodity**	**Processing**	**STMR or STMR-P mg/kg**	**HR or HR-P mg/kg**	**DCF**	**Country**	**Population group**	**n**	**Large portion, g/person**	**Unit weight, edible portion, g**	**Varia-bility factor**	**Case**	**IESTI µg/kg bw/day**	**% ARfD rounded**	**% ARfD rounded**	**% ARfD rounded**
MM 0095	Meat from mammals other than marine mammals	Total	NA	NA	1.000	CN	Child. 1–6 yrs.	4329	261.46	NR	NR	1	NA	3%	2%	3%
MM 0095	Meat from mammals other than marine mammals: 20% as fat	Total	–	1.4	1.000	CN	Child. 1–6 yrs.	4329	52.29	NR	NR	1	4.537	2%	2%	2%
MM 0095	Meat from mammals other than marine	Total	–	0.15	1.000	CN	Child. 1–6 yrs.	4329	209.17	NR	NR	1	1.944	1%	1%	1%

FLUBENDIAMIDE (242) ARfD= 1 mg/kg bw (1000 µg/kg bw)						International Estimate of Short-term Intake of pesticide residues (IESTI)								Maximum %ARfD:		
														5% all	3% gen pop	5% child
Codex code	**Commodity**	**Processing**	**STMR or STMR-P mg/kg**	**HR or HR-P mg/kg**	**DCF**	**Country**	**Population group**	**n**	**Large portion, g/person**	**Unit weight, edible portion, g**	**Varia-bility factor**	**Case**	**IESTI µg/kg bw/day**	**% ARfD rounded**	**% ARfD rounded**	**% ARfD rounded**
	mammals: 80% as muscle															
MF 0100	Mammalian fats (except milk fats)	Total	–	1.4	1.000	PRIMO-UK	infant	P97.5	18.10	NR	NR	1	2.913	1%	1%	1%
MO 0105	Edible offal (mammalian)	Total	–	0.59	1.000	ZA	Gen. pop. > 10 yrs.	–	523.58	NR	NR	1	5.546	3%	3%	2%
ML 0106	Milks	Total	0.082	–	1.000	PRIMO-UK	infant	P97.5	1080.70	NR	NR	3	10.186	5%	2%	5%
FM 0812	Cattle milk fat	Total	1.8	–	1.000	BR	Gen. pop. > 10 yrs.	441	150.00	NR	NR	3	4.182	2%	2%	2%

FLUOPYRAM (243) ARfD= 0.5 mg/kg bw (500 µg/kg bw)						International Estimate of Short-term Intake of pesticide residues (IESTI)								Maximum %ARfD:		
														10% all	10% gen pop	10% child
Codex code	**Commodity**	**Processing**	**STMR or STMR-P mg/kg**	**HR or HR-P mg/kg**	**DCF**	**Coun try**	**Population group**	**n**	**Large portion, g/person**	**Unit weight, edible portion, g**	**Varia-bility factor**	**Case**	**IESTI µg/kg bw/day**	**% ARfD rounded**	**% ARfD rounded**	**% ARfD rounded**
FI 0353	Pineapple (all commodities)	Highest utilization: raw without peel	0.01	0.01	1.000	JP	Child. 1– 6 yrs.	67	499.80	1116	3	2b	0– 0.88	0–0%	0–0%	0–0%
VA 0385	Onion, bulb (all commodities)	Highest utilization: raw without skin	0.12	0.22	1.000	JP	Child. 1– 6 yrs.	748	102.00	244	3	2b	0.04–4.1	0– 1%	0–0%	0–1%
VC 0424	Cucumber (all commodities)	Highest utilization: pickled&preserved	0.084	0	1.000	CN	Gen. pop. > 1 yrs.	2886	166.34	NR	NR	3	0.03–0.26	0–0%	0– 0%	0–0%
VC 0431	Squash, Summer (Courgette, Marrow, Zucchetti, Zucchini) (all commodities)	Highest utilization: Total	0.084	0.19	1.000	US	Child. < 6 yrs.	252	149.52	186	3	2b	0.05–5.88	0–1%	0–1%	0–1%
VC 0046	Melons, except watermelon (Cantaloupe) (all commodities)	Highest utilization: Total	0.01	0.04	1.000	PRIMO-BE	toddler	P100	540.00	540	3	2b	0–3.64	0–1%	0–0%	0–1%
VC 0429	Pumpkins	Highest utilization:	0.01	0.04	1.000	CN	Child. 1– 6	561	322.71	1852	3	2b	0.02–2.4	0–0%	0–0%	0–0%

FLUOPYRAM (243) ARfD= 0.5 mg/kg bw (500 µg/kg bw)						International Estimate of Short-term Intake of pesticide residues (IESTI)								Maximum %ARfD:		
														10% all	10% gen pop	10% child
Codex code	**Commodity**	**Processing**	**STMR or STMR-P mg/kg**	**HR or HR-P mg/kg**	**DCF**	**Coun try**	**Population group**	**n**	**Large portion, g/person**	**Unit weight, edible portion, g**	**Varia-bility factor**	**Case**	**IESTI µg/kg bw/day**	**% ARfD rounded**	**% ARfD rounded**	**% ARfD rounded**
	(all commodities)	raw without peel					yrs.									
VC 0432	Watermelon (all commodities)	Highest utilization: Total	0.01	0.04	1.000	CA	Child. <6 yrs.	171	953.64	4302	3	2b	3.45–7.42	1–1%	1–1%	1–1%
HH 0738	Mint (all commodities)	Highest utilization: composite foods; unspecified ind processed	0.6	0.087	1.000	NL	Child. 2– 6 yrs.	8	5.41	NR	NR	3	0.03–0.18	0–0%	0–0%	0–0%
MM 0095	Meat from mammals other than marine mammals: 20% as fat	Total	–	1.5	1.000	CN	Child. 1– 6 yrs.	302	52.97	NR	NR	1	4.924	1%	1%	1%
MM 0095	Meat from mammals other than marine mammals: 80% as muscle	Total	–	1	1.000	CN	Child. 1– 6 yrs.	302	211.87	NR	NR	1	13.131	3%	2%	3%
MF 0100	Mammalian fats (except milk fats)	Total	–	1.5	1.000	PRIMO-FR	adult	P97.5	134.79	NR	NR	1	3.045	1%	1%	1%
MO 0105	Edible offal (mammalian)	Total	–	7.4	1.000	ZA	Gen. pop. > 10 yrs.	–	523.58	NR	NR	1	69.560	10%	10%	10%
ML 0106	Milks	Total	0.48	–	1.000	PRIMO-UK	infant	P97.5	1080.70	NR	NR	3	59.625	10%	5%	10%
PM 0110	Poultry meat: 10% as fat	Total	–	0.9	1.000	CN	Child. 1– 6 yrs.	175	34.70	NR	NR	1	1.935	0%	0%	0%
PM 0110	Poultry meat: 90% as muscle	Total	–	1.5	1.000	CN	Child. 1-6 yrs.	175	312.30	NR	NR	1	29.032	6%	3%	6%
PF 0111	Poultry, fats	Total	–	0.9	1.000	CA	Child. <6 yrs.	66	49.38	NR	NR	1	2.612	1%	0%	1%
PO 0111	Poultry, edible offal (includes kidney, liver and skin)	Total	–	3.1	1.000	CN	Gen. pop. > 1 yrs.	421	345.63	NR	NR	1	20.130	4%	4%	2%
PE 0112	Eggs	Total	–	1.5	1.000	PRIMO-UK	infant	P97.5	108.00	NR	NR	1	18.621	4%	2%	4%

MEFENTRIFLUCONAZOLE (320)	International Estimate of Short-term Intake of pesticide residues (IESTI)	Maximum %ARfD

ARfD= 0.3 mg/kg bw (300 µg/kg bw)														40% all	30% gen pop	40% child
Codex code	**Commodity**	**Processing**	**STMR or STMR-P mg/kg**	**HR or HR-P mg/kg**	**DCF**	**Country**	**Population group**	**n**	**Large portion, g/person**	**Unit weight, edible portion, g**	**Varia-bility factor**	**Case**	**IESTI µg/kg bw/day**	**% ARfD rounded**	**% ARfD rounded**	**% ARfD rounded**
FB 0269	Grapes (all commodities)	Highest utilization: dried (currants, raisins, sultanas)	0.01–0.97	1.7–6.3	4.700	AU	Child. 2–6 yrs.	918	83.50	<25	NR	1	0.15 – 130.13	0–40%	0–20%	0–40%
FI 0353	Pineapple (all commodities)	Highest utilization: juice (pasteurised)	0.001–0.036	0.0028	1.000	CA	Child. <6 yrs.	67	381.34	NR	NR	3	0.01–0.85	0–0%	0–0%	0–0%
VB 0400	Broccoli (all commodities)	Highest utilization: cooked/boiled	0.024	0.078	1.000	PRIMO-NL	toddler	P97.5	160.70	286	3	2b	0.04–3.69	0–1%	0–0%	0–1%
VB 0404	Cauliflower (all commodities)	Highest utilization: cooked/boiled	0.01	0.01	1.000	PRIMO-NL	toddler	P97.5	142.00	749	3	2b	0 –0.42	0–0%	0–0%	0–0%
VO 0448	Tomato (all commodities)	Highest utilization: dried	0.02–2.71	0.06–8.89	14.000	NL	Gen. pop. > 1 yrs.	E	50.01	8	NR	1	0.38 – 94.59	0–30%	0–30%	0–20%
VR 0596	Sugar beet (all commodities)	Highest utilization: Total	0.004–0.063	0	1.000	US	Child. < 6 yrs.	6400	32.88	NR	NR	3	0.04 – 0.14	0–0%	0–0%	0–0%
MM 0095	Meat from mammals other than marine mammals	Total	NA	NA	1.000	CN	Child. 1–6 yrs.	4329	261.46	NR	NR	1	NA	2%	1%	2%
MM 0095	Meat from mammals other than marine mammals: 20% as fat	Total	–	1.26	1.000	CN	Child. 1–6 yrs.	4329	52.29	NR	NR	1	4.083	1%	1%	1%
MM 0095	Meat from mammals other than marine mammals: 80% as muscle	Total	–	0.14	1.000	CN	Child. 1–6 yrs.	4329	209.17	NR	NR	1	1.815	1%	0%	1%
MF 0100	Mammalian fats (except milk fats)	Total	–	1.26	1.000	PRIMO-UK	infant	P97.5	18.10	NR	NR	1	2.621	1%	1%	1%
MO 0105	Edible offal (mammalian)	Total	–	1.91	1.000	ZA	Gen. pop. > 10 yrs.	–	523.58	NR	NR	1	17.954	6%	6%	5%
ML 0106	Milks	Total	0.07	–	1.000	PRIMO-UK	infant	P97.5	1080.70	NR	NR	3	8.695	3%	1%	3%
FM 0812	Cattle milk fat	Total	0.99	–	1.000	BR	Gen. pop. > 10 yrs.	441	150.00	NR	NR	3	2.300	1%	1%	1%
PM 0110	Poultry meat	Total	NA	NA	1.000	CN	Child. 1–6	175	347.00	NR	NR	1	NA	1%	0%	1%

MEFENTRIFLUCONAZOLE (320) ARfD= 0.3 mg/kg bw (300 µg/kg bw)						International Estimate of Short-term Intake of pesticide residues (IESTI)								Maximum %ARfD		
														40% all	30% gen pop	40% child
Codex code	**Commodity**	**Processing**	**STMR or STMR-P mg/kg**	**HR or HR-P mg/kg**	**DCF**	**Country**	**Population group**	**n**	**Large portion, g/person**	**Unit weight, edible portion, g**	**Varia-bility factor**	**Case**	**IESTI µg/kg bw/day**	**% ARfD rounded**	**% ARfD rounded**	**% ARfD rounded**
							yrs.									
PM 0110	Poultry meat: 10% as fat	Total	–	0.503	1.000	CN	Child. 1–6 yrs.	175	34.70	NR	NR	1	1.082	0%	0%	0%
PM 0110	Poultry meat: 90% as muscle	Total	–	0.053	1.000	CN	Child. 1–6 yrs.	175	312.30	NR	NR	1	1.026	0%	0%	0%
PF 0111	Poultry, fats	Total	–	0.503	1.000	CA	Child, <6 yrs.	66	49.38	NR	NR	1	1.460	0%	0%	0%
PO 0111	Poultry, edible offal (includes kidney and liver)	Total	–	0.844	1.000	CN	Gen pop, > 1 yrs.	421	345.63	NR	NR	1	5.481	2%	2%	1%
PE 0112	Eggs	Total	–	0.094	1.000	PRIMO-UK	infant	P97.5	108.00	NR	NR	1	1.167	0%	0%	0%

MEPIQUAT CATION (336) ARfD= 0.4578 mg/kg bw (458 µg/kg bw)						International Estimate of Short-term Intake of pesticide residues (IESTI)								Maximum %ARfD:		
														1% all	0% gen pop	1% child
Codex code	**Commodity**	**Processing**	**STMR or STMR-P mg/kg**	**HR or HR-P mg/kg**	**DCF**	**Country**	**Population group**	**n**	**Large portion, g/person**	**Unit weight, edible portion, g**	**Varia-bility factor**	**Case**	**IESTI µg/kg bw/day**	**% ARfD rounded**	**% ARfD rounded**	**% ARfD rounded**
SO 0691	Cotton seed (all commodities)	Highest utilization: Oil (refined)	0.4–10	0	1.000	US	Child. < 6 yrs.	6354	3.13	NR	NR	3	0.09 – 0.09	0–0%	0–0%	0–0%
MM 0095	Meat from mammals other than marine mammals	Total	–	0.039	1.000	CN	Child. 1–6 yrs.	302	264.84	NR	NR	1	0.640	0%	0%	0%
MF 0100	Mammalian fats (except milk fats)	Total	–	0.038	1.000	PRIMO-FR	adult	P97.5	134.79	NR	NR	1	0.077	0%	0%	0%
MO 0105	Edible offal (mammalian)	Total	–	0.17	1.000	ZA	Gen. pop. > 10 yrs.	–	523.58	NR	NR	1	1.598	0%	0%	0%
ML 0106	Milks	Total	0.025	–	1.000	PRIMO-UK	infant	P97.5	1080.70	NR	NR	3	3.105	1%	0%	1%
PM 0110	Poultry meat	Total	–	0.01	1.000	CN	Child. 1–6	175	347.00	NR	NR	1	0.215	0%	0%	0%

MEPIQUAT CATION (336) ARfD= 0.4578 mg/kg bw (458 µg/kg bw)						International Estimate of Short-term Intake of pesticide residues (IESTI)								Maximum %ARfD:		
														1% all	0% gen pop	1% child
Codex code	**Commodity**	**Processing**	**STMR or STMR-P mg/kg**	**HR or HR-P mg/kg**	**DCF**	**Country**	**Population group**	**n**	**Large portion, g/person**	**Unit weight, edible portion, g**	**Varia-bility factor**	**Case**	**IESTI µg/kg bw/day**	**% ARfD rounded**	**% ARfD rounded**	**% ARfD rounded**
							yrs.									
PF 0111	Poultry, fats	Total	–	0.01	1.000	CA	Child. <6 yrs.	66	49.38	NR	NR	1	0.029	0%	0%	0%
PO 0111	Poultry, edible offal (includes kidney, liver and skin)	Total	–	0.01	1.000	CN	Gen. pop. > 1 yrs.	421	345.63	NR	NR	1	0.065	0%	0%	0%
PE 0112	Eggs	Total	–	0.041	1.000	PRIMO-UK	infant	P97.5	108.00	NR	NR	1	0.509	0%	0%	0%

PROQUINAZID (347) ARfD= 0.3 mg/kg bw (300 µg/kg bw)						International Estimate of Short-term Intake of pesticide residues (IESTI)								Maximum %ARfD:		
														8% all	4% gen pop	8% child
Codex code	**Commodity**	**Processing**	**STMR or STMR-P mg/kg**	**HR or HR-P mg/kg**	**DCF**	**Country**	**Population group**	**n**	**Large portion, g/person**	**Unit weight, edible portion, g**	**Varia-bility factor**	**Case**	**IESTI µg/kg bw/day**	**% ARfD rounded**	**% ARfD rounded**	**% ARfD rounded**
FP 0226	Apple (all commodities)	Highest utilization: raw with peel (incl. consumption without peel)	0.014–0.08	0.031–0.17	1.000	CN	Child. 1–6 yrs.	1314	403.39	255	3	2a	0.76–9.62	0–3%	0–1%	0–3%
FP 0230	Pear (all commodities)	Highest utilization: Total	0.08	0.17	1.000	CA	Child. <6 yrs.	175	498.28	255	3	2a	0.02–11.78	0–4%	0–1%	0–4%
FB 0269	Grapes (all commodities)	Highest utilization: raw with skin	0.018 – 0.15	0.11–0.95	1.000	CN	Child. 1–6 yrs.	232	366.72	637	3	2b	0.27–23.18	0–8%	0–4%	0–8%
GC 0650	Rye (all commodities)	Highest utilization: flakes	0.02	0	1.000	CA	Child. <6 yrs.	1909	539.23	NR	NR	3	0.03–0.69	0–0%	0–0%	0–0%
GC 0653	Triticale	Total	0.02	–	1.000	PRIMO-UK	child. 4-6 yrs.	P97.5	296.20	<25	NR	3	0.289	0%	0%	0%
GC 0654	Wheat	Highest	0.02	0	1.000	CA	Child. <6	1909	539.23	NR	NR	3	0.01–0.69	0–0%	0–0%	0–0%

PROQUINAZID (347) **ARfD= 0.3 mg/kg bw (300 µg/kg bw)**							**International Estimate of Short-term Intake of pesticide residues (IESTI)**							**Maximum %ARfD:**		
														8% all	**4% gen pop**	**8% child**
Codex code	**Commodity**	**Processing**	**STMR or STMR-P mg/kg**	**HR or HR-P mg/kg**	**DCF**	**Country**	**Population group**	**n**	**Large portion, g/person**	**Unit weight, edible portion, g**	**Varia-bility factor**	**Case**	**IESTI µg/kg bw/day**	**% ARfD rounded**	**% ARfD rounded**	**% ARfD rounded**
	(all commodities)	utilization: flakes					yrs.									
GC 0640	Barley (all commodities)	Highest utilization: flakes	0.04	0	1.000	CA	Child. <6 yrs.	1909	539.23	NR	NR	3	0–1.37	0–0%	0–0%	0–0%
GC 0647	Oats (all commodities)	Highest utilization: flakes (rolled oats)	0.04	0	1.000	CA	Child. <6 yrs.	1909	539.23	NR	NR	3	0.02–1.37	0–0%	0–0%	0–0%
MM 0095	Meat from mammals other than marine mammals	Total	NA	NA	1.000	CN	Child. 1–6 yrs.	4329	261.46	NR	NR	1	NA	0%	0%	0%
MM 0095	Meat from mammals other than marine mammals: 80% as muscle	Total	–	0.023	1.000	CN	Child. 1-6 yrs.	4329	209.17	NR	NR	1	0.298	0%	0%	0%
MF 0100	Mammalian fats (except milk fats)	Total	–	0.065	1.000	PRIMO-UK	infant	P97.5	18.10	NR	NR	1	0.135	0%	0%	0%
MO 0105	Edible offal (mammalian)	Total	–	0.312	1.000	ZA	Gen. pop. > 10 yrs.	-	523.58	NR	NR	1	2.933	1%	1%	1%
ML 0106	Milks	Total	0.023	–	1.000	PRIMO-UK	infant	P97.5	1080.70	NR	NR	3	2.857	1%	0%	1%

PYRACLOSTROBIN (210) **ARfD= 0.7 mg/kg bw (700 µg/kg bw)**							**International Estimate of Short-term Intake of pesticide residues (IESTI)**							**Maximum %ARfD:**		
														1% all	**1% gen pop**	**1% child**
Codex code	**Commodity**	**Processing**	**STMR or STMR-P mg/kg**	**HR or HR-P mg/kg**	**DCF**	**Country**	**Population group**	**n**	**Large portion, g/person**	**Unit weight, edible portion, g**	**Varia-bility factor**	**Case**	**IESTI µg/kg bw/day**	**% ARfD rounded**	**% ARfD rounded**	**% ARfD rounded**
VO 0440	Eggplant (Aubergine) (all commodities)	Highest utilization: raw with skin	0.12	0.21	1.000	CN	Child. 1– 6 yrs.	969	253.44	444	3	2b	0.14– 9.9	0–1%	0–1%	0–1%
VO 0443	Pepino (Melon pear, Tree melon)	Total	–	0.21	1.000	PRIMO-NL	Gen pop	P95	424.02	340	3	2a	3.520	1%	1%	0%

PYRACLOSTROBIN (210) ARfD= 0.7 mg/kg bw (700 µg/kg bw)						International Estimate of Short-term Intake of pesticide residues (IESTI)								Maximum %ARfD:		
														1% all	1% gen pop	1% child
Codex code	**Commodity**	**Processing**	**STMR or STMR-P mg/kg**	**HR or HR-P mg/kg**	**DCF**	**Country**	**Population group**	**n**	**Large portion, g/person**	**Unit weight, edible portion, g**	**Varia-bility factor**	**Case**	**IESTI µg/kg bw/day**	**% ARfD rounded**	**% ARfD rounded**	**% ARfD rounded**
VO 2713	Scarlet eggplant (gilo, Ethiopian eggplant) (all commodities)	Highest utilization: Total	0	0.21	1.000	PRIMO-NL	Gen pop	P95	424.02	28	3	2a	1.36–1.53	0–0%	0–0%	0– 0%
HS 0771	Anise, seed (all commodities)	Highest utilization: Total	0	0.7	1.000	PRIMO-DE	Gen pop	P95	7.64	<25	NR	1	0–0.07	0–0%	0–0%	0– 0%
HS 3285	Black caraway (all commodities)	Highest utilization: Total	0	0.7	1.000	PRIMO-DE	women. 14–50 yrs.	P97.5	6.75	<25	NR	1	0.07–0.07	0–0%	0–0%	0– 0%
HS 0774	Caraway, seed (all commodities)	Highest utilization: Total	0	0.7	1.000	PRIMO-CZ	child. 4–6 yrs.	P97.5	0.43	<25	NR	1	0–0.01	0–0%	0–0%	0– 0%
HS 0779	Coriander, seed (all commodities)	Highest utilization: Total	0	0.7	1.000	AU	Gen. pop. > 2 yrs.	129	7.76	<25	NR	1	0–0.08	0–0%	0–0%	0– 0%
HS 0780	Cumin, seed (all commodities)	Highest utilization: Total	0.18	0.7	1.000	AU	Child. 2-16 yrs.	584	3.99	<25	NR	1	0 –0.07	0–0%	0–0%	0– 0%
HS 0730	Dill, seed (all commodities)	Highest utilization: Total	0	0.7	1.000	US	Child. < 6 yrs.	325	1.89	<25	NR	1	0–0.09	0–0%	0–0%	0– 0%
HS 0731	Fennel, seed (all commodities)	Highest utilization: Total	0	0.7	1.000	PRIMO-DE	child	P97.5	12.44	<25	NR	1	0–0.54	0–0%	0–0%	0– 0%
HS 0782	Fenugreek, seed (all commodities)	Highest utilization: Total	0	0.7	1.000	AU	Gen. pop. > 2 yrs.	129	7.76	<25	NR	1	0–0.08	0–0%	0–0%	0– 0%
HS 3296	Guarana	Total	0.18	–	1.000	PRIMO-DE	women. 14–50 yrs.	P97.5	40.48	<25	NR	3	0.108	0%	0%	0%
HS 0789	Nutmeg (all commodities)	Highest utilization: Total	0	0.7	1.000	PRIMO-DE	women. 14–50 yrs.	P97.5	6.75	<25	NR	1	0–0.07	0–0%	0%0%	0– 0%

Note: In Table A4.1, each country is listed by its International Organization for Standardization (ISO) Country Alpha-2 Code: AU – Australia, BE – Belgium, BR – Brazil, CA – Canada, CN – China, CZ – Czechia, DE – Germany, FR – France, JP – Japan, NL – Netherlands (the Kingdom of the), TH – Thailand, UK – United Kingdom, ZA – South Africa.

Annex 5. Livestock dietary burden calculation

Table A5.1 Livestock dietary burden calculation

ACEQUINOCYL (343) **BEEF CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Grape pomace, wet	AB	0.17	Median-P	15	1.13	–	–	20	–	–	–	0.227	–
Almond hulls	AM/AV	0.58	Median-P	90	0.64	–	–	10	–	–	–	0.064	–
Citrus dried pulp	AB	0.06	Median-P	91	0.07	10	5	10		0.007	0.003	0.007	–
					Total	10	5	40	–	0.007	0.003	**0.298**	–
Estimated mean dietary burden													
Grape pomace, wet	AB	0.17	STMR-P	15	1.13	–	–	20	–	–	–	0.227	–
Almond hulls	AM/AV	0.58	STMR-P	90	0.64	–	–	10	–	–	–	0.064	–
Citrus dried pulp	AB	0.06	STMR-P	91	0.07	10	5	10	–	0.007	0.003	0.007	–
					Total	10	5	40	–	0.007	0.003	**0.298**	–

ACEQUINOCYL (343) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Grape pomace, wet	AB	0.17	Median-P	15	1.13	–	–	20	–	–	–	0.227	–
Almond hulls	AM/AV	0.58	Median-P	90	0.64	10		10	–	0.064		0.064	–
Citrus dried pulp	AB	0.06	Median-P	91	0.07	10	20	10	–	0.007	0.013	0.007	–
					Total	20	20	40	–	0.071	0.013	**0.298**	–
Estimated mean dietary burden													
Grape pomace, wet	AB	0.17	STMR-P	15	1.13	–	0	20	–	–	0	0.227	–
Almond hulls	AM/AV	0.58	STMR-P	90	0.64	10		10	–	0.064		0.064	–
Citrus dried pulp	AB	0.06	STMR-P	91	0.07	10	20	10	–	0.0066	0.013	0.007	–
					Total	20	20	40	–	0.0710	0.013	**0.298**	–

ACYNONAPYR (333) **BEEF CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Apple pomace, wet	AB	1.52	Median-P	40	3.80		20	20			0.76	0.76	
Citrus dried pulp	AB	0.767	Median-P	91	0.84	10		10		0.084		0.084	
					Total	10	20	30		0.084	0.76	0.844	
Estimated mean dietary burden													
Apple pomace, wet	AB	1.52	Median-P	40	3.80		20	20			0.76	0.76	
Citrus dried pulp	AB	0.767	Median-P	91	0.84	10		10		0.084286		0.084	
					Total	10	20	30		0.084286	0.76	0.844	

ACYNONAPYR (333) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Apple pomace, wet	AB	1.52	Median-P	40	3.80	10	10	10		0.380	0.38	0.38	
Citrus dried pulp	AB	0.767	Median-P	91	0.84		10	20			0.084	0.169	
Total						10	20	30		0.380	0.464	0.549	
Estimated mean dietary burden													
Apple pomace. wet	AB	1.52	Median-P	40	3.80	10	10	10		0.38	0.38	0.38	
Citrus dried pulp	AB	0.767	Median-P	91	0.84	0	10	20		0	0.084	0.169	
Total						10	20	30		0.38	0.464	0.549	

BIFENTHRIN (178) **BEEF CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Cabbage heads. leaves	AM/AV	3.1	Highest	15	20.67	–	20	–	–	–	4.133	–	–
Soybean asp gr fn	SM	9.5	Median-P	85	11.18	5	–	–	–	0.559	–	–	–
Corn, field stover	AF/AS	5.5	Highest	83	6.63	15	25	40	–	0.994	1.657	2.651	–
Corn, field forage/silage	AF/AS	2	Highest	40	5.00	–	55	60	–	–	2.75	3	–
Wheat milled bypdts	CM/CF	0.79	Median-P	88	0.90	40	–	–	55	0.359	–	–	0.494
Wheat grain	GC	0.25	STMR	89	0.28	20	–	–	25	0.056	–	–	0.07

BIFENTHRIN (178) **BEEF CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Distiller's grain dried	SM	0.25	Median-P	92	0.27	20	–	–	10	0.054	–	–	0.027
Soybean seed	VD	0.05	STMR	89	0.06	–	–	–	10	–	–	–	0.006
					Total	100	100	100	100	2.022	**8.54**	5.651	0.597
Estimated mean dietary burden													
Soybean asp gr fn	SM	9.5	Median-P	85	11.18	5	–	–	–	0.559	–	–	–
Cabbage heads, leaves	AM/AV	1.5	Median	15	10.00		20	–	–	–	2	–	–
Rye straw	AF/AS	2.6	Median	88	2.95	10	20	20	–	0.295	0.591	0.591	–
Oat straw	AF/AS	2.6	Median	90	2.89			60	–			1.733	–
Corn, field stover	AF/AS	2.2	Median	83	2.65	5	5	20	–	0.132	0.133	0.53	–
Corn, field forage/silage	AF/AS	0.585	Median	40	1.46	–	55		–	–	0.804	–	–
Wheat milled bypdts	CM/CF	0.79	Median	88	0.90	40	–	–	55	0.359	–	–	0.494
Wheat grain	GC	0.25	STMR	89	0.28	20	–	–	25	0.056	–	–	0.07
Distiller's grain dried	SM	0.25	Median-P	92	0.27	20	–	–	10	0.054	–	–	0.027
Soybean seed	VD	0.05	STMR	89	0.06	–	–	–	10		–	–	0.006
					Total	100	100	100	100	1.456	**3.528**	2.854	0.597

BIFENTHRIN (178) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Cabbage heads, leaves	AM/AV	3.1	Highest	15	20.67	–	20	–	–	–	4.133	–	–
Corn, field stover	AF/AS	5.5	Highest	83	6.63	15	20	40	–	0.994	1.325	2.651	–
Rye straw	AF/AS	4.5	Highest	88	5.11	–	–	–	5		–	–	0.256
Corn, field forage/silage	AF/AS	2	Highest	40	5.00	30	40	60	45	1.500	2	3	2.25
Apple pomace. wet	AB	0.5	Median-P	40	1.25	10	10	–	–	0.125	0.125	–	–
Wheat milled bypdts	CM/CF	0.79	Median-P	88	0.90	30	10	–	45	0.269	0.09	–	0.404
Pea hay	AL	0.39	Highest	88	0.44	10	–	–	–	0.044	–	–	–
Carrot culls	VR	0.05	Highest	12	0.42	5	–	–	–	0.021	–	–	–
Wheat grain	GC	0.25	STMR	89	0.28		–	–	5		–	–	0.014
					Total	100	100	100	100	2.953	**7.673**	5.651	2.924
Estimated mean dietary burden													
Cabbage heads. leaves	AM/AV	1.5	Median	15	10.00	–	20	0	–	–	2	0	–
Rye straw	AF/AS	2.6	Median	88	2.95	10	20	20	5	0.295455	0.591	0.591	0.148

BIFENTHRIN (178) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Oat straw	AF/AS	2.6	Median	90	2.89	0	–	40	–	0	–	1.156	–
Corn, field stover	AF/AS	2.2	Median	83	2.65	5	–	–	–	0.13253	–	–	–
Corn, field forage/silage	AF/AS	0.585	Median	40	1.46	30	40	40	45	0.439	0.585	0.585	0.658
Apple pomace, wet	AB	0.5	Median-P	40	1.25	10	10	–	–	0.125	0.125	–	–
Wheat milled bypdts	CM/CF	0.79	Median-P	88	0.90	30	10	–	45	0.269	0.09	–	0.404
Carrot culls	VR	0.05	Median-P	12	0.42	10	–	–	–	0.042	–	–	–
Turnip roots	VR	0.05	STMR	15	0.33	5	–	–		0.017	–	–	–
Wheat grain	GC	0.25	STMR	89	0.28	0	–	–	5	0	–	–	0.014
					Total	100	100	100	100	1.319	**3.391**	2.331	1.224

BIFENTHRIN (178) **POULTRY BROILER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Wheat milled bypdts	CM/CF	0.79	Median-P	88	0.90	50	20	20	5	0.449	0.18	0.18	0.045
Swede roots	VR	0.05	HR	10	0.50	–	10	–	–	–	0.05	–	–
Wheat grain	GC	0.25	STMR	89	0.28	50	70	70	10	0.140	0.197	0.197	0.028
Distiller's grain dried	SM	0.25	Median-P	92	0.27	–	–	–	5	–	–	–	0.014
Lupin seed meal	SM	0.05	Median-P	85	0.06	–	–	10	–	–	–	0.006	–
Soybean meal	SM	0.01	Median-P	92	0.01	–	–	–	30	–	–	–	0.003
					Total	100	100	100	50	**0.59**	0.426	0.382	0.09
Estimated mean dietary burden													
Wheat milled bypdts	CM/CF	0.79	Median-P	88	0.90	50	20	20	5	0.45	0.18	0.18	0.045
Swede roots	VR	0.05	STMR	10	0.50	–	10	–	–	–	0.05	–	–
Wheat grain	GC	0.25	STMR	89	0.28	50	70	70	10	0.14	0.197	0.197	0.028
Distiller's grain dried	SM	0.25	Median-P	92	0.27	–	–	–	5	–	–	–	0.014
Lupin seed meal	SM	0.05	Median-P	85	0.06	–	–	10	–	–	–	0.006	–
Soybean meal	SM	0.01	Median-P	92	0.01	–	–	–	30	–	–	–	0.003
					Total	100	100	100	50	**0.59**	0.426	0.382	0.09

BIFENTHRIN (178) **POULTRY LAYER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Cabbage heads, leaves	AM/AV	3.1	Highest	15	20.67	–	5	–	–	–	1.033	–	–
Wheat milled bypdts	CM/CF	0.79	Median-P	88	0.90	50	20	20	30	0.449	0.18	0.18	0.269
Wheat straw	AF/AS	0.45	Highest	88	0.51	–	10	–	–	–	0.051	–	–
Swede roots	VR	0.05	HR	10	0.50	–	10	–	–	–	0.05	–	–
Pea hay	AL	0.39	Highest	88	0.44	–	10	–	–	–	0.044	–	–
Wheat grain	GC	0.25	STMR	89	0.28	50	45	55		0.140	0.126	0.154	
Distiller's grain dried	SM	0.25	Median-P	92	0.27	–	–	–	5	–	–	–	0.014
Lupin seed meal	SM	0.05	Median-P	85	0.06	–	–	20	–	–	–	0.012	–
Cowpea seed	VD	0.05	STMR	88	0.06	–	–	5	–	–	–	0.003	–
Rape meal	SM	0.027	Median-P	88	0.03	–	–	–	10	–	–	–	0.003
Soybean meal	SM	0.01	Median-P	92	0.01	–	–	–	15	–	–	–	0.002
					Total	100	100	100	60	0.589	**1.485**	0.349	0.288
Estimated mean dietary burden													
Cabbage heads. leaves	AM/AV	1.5	Median-P	15	10.00	–	5	–	–	–	0.5	–	–
Wheat milled bypdts	CM/CF	0.79	Median-P	88	0.90	50	20	20	30	0.449	0.18	0.18	0.269
Swede roots	VR	0.05	STMR	10	0.50	–	10	–	–	–	0.05	–	–
Wheat straw	AF/AS	0.26	MediaN	88	0.30	–	10	–	–	–	0.03	–	–
Wheat grain	GC	0.25	STMR	89	0.28	50	55	55		0.140	0.154	0.154	–
Distiller's grain dried	SM	0.25	Median-P	92	0.27	–	–	–	5	–	–	–	0.014
Lupin seed meal	SM	0.05	Median-P	85	0.06	–	–	20	–	–	–	0.012	–
Cowpea seed	VD	0.05	STMR	88	0.06	–	–	5	–	–	–	0.003	–
Rape meal	SM	0.027	Median-P	88	0.03	–	–	–	10	–	–	–	0.00
Soybean meal	SM	0.01	Median-P	92	0.01	–	–	–	15	–	–	–	0.002
					Total	100	100	100	60	0.589	**0.914**	0.349	0.288

BOSCALID (221) **BEEF CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Kale leaves	AM/AV	29	HR	15	193.33	–	20	–	–	–	38.67	–	–
Barley hay	AF/AS	30.7	Highest	88	34.89	15	–	100	–	5.233	–	34.89	–
Rye straw	AF/AS	30.7	Highest	88	34.89	–	20	–	–	–	6.977	–	–

BOSCALID (221) **BEEF CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Barley straw	AF/AS	30.7	Highest	89	34.49	–	10	–	–	–	3.449	–	–
Trefoil hay	AL	29	Highest	85	34.12	15	20	–	–	5.118	6.824	–	–
Vetch hay	AL	29	Highest	85	34.12	–	5	–	5	–	1.706	–	1.706
Cowpea hay	AL	29	Highest	86	33.72	–	25	–	–	–	8.43	–	–
Potato culls	VR	0.71	Highest	20	3.55	30	–	–	–	1.065	–	–	–
Potato process waste	AB	0.305	STMR	12	2.54	30	–	–	–	0.763	–	–	–
Soybean hulls	SM	1.74	Median-P	90	1.93	10	–	–	5	0.193	–	–	0.097
Beet. sugar dried pulp	AB	0.305	Median-P	88	0.35	–	–	–	5	–	–	–	0.017
Soybean meal	SM	0.16	Median-P	92	0.17	–	–	–	60	–	–	–	0.104
Soybean seed	VD	0.12	STMR	89	0.13	–	–	–	15	–	–	–	0.02
Soybean okara	SM	0.12	STMR	92	0.13	–		–	10	–	–	–	0.01
					Total	100	100	100	100	12.37	**66.05**	34.89	1.957
Estimated mean dietary burden													
Kale leaves	AM/AV	3.65	STMR	15	24.33	–	20	–	–	–	4.867	–	–
Grape pomace, wet	AB	2.5	STMR-P	15	16.67	–	–	20	–	–	–	3.333	–
Peanut hay	AL	9	Median	85	10.59	–	–	60	–	–	–	6.353	–
Soybean hay	AL	9	Median	85	10.59	–		20	–	–		2.118	–
Trefoil hay	AL	9	Median	85	10.59	15	20	–	–	1.588	2.118	–	–
Vetch hay	AL	9	Median	85	10.59	–	5	–	5		0.529	–	0.529
Cowpea hay	AL	9	Median	86	10.47	–	10	–	–		1.047	–	–
Barley hay	AF/AS	9	Median	88	10.23	15	–	–	–	1.534091		–	–
Rye straw	AF/AS	9	Median	88	10.23	–	20	–	–	–	2.045	–	–
Barley straw	AF/AS	9	Median	89	10.11	–	25	–	–	–	2.528	–	–
Potato process waste	AB	0.305	STMR	12	2.54	30	–	–	–	0.763	–	–	–
Soybean hulls	SM	1.74	Median	90	1.93	15	–	–	5	0.290	–	–	0.097
Potato culls	VR	0.305	Median	20	1.53	25	–	–	–	0.381	–	–	–
Beet. sugar dried pulp	AB	0.305	Median-P	88	0.35	–	–	–	5	–	–	–	0.017
Soybean meal	SM	0.16	Median-P	92	0.17	–	–	–	60	–	–	–	0.104
Soybean seed	VD	0.12	STMR	89	0.13	–	–	–	15	–	–	–	0.02
Soybean okara	SM	0.12	STMR	92	0.13	–	–	–	10	–	–	–	0.013
					Total	100	100	100	100	4.556	**13.13**	11.8	0.781

BOSCALID (221) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Kale leaves	AM/AV	29	HR	15	193.33	–	20	40	–	–	38.67	77.33	–
Barley hay	AF/AS	30.7	Highest	88	34.89	20	–	50	–	6.977	–	17.44	–
Rye straw	AF/AS	30.7	Highest	88	34.89	–	20	–	5	–	6.977	–	1.744
Triticale hay	AF/AS	30.7	Highest	88	34.89	–	–	10	–	–	–	3.489	–
Barley straw	AF/AS	30.7	Highest	89	34.49	–	10	–	–	–	3.449	–	–
Peanut hay	AL	29	Highest	85	34.12	15	–	–	–	5.118	–	–	–
Soybean hay	AL	29	Highest	85	34.12	5	–	–	–	1.706	–	–	–
Trefoil hay	AL	29	Highest	85	34.12	20	40	–	–	6.824	13.65	–	–
Vetch hay	AL	29	Highest	85	34.12	–	10	–	25		3.412	–	8.529
Oat hay	AF/AS	30.7	Highest	90	34.11	10	–	–	–	3.411	–	–	–
Carrot culls	VR	0.71	Highest	12	5.92	10	–	–	–	0.592	–	–	–
Apple pomace, wet	AB	2.121	Median-P	40	5.30	10	–	–	–	0.530	–	–	–
Almond hulls	AM/AV	4.1	Median-P	90	4.56	10	–	–	–	0.456	–	–	–
Beet, sugar dried pulp	AB	0.305	Median-P	88	0.35	–	–	–	40	–	–	–	0.139
Soybean meal	SM	0.16	Median-P	92	0.17	–	–	–	30	–	–	–	0.052
					Total	100	100	100	100	25.61	66.15	**98.27**	10.46
Estimated mean dietary burden													
Kale leaves	AM/AV	3.65	STMR	15	24.33	–	20	40	–	–	4.867	9.733	–
Grape pomace, wet	AB	2.5	Median-P	15	16.67	0	–	20	–	0	–	3.333	–
Peanut hay	AL	9	Median	85	10.59	15	–	40	–	1.588	–	4.235	–
Soybean hay	AL	9	Median	85	10.59	5	–	–	–	0.529	–	–	–
Trefoil hay	AL	9	Median	85	10.59	20	40	–	–	2.118	4.235	–	–
Vetch hay	AL	9	Median	85	10.59	0	–	–	25	0	–	–	2.647
Barley hay	AF/AS	9	Median	88	10.23	20	–	–		2.045	–	–	–
Rye straw	AF/AS	9	Median	88	10.23	0	20	–	5	0	2.045	–	0.511
Barley straw	AF/AS	9	Median	89	10.11	0	20	–	–	0	2.022	–	–
Oat hay	AF/AS	9	Median	90	10.00	10	–	–	–	1	–	–	–
Apple pomace, wet	AB	2.121	Median-P	40	5.30	10	–	–	–	0.530	–	–	–
Almond hulls	AM/AV	4.1	Median	90	4.56	10	–	–	–	0.456	–	–	–
Carrot culls	VR	0.305	Median-P	12	2.54	10	–	–	–	0.254	–	–	–
Beet, sugar dried pulp	AB	0.305	Median-P	88	0.35	0	–	–	40	0	–	–	0.139
Soybean meal	SM	0.16	Median-P	92	0.17	0	–	–	30	0.00	–	–	0.05
					Total	100	100	100	100	8.521	13.17	**17.3**	3.349

BOSCALID (221) **POULTRY BROILER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Swede roots	VR	0.71	HR	10	7.10	–	10	–	–	–	0.71	–	–
Soybean hulls	SM	1.74	Median-P	90	1.93	–	5	–	–	–	0.097	–	–
Cassava/tapioca roots	VR	0.71	HR	37	1.92	–	10	–	–	–	0.192	–	–
Potato dried pulp	AB	0.305	Median-P	88	0.35	–	20	–	–	–	0.069	–	–
Wheat gluten meal	CM/CF	0.075	Median-P	40	0.19	–	10	–	–	–	0.019	–	–
Soybean meal	SM	0.16	Median-P	92	0.17	25	35	25	35	0.043	0.061	0.043	0.061
Canola meal	SM	0.145	Median-P	88	0.16	–	10	–	–	–	0.016	–	–
Bean seed	VD	0.12	STMR	88	0.14	–	–	70	–	–	–	0.095	–
Cowpea seed	VD	0.12	STMR	88	0.14	10	–	–	–	0.014	–	–	–
Soybean seed	VD	0.12	STMR	89	0.13	10	–	–	–	0.013	–	–	–
Barley grain	GC	0.075	STMR	88	0.09	55	–	5	10	0.047	–	0.004	0.009
Wheat milled bypdts	CM/CF	0.075	Median-P	88	0.09	–	–	–	5	–	–	–	0.004
Sorghum grain	GC	0.05	STMR	86	0.06	–	–	–	50	–	–	–	0.029
					Total	100	100	100	100	0.117	**1.164**	0.143	0.103
Estimated mean dietary burden													
Swede roots	VR	0.305	STMR	10	3.05	–	10	–	–	–	0.305	–	–
Soybean hulls	SM	1.74	Median-P	90	1.93	–	5	–	–	–	0.097	–	–
Cassava/tapioca roots	VR	0.305	STMR	37	0.82	–	10	–	–	–	0.082	–	–
Potato dried pulp	AB	0.305	Median-P	88	0.35	–	20	–	–	–	0.069	–	–
Wheat gluten meal	CM/CF	0.075	Median-P	40	0.19	–	10	–	–	–	0.019	–	–
Soybean meal	SM	0.16	Median-P	92	0.17	25	35	25	35	0.04	0.061	0.043	0.061
Canola meal	SM	0.145	Median-P	88	0.16	–	10	–	–	–	0.016	–	–
Bean seed	VD	0.12	STMR	88	0.14	–	–	70	–	–	–	0.095	–
Cowpea seed	VD	0.12	STMR	88	0.14	10	–	–	–	0.014	–	–	–
Soybean seed	VD	0.12	STMR	89	0.13	10	–	–	–	0.014	–	–	–
Barley grain	GC	0.075	STMR	88	0.09	55	–	5	10	0.047	–	0.004	0.009
Wheat milled bypdts	CM/CF	0.075	Median-P	88	0.09	–	–	–	5	–	–	–	0.004
Sorghum grain	GC	0.05	STMR	86	0.06	–	–	–	50	–	–	–	0.029
					Total	100	100	100	100	0.117	**0.65**	0.143	0.103

BOSCALID (221) **POULTRY LAYER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Wheat hay	AF/AS	30.7	Highest	88	34.89	–	10	–	–	–	3.489	–	–
Soybean hay	AL	29	Highest	85	34.12	–	10	–	–	–	3.412	–	–
Cabbage heads, leaves	AM/AV	2.7	Highest	15	18.00	–	5	–	–	–	0.9	–	–
Swede roots	VR	0.71	HR	10	7.10	–	10	–	–	–	0.71	–	–
Soybean hulls	SM	1.74	Median-P	90	1.93	–	5	–	–	–	0.097	–	–
Cassava/tapioca roots	VR	0.71	HR	37	1.92	–	5	–	–	–	0.096	–	–
Potato dried pulp	AB	0.305	Median-P	88	0.35	–	15	–	–	–	0.052	–	–
Wheat gluten meal	CM/CF	0.075	Median-P	40	0.19	–	10	–	–	–	0.019	–	–
Soybean meal	SM	0.16	Median-P	92	0.17	25	20	25	30	0.04	0.035	0.043	0.05
Bean seed	VD	0.12	STMR	88	0.14	–	10	70	–	–	0.014	0.095	–
Cowpea seed	VD	0.12	STMR	88	0.14	10	–	–	–	0.014	–	–	–
Soybean seed	VD	0.12	STMR	89	0.13	10	–	–		0.013	–	–	–
Corn gluten feed	CM/CF	0.05	Median-P	40	0.13	–	–	–	10	–	–	–	0.013
Barley grain	GC	0.075	STMR	88	0.09	55	–	5	–	0.047	–	0.004	–
Wheat milled bypdts	CM/CF	0.075	Median-P	88	0.09	–	–	–	20	–	–	–	0.017
Sorghum grain	GC	0.05	STMR	86	0.06	–	–	–	40	–	–	–	0.023
					Total	100	100	100	100	0.117	**8.822**	0.143	0.105
Estimated mean dietary burden													
Soybean hay	AL	9	Median	85	10.59	–	10	–	–	–	1.059	–	–
Wheat hay	AF/AS	9	Median	88	10.23	–	10	–	–	–	1.023	–	–
Cabbage heads, leaves	AM/AV	1.52	Median	15	10.13	–	5	–	–	–	0.507	–	–
Swede roots	VR	0.305	STMR-P	10	3.05	–	10	–	–	–	0.305	–	–
Soybean hulls	SM	1.74	Median-P	90	1.93	–	5	–	–	–	0.097	–	–
Cassava/tapioca roots	VR	0.305	STMR	37	0.82	–	5	–	–	–	0.041	–	–
Potato dried pulp	AB	0.305	Median-P	88	0.35	–	15	–	–	–	0.052	–	–
Wheat gluten meal	CM/CF	0.075	Median-P	40	0.19	–	10	–	–	–	0.019	–	–
Soybean meal	SM	0.16	STMR-P	92	0.17	25	20	25	30	0.043	0.035	0.043	0.05
Bean seed	VD	0.12	STMR	88	0.14		10	70	–	–	0.014	0.095	–
Cowpea seed	VD	0.12	STMR	88	0.14	10	–	–	–	0.014	–	–	–
Soybean seed	VD	0.12	STMR	89	0.13	10	–	–	–	0.014	–	–	–
Corn gluten feed	CM/CF	0.05	STMR-P	40	0.13	–	–	–	10	–	–	–	0.013
Barley grain	GC	0.075	STMR	88	0.09	55	–	5	–	0.047	–	0.004	–
Wheat milled bypdts	CM/CF	0.075	Median-P	88	0.09	–	–	–	20	–	–	–	0.017
Sorghum grain	GC	0.05	STMR	86	0.06	–	–	–	40	–	–	–	0.023
					Total	100	100	100	100	0.117	**3.15**	0.143	0.105

BROFANILIDE (326) **BEEF CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Soybean hay	AL	9.5	Highest	85	11.18	–	–	80	–	–	–	8.941	–
Cabbage heads. leaves	AM/AV	0.95	Highest	15	6.33	–	20		–	–	1.267	–	–
Soybean forage	AL	1.9	Highest	56	3.39	–	–	20	–	–	–	0.679	–
Soybean asp gr fn	SM	1.3	Median-P	85	1.53	5	–	–	–	0.076	–	–	–
Potato culls	VR	0.034	Highest	20	0.17	30	30	–	–	0.051	0.051	–	–
Soybean hulls	SM	0.02	Median-P	90	0.02	10	10	–	5	0.002	0.002	–	0.001
Bean seed	VD	0.011	STMR	88	0.01	–	20	–	–	–	0.003	–	–
Soybean seed	VD	0.0048	STMR	89	0.01	5	–	–	15	0.000	–	–	8E-04
Wheat forage	AF/AS	0.001	Highest	25	0.00	–	20	–	–	–	8E-04	–	–
Corn. field forage/silage	AF/AS	0.001	Highest	40	0.00	15	–	–	–	0.000	–	–	–
Potato process waste	AB	0.0003	STMR	12	0.00	30	–	–	–	0.001	–	–	–
Barley hay	AF/AS	0.0016	Highest	88	0.00	5	–	–	–	0.000	–	–	–
					Total	100	100	100	20	0.131	1.323	**9.62**	0.002
Estimated mean dietary burden													
Soybean asp gr fn	SM	1.3	Median-P	85	1.53	5	–	–	–	0.076	–	–	–
Cabbage heads. leaves	AM/AV	0.19	Median	15	1.27	–	20	–	–	–	0.253	–	–
Soybean hay	AL	1.05	Median	85	1.24	–	–	80	–	–	–	0.988	–
Soybean forage	AL	0.2	Median	56	0.36	–	–	20	–	–	–	0.071	–
Soybean hulls	SM	0.02	Median-P	90	0.02	10	10	–	5	0.002	0.002	–	0.001
Bean seed	VD	0.011	STMR	88	0.01	–	20	–	–		0.003	–	–
Potato culls	VR	0.00175	Median	20	0.01	30	30	–	–	0.003	0.003	–	–
Soybean seed	VD	0.0048	STMR	89	0.01	5	–	–	15	0.000		–	8E-04
Wheat forage	AF/AS	0.001	Median	25	0.00	–	20	–	–	–	8E-04	–	–
Corn. field forage/silage	AF/AS	0.001	Median	40	0.00	15	–	–	–	0.000	–	–	–
Potato process waste	AB	0.0003	STMR	12	0.00	30	–	–	–	0.001	–	–	–
Barley hay	AF/AS	0.001	Median	88	0.00	5	–	–	–	0.000	–	–	–
					Total	100	100	100	20	0.083	0.261	1.06	0.002

BROFANILIDE (326) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Soybean hay	AL	9.5	Highest	85	11.18	20	–	40	–	2.235	–	4.471	–
Cabbage heads, leaves	AM/AV	0.95	Highest or HR	15	6.33	–	20	–	–	–	1.267	–	–
Tomato pomace, wet	AB	0.046	Median-P	20	0.23	–	–	10	–	–	–	0.023	–
Potato culls	VR	0.034	Highest	20	0.17	10	30	10	–	0.017	0.051	0.017	–
Soybean hulls	SM	0.02	Median-P	90	0.02	10	–	–	–	0.002	–	–	–
Bean seed	VD	0.011	STMR	88	0.01	–	20	15	–	–	0.003	0.002	–
Soybean seed	VD	0.0048	STMR	89	0.01	10	–	5	10	0.001	–	0	0
Wheat forage	AF/AS	0.001	Highest	25	0.00	20	20	20		0.001	0	0	–
Corn, field forage/silage	AF/AS	0.001	Highest	40	0.00	30	10	–	50	0.001	0	–	0.001
					Total	100	100	100	60	2.257	1.321	**4.514**	0.002
Estimated mean dietary burden													
Cabbage heads, leaves	AM/AV	0.19	Median	15	1.27	–	20	0	–	–	0.253	0	–
Soybean hay	AL	1.05	Median	85	1.24	20	–	40	–	0.247	–	0.494	–
Tomato pomace, wet	AB	0.046	Median-P	20	0.23	0	–	10	–	0	–	0.023	–
Soybean hulls	SM	0.02	Median-P	90	0.02	10	–	–	–	0.002	–	–	–
Bean seed	VD	0.011	STMR	88	0.01	0	20	15	–	0	0.003	0.002	–
Potato culls	VR	0.0017	Median	20	0.01	10	30	10	–	0.001	0.003	0	–
Soybean seed	VD	0.0048	STMR	89	0.01	10	–	5	10	0.000	–	0	5E-04
Wheat forage	AF/AS	0.001	Median	25	0.00	20	20	20	–	0.001	0	0	–
Corn, field forage/silage	AF/AS	0.001	Median	40	0.00	30	10	–	50	0.001	–	–	0.001
					Total	100	100	100	60	0.252	0.26	**0.521**	0.002

BROFANILIDE (326) **POULTRY BROILER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Potato culls	VR	0.034	Highest	20	0.17	–	10	–	–	–	0.017	–	–
Soybean hulls	SM	0.02	Median-P	90	0.02	–	5	–	–	–	0.001	–	–
Bean seed	VD	0.011	STMR	88	0.01	–	20	70	–	–	0.003	0.009	–
Soybean seed	VD	0.0048	STMR	89	0.01	20		–	–	0.001	–	–	–
Potato dried pulp	AB	0.0022	Median-P	88	0.00	–	20	–	–	–	0	–	–
					Total	20	55	70		0.001	**0.021**	0.009	–

BROFANILIDE (326) **POULTRY BROILER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated mean dietary burden													
Soybean hulls	SM	0.02	Median-P	90	0.02	–	5	–	–	–	0.001	–	–
Bean seed	VD	0.011	STMR	88	0.01	–	20	70	–	–	0.003	0.009	–
Potato culls	VR	0.0017	Median	20	0.01	–	10	–	–	–	0	–	–
Soybean seed	VD	0.0048	STMR	89	0.01	20	–	–	–	0.00	–	–	–
Potato dried pulp	AB	0.0022	Median-P	88	0.00	–	20	–	–	–	0	–	–
					Total	20	55	70	–	0.00	0.005	**0.009**	–

BROFANILIDE (326) **POULTRY LAYER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Soybean hay	AL	9.5	Highest	85	11.18	–	10	–	–	–	1.118	–	–
Cabbage heads, leaves	AM/AV	0.95	Highest	15	6.33	–	5	–	–	–	0.317	–	–
Potato culls	VR	0.034	Highest	20	0.17	–	10	–	–	–	0.017	–	–
Soybean hulls	SM	0.02	Median-P	90	0.02	–	5	–	–	–	0.001	–	–
Bean seed	VD	0.011	STMR	88	0.01	–	20	70	–	–	0.003	0.009	–
Soybean seed	VD	0.0048	STMR	89	0.01	20	–	–	–	0.001	–	–	–
Wheat forage	AF/AS	0.001	Highest	25	0.00	–	10	–	–	–	0.00	–	–
Potato dried pulp	AB	0.0022	Median-P	88	0.00	–	15	–	–	–	0.00	–	–
					Total	20	75	70	–	0.00	**1.456**	0.009	–
Estimated mean dietary burden													
Cabbage heads. leaves	AM/AV	0.19	Median	15	1.27	–	5	–	–	–	0.063	–	–
Soybean hay	AL	1.05	Median	85	1.24	–	10	–	–	–	0.124	–	–
Soybean hulls	SM	0.02	Median-P	90	0.02	–	5	–	–	–	0.001	–	–
Bean seed	VD	0.011	STMR	88	0.01	–	20	70	–	–	0.003	0.009	–
Potato culls	VR	0.0017	Median	20	0.01	–	10	–	–	–	0.001	–	–
Soybean seed	VD	0.0048	STMR	89	0.01	20	–	–	–	0.001	–	–	–
Wheat forage	AF/AS	0.001	Median	25	0.00	–	10	–	–	–	0	–	–
Potato dried pulp	AB	0.0022	Median-P	88	0.00	–	15	–	–	–	0	–	–
					Total	20	75	70	–	0.001	**0.192**	0.009	–

CLOTHIANIDIN (238) **BEEF CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Kale leaves	AM/AV	0.8	HR	15	5.33	–	20	–	–	–	1.067	–	–
Turnip tops (leaves)	AM/AV	0.8	HR	30	2.67	–	20	80	–	–	0.533	2.133	–
Grape pomace, wet	AB	0.23	Median-P	15	1.53	–	–	20	–	–	–	0.307	–
Swede roots	VR	0.15	HR	10	1.50	–	40	–	–	–	0.6	–	–
Wheat forage	AF/AS	0.21	Highest or HR	25	0.84	–	20	–	–	–	0.168	–	–
Sorghum, grain forage	AF/AS	0.29	Highest	35	0.83	15	–	–	–	0.124	–	–	–
Potato culls	VR	0.15	Highest	20	0.75	30	–	–	–	0.225	–	–	–
Rice grain	GC	0.3	STMR	88	0.34	20	–	–	–	0.068	–	–	–
Rice bran/pollard	CM/CF	0.28	STMR-P	90	0.31	15	–	–	20	0.047	–	–	0.062
Potato process waste	AB	0.02	STMR	12	0.17	20	–	–	–	0.033	–	–	–
Rice straw	AF/AS	0.13	Highest	90	0.14	–	–	–	55	–	–	–	0.079
Corn gluten feed	CM/CF	0.02	Median-P	40	0.05	–	–	–	5	–	–	–	0.003
Beet, sugar dried pulp	AB	0.034	Median-P	85	0.04	–	–	–	5	–	–	–	0.002
Corn field grain	GC	0.02	STMR	88	0.02	–	–	–	15	–	–	–	0.00
					Total	100	100	100	100	0.497	2.368	**2.440**	0.150
Estimated mean dietary burden													
Kale leaves	AM/AV	0.52	STMR	15	3.47	–	20	–	–	–	0.693	–	–
Turnip tops (leaves)	AM/AV	0.52	STMR	30	1.73	–	20	80	–	–	0.347	1.387	–
Grape pomace, wet	AB	0.23	Median-P	15	1.53	–	–	20	–	–	–	0.307	–
Sorghum, grain forage	AF/AS	0.19	Median	35	0.54	15	20	–	–	0.081	0.109	–	–
Rice grain	GC	0.3	STMR-P	88	0.34	20	–	–		0.06	–	–	–
Rice bran/pollard	CM/CF	0.28	STMR-P	90	0.31	15	–	–	20	0.047	–	–	0.062
Barley forage	AF/AS	0.06	Median	30	0.20	–	10	–	–	–	0.02	–	–
Pea vines	AL	0.05	Median	25	0.20	–	20	–	–	–	0.04	–	–
Swede roots	VR	0.02	STMR	10	0.20	–	10	–	–	–	0.02	–	–
Potato process waste	AB	0.02	STMR	12	0.17	30	–	–	–	0.050	–	–	–
Beet, sugar molasses	DM	0.064	Median-P	62	0.10	10	–	–	–	0.010	–	–	–
Potato culls	VR	0.02	Median	20	0.10	10	–	–	–	0.010	–	–	–
Corn gluten feed	CM/CF	0.02	Median-P	40	0.05	–	–	–	5	–	–	–	0.003
Grass forage (fresh)	AF/AS	0.01	Median	25	0.04	–	–	–	5	–	–	–	0.002
Beet, sugar dried pulp	AB	0.034	Median-P	85	0.04	–	–	–	5	–	–	–	0.0020
Rice straw	AF/AS	0.03	Median	90	0.03	–	–	–	50	–	–	–	0.017
Corn field grain	GC	0.02	STMR	88	0.02	–	–	–	15	–	–	–	0.003
					Total	100	100	100	100	0.267	1.229	**1.693**	0.089

CLOTHIANIDIN (238) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Kale leaves	AM/AV	0.8	HR	15	5.33	–	20	40	–	–	1.067	2.133	–
Turnip tops (leaves)	AM/AV	0.8	HR	30	2.67	30	–	–	–	0.800	–	–	–
Grape pomace, wet	AB	0.23	Median-P	15	1.53	–	–	20	–	–	–	0.307	–
Swede roots	VR	0.15	HR	10	1.50	–	20	10	–	–	0.3	0.15	–
Carrot culls	VR	0.15	Highest-P	12	1.25	10	–		–	0.125	–	–	–
Rice hulls	CM/CF	1.1	Median-P	90	1.22	–	–	10	–	–	–	0.122	–
Wheat forage	AF/AS	0.21	Highest	25	0.84	20	20	20		0.168	0.168	0.168	–
Sorghum, grain forage	AF/AS	0.29	Highest	35	0.83	20	–	–	40	0.166	–	–	0.331
Barley straw	AF/AS	0.72	Highest	89	0.81	–	10	–	–	–	0.081	–	–
Oat hay	AF/AS	0.72	Highest	90	0.80	20		–	–	0.160	–	–	–
Potato culls	VR	0.15	Highest	20	0.75	–	10	–	–	–	0.075	–	–
Barley forage	AF/AS	0.21	Highest	30	0.70	–	20	–		–	0.14	–	–
Rice bran/pollard	CM/CF	0.28	STMR-P	90	0.31	–	–	–	10	–	–	–	0.03
Corn. field forage/silage	AF/AS	0.02	Highest	40	0.05	–	–	–	10	–	–	–	0.005
Corn gluten feed	CM/CF	0.02	Median-P	40	0.05	–	–	–	15	–	–	–	0.008
Beet. sugar dried pulp	AB	0.034	Median-P	85	0.04	–	–	–	25	–	–	–	0.01
					Total	100	100	100	100	1.419	1.831	**2.880**	0.385
Estimated mean dietary burden													
Kale leaves	AM/AV	0.52	STMR	15	3.47	–	20	40	–	–	0.693	1.387	–
Turnip tops (leaves)	AM/AV	0.52	STMR	30	1.73	30	–	–	–	0.52	–	–	–
Grape pomace. wet	AB	0.23	Median-P	15	1.53	0	–	20	–	0	–	0.307	–
Rice hulls	CM/CF	1.1	Median-P	90	1.22	0	–	10	–	0	–	0.122	–
Sorghum. grain forage	AF/AS	0.19	Median	35	0.54	40	20	30	40	0.217	0.109	0.163	0.217
Rice grain	GC	0.3	STMR	88	0.34	20	–	–	–	0.068	–	–	–
Rice bran/pollard	CM/CF	0.28	STMR-P	90	0.31	10	20	–	10	0.031	0.062	–	0.031
Bean vines	AL	0.075	Median	35	0.21	0	20	–	–	0	0.043	–	–
Barley forage	AF/AS	0.06	Median	30	0.20	0	20	–	–	0	0.04	–	–
Corn gluten feed	CM/CF	0.02	Median-P	40	0.05	0	–	–	15	0	–	–	0.008
Beet. sugar dried pulp	AB	0.034	Median-P	85	0.04	0	–	–	35	0.000	–	–	0.014
					Total	100	100	100	100	0.836	0.947	**1.978**	0.270

CLOTHIANIDIN (238) **POULTRY BROILER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Swede roots	VR	0.15	Highest	10	1.50	–	10	–	–	–	0.15	–	–
Cassava/tapioca roots	VR	0.15	Highest	37	0.41	–	10	–	–	–	0.041	–	–
Rice grain	GC	0.3	STMR	88	0.34	20	–	50	–	0.068	–	0.17	–
Rice bran/pollard	CM/CF	0.28	Median-P	90	0.31	10	10	20	5	0.031	0.031	0.062	0.016
Corn, field milled bypdts	CM/CF	0.02	Median-P	85	0.02	40	50	–	–	0.009	0.012	–	–
Lupin seed meal	SM	0.02	Median-P	85	0.02	–	10	20	–	–	0.002	0.005	–
Peanut meal	SM	0.02	Median-P	85	0.02	25	–	–	–	0.01	–	–	–
Bean seed	VD	0.02	STMR	88	0.02	–	10	10	–	–	0.002	0.002	–
Corn field grain	GC	0.02	STMR	88	0.02	5	–	–	70	0.001	–	–	0.016
Rape meal	SM	0.02	Median-P	88	0.02	–	–	–	5	–	–	–	0.001
Soybean meal	SM	0.02	Median-P	92	0.02	–	–	–	20	–	–	–	0.004
					Total	100	100	100	100	0.116	0.238	**0.240**	0.037
Estimated mean dietary burden													
Rice grain	GC	0.3	STMR	88	0.34	20	–	50	–	0.07	–	0.17	–
Rice bran/pollard	CM/CF	0.28	STMR-P	90	0.31	10	10	20	5	0.03	0.031	0.062	0.016
Swede roots	VR	0.02	STMR	10	0.20	–	10	–	–	–	0.02	–	–
Cassava/tapioca roots	VR	0.02	STMR	37	0.05	–	10	–	–	–	0.005	–	–
Corn, field milled bypdts	CM/CF	0.02	Median-P	85	0.02	40	50	–	–	0.009	0.012	–	–
Lupin seed meal	SM	0.02	Median-P	85	0.02	–	10	20	–	–	0.002	0.005	–
Peanut meal	SM	0.02	Median-P	85	0.02	25	–	–	–	0.01	–	–	–
Bean seed	VD	0.02	STMR	88	0.02	–	10	10	–	–	0.002	0.002	–
Corn field grain	GC	0.02	STMR	88	0.02	5	–	–	70	0.001	–	–	0.016
Rape meal	SM	0.02	Median-P	88	0.02	–	–	–	5	–	–	–	0.001
Soybean meal	SM	0.02	Median-P	92	0.02	–	–	–	20	–	–	–	0.004
					Total	100	100	100	100	0.116	0.073	**0.240**	0.037

CLOTHIANIDIN (238) **POULTRY LAYER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Swede roots	VR	0.15	HR	10	1.50	–	10	–	–	–	0.15	–	–
Wheat forage	AF/AS	0.21	Highest	25	0.84	–	10	–	–	–	0.084	–	–
Cabbage heads, leaves	AM/AV	0.08	Highest	15	0.53	–	5	–	–	–	0.027	–	–
Cassava/tapioca roots	VR	0.15	HR	37	0.41	–	5	–	–	–	0.02	–	–
Rice grain	GC	0.3	STMR	88	0.34	20		50	–	0.068	–	0.17	–
Rice bran/pollard	CM/CF	0.28	STMR-P	90	0.31	10	5	20	20	0.031	0.016	0.062	0.062
Pea vines	AL	0.05	Highest	25	0.20	–	10	–	–	–	0.02	–	–
Rape forage	AM/AV	0.027	Highest	30	0.09	–	5	–	–	–	0.005	–	–
Corn gluten meal	CM/CF	0.02	Median-P	40	0.05	–	5	–	–	–	0.003	–	–
Corn, field milled bypdts	CM/CF	0.02	Median-P	85	0.02	40	45	–	–	0.009	0.011	–	–
Lupin seed meal	SM	0.02	Median-P	85	0.02	–	–	20	–	–	–	0.005	–
Peanut meal	SM	0.02	Median-P	85	0.02	25	–	–	–	0.006	–	–	–
Bean seed	VD	0.02	STMR	88	0.02	–	–	10	–	–	–	0.002	–
Corn field grain	GC	0.02	STMR	88	0.02	5	–		80	0.001	–	–	0.018
					Total	100	100	100	100	0.116	**0.334**	0.240	0.080
Estimated mean dietary burden													
Sorghum, grain forage	AF/AS	0.19	Median	35	0.54	–	10		–	–	0.054	–	–
Rice grain	GC	0.3	STMR	88	0.34	20	–	50	–	0.068182	–	0.17	–
Rice bran/pollard	CM/CF	0.28	STMR-P	90	0.31	10	5	20	20	0.031111	0.016	0.062	0.062
Cabbage heads, leaves	AM/AV	0.03	Median	15	0.20	–	5	–	–	–	0.01	–	–
Pea vines	AL	0.05	Median	25	0.20	–	10	–	–	–	0.020	–	–
Swede roots	VR	0.02	STMR	10	0.20	–	10	–	–	–	0.02	–	–
Rape forage	AM/AV	0.02	Median	30	0.07	–	5	–	–	–	0.003	–	–
Cassava/tapioca roots	VR	0.02	STMR	37	0.05	–	5	–	–	–	0.003	–	–
Corn gluten meal	CM/CF	0.02	Median-P	40	0.05	–	5	–	–	–	0.003	–	–
Corn, field milled bypdts	CM/CF	0.02	Median-P	85	0.02	40	45	–	–	0.009412	0.011	–	–
Lupin seed meal	SM	0.02	Median-P	85	0.02	–	–	20	–		–	0.005	–
Peanut meal	SM	0.02	Median-P	85	0.02	25	–	–	–	0.006	–	–	–
Bean seed	VD	0.02	STMR	88	0.02	–	–	10	–		–	0.002	–
Corn field grain	GC	0.02	STMR	88	0.02	5	–	–	80	0.001136	–	–	0.018
					Total	100	100	100	100	0.116	0.139	**0.240**	0.080

CYANTRANILIPROLE (263) **BEEF CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Pea vines	AL	47.07	Highest	100	47.07	–	20	60	–	–	9.414	28.24	–
Soybean hay	AL	46.39	Highest	100	46.39	–	–	40	–	–	–	18.56	–
Pea hay	AL	28.54	Highest	100	28.54	–	5	–	–	–	1.427	–	–
Cabbage heads, leaves	AM/AV	1.1	Highest	15	7.33	–	20	–	–	–	1.467	–	–
Cotton gin byproducts	AM/AV	3.1	Highest-P	90	3.44	5	–	–	–	0.172	–	–	–
Corn, field asp gr fn	CM/CF	1.76	Median-P	85	2.07	5	–	–	–	0.104	–	–	–
Rice straw	AF/AS	0.84	Highest	100	0.84	–	10	–	55	–	0.084	–	0.462
Trefoil hay	AL	0.58	Highest	85	0.68	15	–	–		0.102	–	–	–
Vetch hay	AL	0.58	Highest	85	0.68	–	–	–	5	–	–	–	0.034
Cowpea hay	AL	0.58	Highest	86	0.67	–	10	–		–	0.067	–	–
Alfalfa hay	AL	0.58	Highest	89	0.65	–	–	–	5	–	–	–	0.033
Potato culls	VR	0.1	Highest	20	0.50	30	30	–	–	0.150	0.15	–	–
Clover forage	AL	0.14	Highest	30	0.47	–	5	–	–		0.023	–	–
Potato process waste	AB	0.046	STMR	12	0.38	**30**	–	–	–	0.115	–	–	–
Corn, field stover	AF/AS	0.14	Highest	83	0.17	15	–	–	–	0.025	–	–	–
Soybean seed	VD	0.033	STMR	89	0.04	–	–	–	15	–	–	–	0.006
Corn, field milled bypdts	CM/CF	0.0033	Median-P	85	0.00	–	–	–	5	–	–	–	0
					Total	100	100	100	85	0.668	12.63	**46.8**	0.534
Estimated mean dietary burden													
Grape pomace, wet	AB	2.6	Median-P	15	17.33	–	–	20	–	–	–	3.467	–
Soybean forage	AL	15.59	Median-P	100	15.59	–	–	80	–	–	–	12.47	–
Pea hay	AL	9.69	Median-P	100	9.69	–	25	–	–	–	2.423	–	–
Cabbage heads, leaves	AM/AV	0.56	Median-P	15	3.73	–	20	–	–	–	0.747	–	–
Cotton gin byproducts	AM/AV	3.1	Median-P	90	3.44	5	–	–	–	0.172	–	–	–
Corn, field asp gr fn	CM/CF	1.76	Median-P	85	2.07	5	–	–	–	0.103	–	–	–
Apple pomace, wet	AB	0.16	Median-P	40	0.40	–	20	–	–	–	0.08	–	–
Potato process waste	AB	0.046	STMR	12	0.38	30	35	–	–	0.115	0.134	–	–
Potato culls	VR	0.046	Median	20	0.23	30	–	–	–	0.069	–	–	–
Rice straw	AF/AS	0.099	Median-P	100	0.10	–	–	–	55		–	–	0.054
Cotton hulls	SM	0.054	Median-P	90	0.06	10	–	–		0.006	–	–	–
Soybean seed	VD	0.033	STMR	89	0.04	5	–	–	15	0.002	–	–	0.006
Sorghum, grain forage	AF/AS	0.01	Median-P	35	0.03	15	–	–	–	0.004	–	–	
Vetch hay	AL	0.017	Median-P	85	0.02	–	–	–	5	–	–	–	0.001
Alfalfa hay	AL	0.017	Median-P	89	0.02	–	–	–	5	–	–	–	0.001
Corn, field milled bypdts	CM/CF	0.0033	Median-P	85	0.00	–	–	–	5	–	–	–	0
					Total	100	100	100	85	0.472	3.383	**15.94**	0.062

CYANTRANILIPROLE (263) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Pea vines	AL	47.07	Highest	100	47.07	10	20	40	–	4.707	9.414	18.83	–
Soybean hay	AL	46.39	Highest	100	46.39	10	–	–	–	4.639	–	–	–
Pea hay	AL	28.54	Highest	100	28.54	–	10	60	–	–	2.854	17.12	–
Cabbage head, leaves	AM/AV	1.1	Highest	15	7.33	–	20		–	–	1.467	–	–
Almond hulls	AM/AV	1.9	Median-P	90	2.11	10	–	–	–	0.211	–	–	–
Rice straw	AF/AS	0.84	Highest	100	0.84	–	5	–	25	–	0.042	–	0.21
Trefoil hay	AL	0.58	Highest	85	0.68	20	10	–		0.136	0.068	–	–
Vetch hay	AL	0.58	Highest	85	0.68	–	–	–	25	–	–	–	0.171
Alfalfa hay	AL	0.58	Highest	89	0.65	–	35	–	–	–	0.228	–	–
Potato culls	VR	0.1	Highest	20	0.50	10	–	–	–	0.050	–	–	–
Apple pomace, wet	AB	0.16	Median-P	40	0.40	10	–	–	–	0.040	–	–	–
Grass forage (fresh)	AF/AS	0.053	Highest	25	0.21	30	–	–	–	0.064	–	–	–
Grass hay	AF/AS	0.14	Highest	88	0.16	–	–	–	50	–	–	–	0.08
					Total	100	100	100	100	9.847	14.07	**35.95**	0.46
Estimated mean dietary burden													
Grape pomace, wet	AB	2.6	Median-P	15	17.33	–	0	20	–	–	0	3.467	–
Soybean forage	AL	15.59	Median-P	100	15.59	20	–	40	–	3.118	–	6.236	–
Pea hay	AL	9.69	STMR-P	100	9.69	0	30	40	–	0	2.907	3.876	–
Cabbage heads, leaves	AM/AV	0.56	STMR-P	15	3.73	0	20	–	–	0	0.747	–	–
Almond hulls	AM/AV	1.9	STMR-P	90	2.11	10	–	–	–	0.211	–	–	–
Apple pomace, wet	AB	0.16	STMR-P	40	0.40	10	10	–	–	0.04	0.04	–	–
Potato process waste	AB	0.046	STMR	12	0.38	0	20	–	–	0	0.077	–	–
Potato culls	VR	0.046	Median	20	0.23	10	20	–	–	0.023	0.046	–	–
Rice straw	AF/AS	0.099	Median	100	0.10	0	–	–	25	0	–	–	0.025
Lespedeza forage	AL	0.01	Median	22	0.05	20	–	–	–	0.009091	–	–	–
Grass forage (fresh)	AF/AS	0.01	Median	25	0.04	30	–	–	–	0.012	–	–	–
Soybean seed	VD	0.033	STMR	89	0.04	0	–	–	10	0.000	–	–	0.004
Sorghum, grain forage	AF/AS	0.01	STMR-P	35	0.03	0	–	–	15	0	–	–	0.004
Corn, field forage/silage	AF/AS	0.01	Median	40	0.03	0	–	–	10	0	–	–	0.003
Vetch hay	AL	0.017	Median	85	0.02	0	–	–	25	0.00	–	–	0.01
Alfalfa hay	AL	0.017	Median	89	0.02	0	–	–	15	0	–	–	0.003
					Total	100	100	100	100	3.413	3.816	**13.58**	0.043

CYANTRANILIPROLE (263) **POULTRY BROILLER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Potato culls	VR	0.1	Highest	20	0.50	–	10	–	–	–	0.05	–	–
Cassava/tapioca roots	VR	0.014	HR	37	0.04	–	10	–	–	–	0.004	–	–
Soybean seed	VD	0.033	STMR	89	0.04	20	20	15	–	0.007	0.007	0.006	–
Cotton meal	SM	0.014	Median-P	89	0.02	20	5	10	–	0.003	0	0.002	–
Rice grain	GC	0.01	STMR	88	0.01	20	–	50	–	0.002	–	0.006	–
Cor, field milled bypdts	CM/CF	0.0033	Median-P	85	0.00	40	55	–	–	0.002	0.002	–	–
					Total	100	100	75	–	0.01	**0.064**	0.013	–
Estimated mean dietary burden													
Potato culls	VR	0.046	Median	20	0.23	–	10	–	–	–	0.023		–
Soybean seed	VD	0.033	STMR	89	0.04	20	20	15	–	0.01	0.007	0.006	–
Cassava/tapioca roots	VR	0.01	STMR	37	0.03	–	10	–	–	–	0.003	–	–
Cotton meal	SM	0.014	STMR-P	89	0.02	20	5	10	–	0.00	0	0.002	–
Rice grain	GC	0.01	STMR	88	0.01	20		50	–	0.002	–	0.006	–
Corn, field milled bypdts	CM/CF	0.0033	STMR-P	85	0.00	40	55	–	–	0.00	0.002	–	–
					Total	100	100	75	–	0.01	**0.036**	0.013	–

CYANTRANILIPROLE (263) **POULTRY LAYER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Pea vines	AL	47.07	Highest	100	47.07	–	10	–	–	–	4.707	–	–
Cabbage heads, leaves	AM/AV	1.1	Highest	15	7.33	–	5	–	–	–	0.367	–	–
Potato culls	VR	0.1	Highest	20	0.50	–	10	–	–	–	0.05	–	–
Wheat forage	AF/AS	0.053	Highest	25	0.21	–	10	–	–	–	0.021	–	–
Rape forage	AM/AV	0.021	Highest	30	0.07	–	5	–	–	–	0.004	–	–
Cassava/tapioca roots	VR	0.014	HR	37	0.04	–	5	–	–	–	0.002	–	–
Soybean seed	VD	0.033	STMR	89	0.04	20	15	15	–	0.007	0.006	0.006	–
Cotton meal	SM	0.014	Median-P	89	0.02	20	5	10	–	0.003	0	0.002	–
Rice grain	GC	0.01	STMR	88	0.01	20	–	50	–	0.00	–	0.006	–
Corn, field milled bypdts	CM/CF	0.0033	Median-P	85	0.00	40	35	–	–	0.002	0.001	–	–
					Total	100	100	75	–	0.014	**5.158**	0.013	–
Estimated mean dietary burden													

CYANTRANILIPROLE (263) POULTRY LAYER

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Soybean forage	AL	15.59	Median	100	15.59	–	10	–	–	–	1.559	–	–
Cabbage heads, leaves	AM/AV	0.56	Median	15	3.73	–	5	–	–	–	0.187	–	–
Potato culls	VR	0.046	STMR	20	0.23	–	10	–	–	–	0.023	–	–
Wheat forage	AF/AS	0.01	Median	25	0.04	–	10	–	–	–	0.004	–	–
Soybean seed	VD	0.033	STMR	89	0.04	20	15	15	–	0.007	0.006	0.006	–
Rape forage	AM/AV	0.01	Median	30	0.03	–	5	–	–	–	0.002	–	–
Cassava/tapioca roots	VR	0.01	STMR	37	0.03	–	5	–	–	–	0.001	–	–
Cotton meal	SM	0.014	Median-P	89	0.02	20	5	10	–	0.003	0	0.002	–
Rice grain	GC	0.01	STMR	88	0.01	20	–	50	–	0.002	–	0.006	–
Corn, field milled bypdts	CM/CF	0.0033	Median-P	85	0.00	40	35		–	0.001	0.001	–	–
					Total	100	100	75	–	0.014	**1.783**	0.013	–

CYFLUTHRIN (157)/BETA-CYFLUTRHIRN (228) BEEF CATTLE

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Soybean asp gr fn	SM	22	Median-P	85	25.88	5	–	–	–	1.294	–	–	–
Grape pomace, wet	AB	0.606	Median-P	15	4.04	–	–	20	–	–	–	0.808	–
Soybean hay	AL	2.2	Highest	85	2.59	–	–	80	–	–	–	2.071	–
Rape forage	AM/AV	0.34	Highest	30	1.13	–	10	–	–	–	0.113	–	–
Apple pomace, wet	AB	0.32	Median-P	40	0.80	–	20	–	–	–	0.16	–	–
Citrus dried pulp	AB	0.318	Median-P	91	0.35	10	–	–	–	0.035	–	–	–
Cabbage heads, leaves	AM/AV	0.05	Highest	15	0.33	–	10	–	–	–	0.033	–	–
Cotton hulls	SM	0.19	Median-P	90	0.21	5	–	–	–	0.011	–	–	–
Wheat gluten meal	CM/CF	0.023	Median-P	40	0.06	10	15	–	–	0.006	0.009	–	–
Rape meal	SM	0.05	Median-P	88	0.06	–	20	–	15	–	0.011	–	0.009
Triticale grain	GC	0.014	Median or STMR	89	0.02	20	25	–	–	0.003	0.004	–	–
Wheat grain	GC	0.014	STMR	89	0.02	–	–	–	25		–	–	0.004
Wheat milled bypdts	CM/CF	0.014	Median-P	88	0.02	30	–	–	55	0.005	–	–	0.009
Soybean seed	VD	0.01	STMR	89	0.01	5	–	–	5	0.001	–	–	0.00
Soybean hulls	SM	0.01	Median	90	0.01	5	–	–	–	0.001	–	–	–
					Total	90	100	100	100	1.354	0.331	2.879	0.022

CYFLUTHRIN (157)/BETA-CYFLUTRHIRN (228) BEEF CATTLE

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated mean dietary burden													
Soybean asp gr fn	SM	22	Median-P	85	25.88	5	–	–	–	1.294118	–	–	–
Grape pomace. wet	AB	0.606	Median-P	15	4.04	–	–	20	–	–	–	0.808	–
Soybean hay	AL	1.15	Median	85	1.35	–	–	80	–	–	–	1.082	–
Apple pomace. wet	AB	0.32	Median-P	40	0.80	–	20	–	–	–	0.16	–	–
Rape forage	AM/AV	0.205	Median	30	0.68	–	10	–	–	–	0.068	–	–
Citrus dried pulp	AB	0.318	Median-P	91	0.35	10	–	–	–	0.035	–	–	–
Cotton hulls	SM	0.19	Median-P	90	0.21	5	–	–	–	0.011	–	–	–
Cabbage heads, leaves	AM/AV	0.01	Median	15	0.07	–	10	–	–	–	0.007	–	–
Wheat gluten meal	CM/CF	0.023	Median-P	40	0.06	10	15	–	–	0.006	0.009	–	–
Rape meal	SM	0.05	Median-P	88	0.06	–	20	–	15	–	0.011	–	0.009
Triticale grain	GC	0.014	STMR	89	0.02	20	25	–	–	0.003	0.004	–	–
Wheat grain	GC	0.014	STMR	89	0.02	–	–	–	25	–	–	–	0.004
Wheat milled bypdts	CM/CF	0.014	Median-P	88	0.02	30	–	–	55	0.005	–	–	0.009
Soybean seed	VD	0.01	STMR	89	0.01	5	–	–	5	0.001	–	–	0
Soybean hulls	SM	0.01	Median-P	90	0.01	5	–	–	–	0.001	–	–	–
					Total	90	100	100	100	1.354	0.259	**1.89**	0.022

CYFLUTHRIN (157)/BETA-CYFLUTRHIRN (228) DAIRY CATTLE

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Grape pomace, wet	AB	0.606	Median-P	15	4.04	–	–	20	–	–	–	0.808	–
Soybean hay	AL	2.2	Highest	85	2.59	20	–	40	–	0.518	–	1.035	–
Rape forage	AM/AV	0.34	Highest	30	1.13	10	10	40	–	0.113	0.113	0.453	–
Apple pomace, wet	AB	0.32	Median-P	40	0.80	10	10	–	–	0.080	0.08	–	–
Citrus dried pulp	AB	0.318	Median-P	91	0.35	–	10	–	–	–	0.035	–	–
Cabbage heads, leaves	AM/AV	0.05	Highest	15	0.33	–	10	–	–	–	0.033	–	–
Cotton undelinted seed	SO	0.1	STMR	88	0.11	10	10	–	–	0.011	0.011	–	–
Wheat gluten meal	CM/CF	0.023	Median-P	40	0.06	10	20	–	–	0.006	0.012	–	–
Rape meal	SM	0.05	Median-P	88	0.06		10	–	25	–	0.006	–	0.014
Triticale grain	GC	0.014	STMR	89	0.02	20	20	–	–	0.003	0.003	–	–
Wheat grain	GC	0.014	STMR	89	0.02	–	–	–	10	–	–	–	0.002

CYFLUTHRIN (157)/BETA-CYFLUTRHIRN (228) DAIRY CATTLE

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Wheat milled bypdts	CM/CF	0.014	Median-P	88	0.02	20	–	–	45	0.003	–	–	0.007
Soybean seed	VD	0.01	STMR	89	0.01	–	–	–	10	–	–	–	0.00
Soybean meal	SM	0.01	Median-P	92	0.01	–	–	–	10	–	–	–	0.001
					Total	100	100	100	100	0.734	0.293	**2.297**	0.025
Estimated mean dietary burden													
Grape pomace, wet	AB	0.606	Median-P	15	4.04	–	0	20	–	–	0	0.808	–
Soybean hay	AL	1.15	Median	85	1.35	20	–	40	–	0.271	–	0.541	–
Apple pomace, wet	AB	0.32	Median-P	40	0.80	10	10	–	–	0.08	0.08	–	–
Rape forage	AM/AV	0.205	Median	30	0.68	10	10	40	–	0.06	0.068	0.273	–
Citrus dried pulp	AB	0.318	Median-P	91	0.35	0	10	–	–	0	0.035	–	–
Cotton undelinted seed	SO	0.1	STMR	88	0.11	10	10	–	–	0.01	0.011	–	–
Cabbage head, leaves	AM/AV	0.01	Median	15	0.07	0	10	–	–	0	0.007	–	–
Wheat gluten meal	CM/CF	0.023	Median-P	40	0.06	10	20	–	–	0.006	0.012	–	–
Rape meal	SM	0.05	Median-P	88	0.06	0	10	–	25	0	0.006	–	0.014
Triticale grain	GC	0.014	STMR	89	0.02	20	20	–	–	0.00	0.003	–	–
Wheat grain	GC	0.014	STMR	89	0.02	0	–	–	10	0.000	–	–	0.002
Wheat milled bypdts	CM/CF	0.014	Median-P	88	0.02	20	–	–	45	0.003	–	–	0.007
Soybean seed	VD	0.01	STMR	89	0.01	0	–	–	10	0	–	–	0.001
Soybean meal	SM	0.01	Median-P	92	0.01	0	–	–	10	0	–	–	0.001
					Total	100	100	100	100	0.44	0.22	**1.62**	0.03

CYFLUTHRIN (157)/BETA-CYFLUTRHIRN (228) POUTRY BROILLER

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Wheat gluten meal	CM/CF	0.023	Median-P	40	0.06	–	10	–	–	–	0.006	–	–
Rape meal	SM	0.05	Median-P	88	0.06	–	–	5	5	–	–	0.003	0.003
Triticale grain	GC	0.014	STMR	89	0.02	75	15	–	–	0.012	0.002	–	–
Wheat grain	GC	0.014	STMR	89	0.02	–	55	70	10	–	0.009	0.011	0.002
Wheat milled bypdts	CM/CF	0.014	Median-P	88	0.02	25	10	20	5	0.004	0.002	0.003	8E-04
Soybean seed	VD	0.01	STMR	89	0.01	–	10	5	–	–	0.001	0	–
Soybean meal	SM	0.01	Median-P	92	0.01	–	–	–	30	–	–	–	0.003
					Total	100	100	100	50	0.016	**0.019**	0.018	0.008

CYFLUTHRIN (157)/BETA-CYFLUTRHIRN (228) POUTRY BROILLER

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated mean dietary burden													
Wheat gluten meal	CM/CF	0.023	Median-P	40	0.06	–	10	–	–	–	0.006	–	–
Rape meal	SM	0.05	Median-P	88	0.06	–	–	5	5	–	–	0.003	0.003
Triticale grain	GC	0.014	STMR	89	0.02	75	15	–	–	0.01	0.002	–	–
Wheat grain	GC	0.014	STMR	89	0.02	–	55	70	10	–	0.009	0.011	0.002
Wheat milled bypdts	CM/CF	0.014	Median-P	88	0.02	25	10	20	5	0.004	0.002	0.003	8E-04
Soybean seed	VD	0.01	STMR	89	0.01	–	10	5	–	–	0.001	0	–
Soybean meal	SM	0.01	STMR	92	0.01	–	–	–	30	–	–	–	0.003
					Total	100	100	100	50	0.016	**0.019**	0.018	0.008

CYFLUTHRIN (157)/BETA-CYFLUTRHIRN (228) POUTRY LAYER

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Soybean hay	AL	2.2	Highest	85	2.59	–	10	–	–	–	0.259	–	–
Rape forage	AM/AV	0.34	Highest	30	1.13	–	10	–	–	–	0.113	–	–
Wheat gluten meal	CM/CF	0.023	Median-P	40	0.06	–	10	–	–	–	0.006	–	–
Rape meal	SM	0.05	Median-P	88	0.06	–	10	5	15	–	0.006	0.003	0.009
Triticale grain	GC	0.014	STMR	89	0.02	75	15		–	0.012	0.002	–	–
Wheat grain	GC	0.014	STMR	89	0.02	–	45	55	–		0.007	0.009	–
Wheat milled bypdts	CM/CF	0.014	Median-P	88	0.02	25	–	20	30	0.004	–	0.003	0.005
Soybean seed	VD	0.01	STMR	89	0.01	–	–	15		–	–	0.002	–
Soybean meal	SM	0.01	Median-P	92	0.01	–	–	5	15	–	–	0	0.00
					Total	100	100	100	60	0.016	**0.393**	0.017	0.015
Estimated mean dietary burden													
Soybean hay	AL	1.15	Median	85	1.35	–	10	–	–	–	0.135	–	–
Rape forage	AM/AV	0.205	Median	30	0.68	–	10	–	–	–	0.068	–	–
Wheat gluten meal	CM/CF	0.023	Median	40	0.06	–	10	–	–	–	0.006	–	–
Rape meal	SM	0.05	Median	88	0.06	–	10	5	15	–	0.006	0.003	0.009
Triticale grain	GC	0.014	STMR	89	0.02	75	15	–	–	0.012	0.002	–	–
Wheat grain	GC	0.014	STMR	89	0.02	–	45	55	–	–	0.007	0.009	–
Wheat milled bypdts	CM/CF	0.014	Median-P	88	0.02	25	–	20	30	0.004	–	0.003	0.005
Soybean seed	VD	0.01	STMR	89	0.01	–	–	15		–	–	0.002	–

CYFLUTHRIN (157)/BETA-CYFLUTRHIRN (228) POUTRY LAYER

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Soybean meal	SM	0.01	Median-P	92	0.01	–	–	5	15	–	–	0.001	0.00
					Total	100	100	100	60	0.016	**0.224**	0.017	0.015

CYPRODINIL (207) BEEF CATTLE

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Kale leaves	AM/AV	8	HR	15	53.33	–	20	–	–	–	10.67	–	–
Grape pomace. wet	AB	42	Median-P	100	42.00	–	–	20	–	–	–	8.4	–
Carrot culls	VR	1	Highest	12	8.33	–	15	5	–	–	1.25	0.417	–
Wheat straw	AF/AS	5.8	Highest	88	6.59	10	20	75	–	0.659	1.318	4.943	–
Barley straw	AF/AS	5.8	Highest	89	6.52	–	10	–	–	–	0.652	–	–
Apple pomace. wet	AB	1.8	Median-P	40	4.50	–	20	–	–	–	0.9	–	–
Barley bran fractions	CM/CF	1.74	Median-P	90	1.93	–	–	–	10	–	–	–	0.193
Barley grain	GC	0.58	STMR	88	0.66	50	15	–	70	0.330	0.099	–	0.461
Wheat gluten meal	CM/CF	0.21	Median-P	40	0.53	10	–	–	–	0.053	–	–	–
Wheat milled bypdts	CM/CF	0.21	Median-P	88	0.24	30	–	–	20	0.072	–	–	0.048
					Total	100	100	100	100	1.113	**14.89**	13.76	0.702
Estimated mean dietary burden													
Grape pomace, wet	AB	42	Median-P	100	42.00	–	–	20	–	–	–	8.4	–
Apple pomace, wet	AB	1.8	Median-P	40	4.50	–	20	–	–	–	0.9	–	–
Kale leaves	AM/AV	0.37	STMR	15	2.47	–	20	–	–	–	0.493	–	–
Barley bran fractions	CM/CF	1.74	Median-P	90	1.93	–	–	–	10	–	–	–	0.193
Carrot culls	VR	0.195	Median	12	1.63	–	15	5	–	–	0.244	0.081	–
Barley grain	GC	0.58	STMR	88	0.66	50	45	75	70	0.329	0.297	0.494	0.461
Wheat gluten meal	CM/CF	0.21	Median-P	40	0.53	10	–	–	–	0.052	–	–	–
Wheat straw	AF/AS	0.395	Median	88	0.45	10	–	–	–	0.045	–	–	–
Wheat milled bypdts	CM/CF	0.21	Median-P	88	0.24	30	–	–	20	0.072	–	–	0.048
					Total	100	100	100	100	0.499	1.934	**8.976**	0.702

CYPRODINIL (207) DAIRY CATTLE

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Kale leaves	AM/AV	8	HR	15	53.33	–	20	40	–	–	10.67	21.33	–
Grape pomace, wet	AB	42	Median-P	100	42.00	–	–	20	–	–	–	8.4	–
Carrot culls	VR	1	Highest	12	8.33	10	15	5	–	0.833	1.25	0.417	–
Wheat straw	AF/AS	5.8	Highest	88	6.59	10	20	20	–	0.659	1.318	1.318	–
Barley straw	AF/AS	5.8	Highest	89	6.52	–	10	–	–	–	0.652	–	–
Triticale straw	AF/AS	5.8	Highest	90	6.44	–	–	15	–	–	–	0.967	–
Apple pomace, wet	AB	1.8	Median-P	40	4.50	10	10	–	–	0.450	0.45	–	–
Barley grain	GC	0.58	STMR	88	0.66	45	25	–	40	0.297	0.165	–	0.264
Wheat gluten meal	CM/CF	0.21	Median-P	40	0.53	10	–	–	–	0.053	–	–	–
Wheat milled bypdts	CM/CF	0.21	Median-P	88	0.24	15	–	–	45	0.036	–	–	0.107
Soybean seed	VD	0.085	STMR	89	0.10	–	–	–	10	–	–	–	0.010
Soybean meal	SM	0.085	Median-P	92	0.09	–		–	5	–	–	–	0.005
					Total	100	100	100	100	2.327	14.5	**32.43**	0.385
Estimated mean dietary burden													
Grape pomace, wet	AB	42	Median-P	100	42.00	–	0	20	–	–	0	8.4	–
Apple pomace, wet	AB	1.8	Median-P	40	4.50	10	10	–	–	0.45	0.45	–	–
Kale leaves	AM/AV	0.37	STMR	15	2.47	0	20	40	–	0	0.493	0.987	–
Carrot culls	VR	0.195	Median	12	1.63	10	15	5	–	0.162	0.244	0.081	–
Barley grain	GC	0.58	STMR	88	0.66	45	40	35	40	0.297	0.264	0.231	0.264
Wheat gluten meal	CM/CF	0.21	Median-P	40	0.53	10	15	–	–	0.052	0.079	–	–
Wheat straw	AF/AS	0.395	Median	88	0.45	10	–	–	–	0.045	–	–	–
Wheat milled bypdts	CM/CF	0.21	Median-P	88	0.24	15	–	–	45	0.036	–	–	0.107
Soybean seed	VD	0.085	STMR	89	0.10	0	–	–	10	0.000	–	–	0.010
Soybean meal	SM	0.085	Median-P	92	0.09	0	–	–	5	0	–	–	0.005
					Total	100	100	100	100	1.042	1.529	**9.699**	0.385

CYPRODINIL (207) POULTRY BROILER

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Carrot culls	VR	1	Highest	12	8.33	–	10	–	–	–	0.833	–	–
Barley bran fractions	CM/CF	1.74	STMR-P	90	1.93	8	–	–	–	0.155	–	–	–

CYPRODINIL (207) POULTRY BROILER

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Barley grain	GC	0.58	STMR	88	0.66	75	70	15	10	0.494	0.461	0.099	0.066
Wheat gluten meal	CM/CF	0.21	Median-P	40	0.53	–	10	–	–	–	0.053	–	–
Wheat milled bypdts	CM/CF	0.21	Median-P	88	0.24	17	10	20	5	0.041	0.024	0.048	0.012
Soybean seed	VD	0.085	STMR	89	0.10	–	–	15	–	–	–	0.014	–
Soybean meal	SM	0.085	Median-P	92	0.09	–	–	25	35	–	–	0.023	0.032
Wheat grain	GC	0.07	STMR	89	0.08	–	–	25	–	–	–	0.020	–
					Total	100	100	100	50	0.690	**1.371**	0.204	0.11
Estimated mean dietary burden													
Barley bran fractions	CM/CF	1.74	Median-P	90	1.93	8	–	–	–	0.15	–	–	–
Carrot culls	VR	0.195	Median	12	1.63	–	10	–	–	–	0.163	–	–
Barley grain	GC	0.58	STMR	88	0.66	75	70	15	10	0.49	0.461	0.099	0.066
Wheat gluten meal	CM/CF	0.21	Median-P	40	0.53	–	10	–	–	–	0.053	–	–
Wheat milled bypdts	CM/CF	0.21	Median-P	88	0.24	17	10	20	5	0.041	0.024	0.048	0.012
Soybean seed	VD	0.085	STMR	89	0.10	–	–	15	–	–	–	0.014	–
Soybean meal	SM	0.085	Median-P	92	0.09	–	–	25	35	–	–	0.023	0.032
Wheat grain	GC	0.07	STMR	89	0.08	–	–	25	–	–	–	0.020	–
					Total	100	100	100	50	0.68	**0.7**	0.204	0.11

CYPRODINIL (207) POULTRY LAYER

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Carrot culls	VR	1	Highest	12	8.33	–	10	–	–	–	0.833	–	–
Wheat straw	AF/AS	5.8	Highest	88	6.59	–	10	–	–	–	0.659	–	–
Cabbage heads, leaves	AM/AV	0.36	Highest	15	2.40	–	5	–	–	–	0.12	–	–
Barley bran fractions	CM/CF	1.74	STMR-P	90	1.93	–	–	–	5	–	–	–	0.097
Barley grain	GC	0.58	STMR	88	0.66	75	75	15	–	0.494	0.494	0.099	–
Wheat milled bypdts	CM/CF	0.21	Median-P	88	0.24	25	–	20	25	0.060	–	0.048	0.06
Soybean seed	VD	0.085	STMR	89	0.10	–	–	15		–	–	0.014	
Soybean meal	SM	0.085	Median-P	92	0.09	–	–	25	30	–	–	0.023	0.028
Wheat grain	GC	0.07	STMR	89	0.08	–	–	25		–	–	0.02	
					Total	100	100	100	60	0.554	**2.107**	0.204	0.184
Estimated mean dietary burden													

Barley bran fractions	CM/CF	1.74	STMR-P	90	1.93	–	–	–	5	–	–	–	0.097
Carrot culls	VR	0.195	Median	12	1.63	–	10		–		0.163	–	–
Barley grain	GC	0.58	STMR	88	0.66	75	90	15	–	0.494318	0.593	0.099	–
Wheat milled bypdts	CM/CF	0.21	Median-P	88	0.24	25	–	20	25	0.059659	–	0.048	0.06
Soybean seed	VD	0.085	STMR	89	0.10	–	–	15		–	–	0.014	–
Soybean meal	SM	0.085	Median-P	92	0.09	–	–	25	30	–	–	0.023	0.028
Wheat grain	GC	0.07	STMR	89	0.08	–	–	25		–	–	0.02	
					Total	100	100	100	60	0.554	**0.756**	0.204	0.184

DIMPROPYRIDAZ (344) **BEEF CATTLE**

Commodity	**CC**	**Residue (mg/kg)**	**Basis**	**DM (%)**	**Residue dw (mg/kg)**	**Diet content (%)**				**Residue contribution (ppm)**			
						United States/Canada	**European Union**	**Australia**	**Japan**	**United States/Canada**	**European Union**	**Australia**	**Japan**
Estimated maximum dietary burden													
Cotton gin byproducts	AM/AV	1.07	Highest	90	1.19	5	–	–	–	0.059	–	–	–
Grape pomace. wet	AB	0.16524	Median-P	15	1.10	–	–	20	–	–	–	0.22	–
Cabbage heads, leaves	AM/AV	0.112	Highest	15	0.75	–	20	–	–	–	0.149	–	–
Wheat straw	AF/AS	0.415	Highest	88	0.47	10	20	80	–	0.047	0.094	0.377	–
Citrus dried pulp	AB	0.137	Median-P	91	0.15	10	5	–	–	0.015	0.008	–	–
Wheat gluten meal	CM/CF	0.058	Median-P	40	0.15	10	15	–	–	0.015	0.022	–	–
Corn field grain	GC	0.058	STMR	88	0.07	65	40	–	75	0.043	0.026	–	0.049
Wheat milled bypdts	CM/CF	0.058	Median-P	88	0.07	–	–	–	25	–	–	–	0.016
					Total	100	100	100	100	0.179	0.299	**0.598**	0.066
Estimated mean dietary burden													
Grape pomace. wet	AB	0.16524	Median-P	15	1.10	–	–	20	–	–	–	0.22	–
Cabbage heads, leaves	AM/AV	0.058	Median	15	0.39	–	20	–	–	–	0.077	–	–
Cotton gin byproducts	AM/AV	0.144	Median-P	90	0.16	5	–	–	–	0.008	–	–	–
Citrus dried pulp	AB	0.137	Median-P	91	0.15	10	5	10	–	0.015	0.008	0.015	–
Wheat gluten meal	CM/CF	0.058	Median-P	40	0.15	10	15	–	–	0.014	0.022	–	–
Wheat straw	AF/AS	0.079	Median	88	0.09	10	20	70	–	0.009	0.018	0.063	–
Corn field grain	GC	0.058	STMR	88	0.07	65	40	–	75	0.043	0.026	–	0.049
Wheat milled bypdts	CM/CF	0.058	Median-P	88	0.07	–	–	–	25	–	–	–	0.016
					Total	100	100	100	100	0.089	0.151	**0.298**	0.066

DIMPROPYRIDAZ (344) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Grape pomace, wet	AB	0.16524	Median-P	15	1.10	–	–	20	–	–	–	0.22	–
Cabbage heads, leaves	AM/AV	0.112	Highest	15	0.75	–	20	–	–	–	0.149	–	–
Wheat straw	AF/AS	0.415	HR	88	0.47	10	20	20	–	0.047	0.094	0.094	–
Citrus dried pulp	AB	0.137	Median-P	91	0.15	10	20	10	–	0.015	0.03	0.015	–
Wheat gluten meal	CM/CF	0.058	Median-P	40	0.15	10	20	–	–	0.015	0.029	–	–
Corn field grain	GC	0.058	STMR	88	0.07	45	20	20	80	0.030	0.013	0.013	0.053
Cotton undelinted seed	SO	0.058	STMR	88	0.07	10	–	20	–	0.007	–	0.013	–
Wheat milled bypdts	CM/CF	0.058	Median-P	88	0.07	15	–	10	20	0.010	–	0.007	0.013
					Total	100	100	100	100	0.123	0.316	**0.363**	0.066
Estimated mean dietary burden													
Grape pomace, wet	AB	0.16524	Median-P	15	1.10	–	0	20	–	–	0	0.22	–
Cabbage heads, leaves	AM/AV	0.058	Median	15	0.39	0	20	–	–	0	0.077	–	–
Citrus dried pulp	AB	0.137	Median-P	91	0.15	10	20	10	–	0.015	0.03	0.015	–
Wheat gluten meal	CM/CF	0.058	Median-P	40	0.15	10	20	–	–	0.014	0.029	–	–
Wheat straw	AF/AS	0.079	Median	88	0.09	10	20	20	–	0.009	0.018	0.018	–
Corn field grain	GC	0.058	STMR	88	0.07	45	20	20	80	0.030	0.013	0.013	0.053
Cotton undelinted seed	SO	0.058	STMR	88	0.07	10	–	20	–	0.007	–	0.013	–
Wheat milled bypdts	CM/CF	0.058	Median-P	88	0.07	15	–	10	20	0.01	–	0.007	0.013
					Total	100	100	100	100	0.085	0.168	**0.286**	0.066

DIMPROPYRIDAZ (344) **POULTRY BROILLER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Wheat gluten meal	CM/CF	0.058	Median-P	40	0.15	–	10	–	–	–	0.015	–	–
Corn field grain	GC	0.058	STMR	88	0.07	75	70	–	70	0.049	0.046	–	0.046
Wheat milled bypdts	CM/CF	0.058	Median-P	88	0.07	25	10	20	5	0.016	0.007	0.013	0.003
Wheat grain	GC	0.058	STMR	89	0.07	–	–	70	–	–	–	0.046	–
Cotton meal	SM	0.058	Median-P	89	0.07	–	5	10	–	–	0.003	0.007	–
					Total	100	95	100	75	0.066	0.07	**0.065**	0.049
Estimated mean dietary burden													
Wheat gluten meal	CM/CF	0.058	Median-P	40	0.15	–	10	–	–	–	0.015	–	–

DIMPROPYRIDAZ (344) **POULTRY BROILLER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Corn field grain	GC	0.058	STMR	88	0.07	75	70	–	70	0.05	0.046	–	0.046
Wheat milled bypdts	CM/CF	0.058	Median-P	88	0.07	25	10	20	5	0.02	0.007	0.013	0.003
Wheat grain	GC	0.058	STMR	89	0.07	–	–	70	–	–	–	0.046	–
Cotton meal	SM	0.058	Median-P	89	0.07	–	5	10	–	–	0.003	0.007	–
					Total	100	95	100	75	0.07	0.07	**0.065**	0.049

DIMPROPYRIDAZ (344) **POULTRY LAYER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Cabbage heads, leaves	AM/AV	0.112	Highest	15	0.75	–	5	–	–	–	0.037	–	–
Wheat straw	AF/AS	0.415	Highest	88	0.47	–	10	–	–	–	0.047	–	–
Wheat gluten meal	CM/CF	0.058	Median-P	40	0.15	–	10	–	–	–	0.015	–	–
Corn field grain	GC	0.058	STMR	88	0.07	75	70	–	80	0.049	0.046	–	0.053
Wheat milled bypdts	CM/CF	0.058	Median-P	88	0.07	25	5	20	20	0.016	0.003	0.013	0.013
Wheat grain	GC	0.058	STMR	89	0.07	–	–	55	–	–	–	0.036	–
Cotton meal	SM	0.058	Median-P	89	0.07	–	–	10	–	–	–	0.007	–
					Total	100	100	85	100	0.066	**0.148**	0.056	0.066
Estimated mean dietary burden													
Cabbage heads, leaves	AM/AV	0.058	Median	15	0.39	–	5	–	–	–	0.019	–	–
Wheat gluten meal	CM/CF	0.058	Median-P	40	0.15	–	10	–	–	–	0.015	–	–
Wheat straw	AF/AS	0.079	Median	88	0.09	–	10	–	–	–	0.009	–	–
Corn field grain	GC	0.058	STMR	88	0.07	75	70	–	80	0.049	0.046	–	0.053
Wheat milled bypdts	CM/CF	0.058	Median-P	88	0.07	25	5	20	20	0.016	0.003	0.013	0.013
Wheat grain	GC	0.058	STMR	89	0.07	–	–	55	–	–	–	0.036	–
Cotton meal	SM	0.058	Median-P	89	0.07	–	–	10	–	–	–	0.007	–
					Total	100	100	85	100	0.066	**0.092**	0.056	0.066

DINETOFURAN (255) **BEEF CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Kale leaves	AM/AV	4.4	HR	15	29.33	–	20	–	–	–	5.867	–	–
Rice hulls	CM/CF	15.18	Median	90	16.87	–	–	5	–	–	–	0.843	–
Turnip tops (leaves)	AM/AV	4.4	HR	30	14.67	–	20	80	–	–	2.933	11.73	–
Cotton gin byproducts	AM/AV	3.8	Median-P	90	4.22	5	–	–	–	0.211	–	–	–
Rice straw	AF/AS	4.3	Highest	90	4.78	–	10	15	55	–	0.478	0.717	2.628
Rice grain	GC	3.3	STMR	88	3.75	20	–	–	–	0.750	–	–	–
Rice bran/pollard	CM/CF	2.112	STMR-P	90	2.35	15	–	–	20	0.352	–	–	0.469
Cotton hulls	SM	0.0765	Median-P	90	0.09	10	–	–	–	0.009	–	–	–
Cotton meal	SM	0.0555	Median-P	89	0.06	–	5	–	–	–	0.003	–	–
					Total	50	55	100	75	1.322	9.281	**13.29**	3.097
Estimated mean dietary burden													
Rice hulls	CM/CF	15.18	Median-P	90	16.87	–	–	5	–	–	–	0.843	–
Kale leaves	AM/AV	1.2	STMR	15	8.00	–	20	–	–	–	1.6	–	–
Cotton gin byproducts	AM/AV	3.8	Median-P	90	4.22	5	–	–	–	0.211	–	–	–
Turnip tops (leaves)	AM/AV	1.2	STMR	30	4.00	–	20	80	–	–	0.8	3.2	–
Rice grain	GC	3.3	STMR	88	3.75	20	–	15	–	0.75	–	0.563	–
Rice bran/pollard	CM/CF	2.112	STMR-P	90	2.35	15	–	–	20	0.352	–	–	0.469
Rice straw	AF/AS	1.6	Median	90	1.78	–	10	–	55	–	0.178	–	0.978
Cotton hulls	SM	0.0765	Median-P	90	0.09	10	–	–	–	0.008	–	–	–
Cotton meal	SM	0.0555	Median-P	89	0.06	–	5	–	–	–	0.003	–	–
					Total	50	55	100	75	1.322	2.581	**4.606**	1.447

DINETOFURAN (255) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Kale leaves	AM/AV	4.4	HR	15	29.33	–	20	40	–	–	5.867	11.73	–
Rice hulls	CM/CF	15.18	Median-P	90	16.87	–	–	10	–	–	–	1.687	–
Turnip tops (leaves)	AM/AV	4.4	HR	30	14.67	30	–	–	–	4.400	–	–	–
Rice straw	AF/AS	4.3	Highest	90	4.78	–	5	20	25	–	0.239	0.956	1.194
Rice grain	GC	3.3	STMR	88	3.75	20		20		0.750	–	0.75	–
Rice bran/pollard	CM/CF	2.112	Median-P	90	2.35	15	20	10	10	0.352	0.469	0.235	0.235

DINETOFURAN (255) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Cotton undelinted seed	SO	0.15	STMR	88	0.17	10	10	–	–	0.017	0.017	–	–
Cotton meal	SM	0.0555	Median-P	89	0.06	10	5	–	–	0.006	0.003	–	–
					Total	85	60	100	35	5.525	6.595	**15.36**	1.429
Estimated mean dietary burden													
Rice hulls	CM/CF	15.18	Median-P	90	16.87	–	0	10	–	–	0	1.687	–
Kale leaves	AM/AV	1.2	STMR	15	8.00	0	20	40	–	0	1.6	3.2	–
Turnip tops (leaves)	AM/AV	1.2	STMR	30	4.00	30	–	–	–	1.2	–	–	–
Rice grain	GC	3.3	STMR	88	3.75	20	–	20	–	0.75	–	0.75	–
Rice bran/pollard	CM/CF	2.112	STMR-P	90	2.35	15	20	30	10	0.352	0.469	0.704	0.235
Rice straw	AF/AS	1.6	Median	90	1.78	0	5	–	25	0	0.089	–	0.444
Cotton undelinted seed	SO	0.15	STMR	88	0.17	10	10	–	–	0.017	0.017	–	–
Cotton meal	SM	0.0555	Median-P	89	0.06	10	5	–	–	0.006	0.003	–	–
					Total	85	60	100	35	2.325	2.178	**6.341**	0.679

DINETOFURAN (255) **POULTRY BROILER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Rice grain	GC	3.3	STMR	88	3.75	20	–	50	–	0.750	–	1.875	–
Rice bran/pollard	CM/CF	2.112	STMR-P	90	2.35	10	10	20	5	0.235	0.235	0.469	0.117
Cotton meal	SM	0.0555	Median-P	89	0.06	20	5	10	–	0.012	0.003	0.006	–
					Total	50	15	80	5	0.997	0.238	**2.351**	0.117
Estimated mean dietary burden													
Rice grain	GC	3.3	STMR	88	3.75	20	–	50	–	0.75	–	1.875	–
Rice bran/pollard	CM/CF	2.112	STMR-P	90	2.35	10	10	20	5	0.23	0.235	0.469	0.117
Cotton meal	SM	0.0555	Median-P	89	0.06	20	5	10	–	0.01	0.003	0.006	–
					Total	50	15	80	5	1.00	0.238	**2.351**	0.117

DINETOFURAN (255) **POULTRY LAYER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Rice grain	GC	3.3	STMR	88	3.75	20	–	50	–	0.750	–	1.875	–
Rice bran/pollard	CM/CF	2.112	STMR-P	90	2.35	10	5	20	20	0.235	0.117	0.469	0.469
Cotton meal	SM	0.0555	Median-P	89	0.06	20	5	10	–	0.012	0.003	0.006	–
					Total	50	10	80	20	0.997	0.12	2.351	**0.469**
Estimated mean dietary burden													
Rice grain	GC	3.3	STMR	88	3.75	20	–	50	–	0.75	–	1.875	–
Rice bran/pollard	CM/CF	2.112	STMR-P	90	2.35	10	5	20	20	0.235	0.117	0.469	0.469
Cotton meal	SM	0.0555	Median-P	89	0.06	20	5	10	–	0.012	0.003	0.006	–
					Total	50	10	80	20	0.997	0.12	2.351	**0.469**

ETOXAZOLE (241) **BEEF CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Corn, sweet stover	AF/AS	3.3	Highest	83	3.98	–	–	40	–	–	–	1.59	–
Corn, sweet forage	AF/AS	0.88	Highest	48	1.83	–	–	60	–	–	–	1.1	–
Apple pomace, wet	AB	0.057	Median-P	40	0.14	–	20	–	–	–	0.029	–	–
Citrus dried pulp	AB	0.015	Median-P	91	0.02	10	–	–	–	0.002	–	–	–
					Total	10	20	100		0.002	0.029	**2.69**	–
Estimated mean dietary burden													
Corn, sweet stover	AF/AS	0.82	Median	83	0.99	–	–	40	–	–	–	0.39518	–
Corn, sweet forage	AF/AS	0.32	Median	48	0.67	–	–	60	–	–	–	0.4	–
Apple pomace, wet	AB	0.057	Median -P	40	0.14	–	20	–	–	–	0.028	–	–
Citrus dried pulp	AB	0.015	Median -P	91	0.02	10	–	–	–	0.002	–	–	–
					Total	10	20	100	–	0.002	0.028	**0.795**	–

ETOXAZOLE (241) DAIRY CATTLE

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Corn, sweet stover	AF/AS	3.3	Highest	83	3.98	15	–	20	–	0.596	–	0.795	–
Corn, sweet forage	AF/AS	0.88	Highest	48	1.83	30	–	20	–	0.550	–	0.367	–
Grape pomace, wet	AB	0.04	Median-P	15	0.27	–	–	20	–	–	–	0.05333	–
Almond hulls	AM/AV	0.23	Median-P	90	0.26	10	–	10	–	0.026	–	0.026	–
Apple pomace, wet	AB	0.057	Median-P	40	0.14	10	10	–	–	0.014	0.014	–	–
Citrus dried pulp	AB	0.015	Median-P	91	0.02	–	10	10	–	–	0.002	0.002	–
					Total	65	20	80	–	1.186	0.016	**1.242**	–
Estimated mean dietary burden													
Corn, sweet stover	AF/AS	0.82	Median	83	0.99	15	0	20	–	0.148	0	0.198	–
Corn, sweet forage	AF/AS	0.32	Median	48	0.67	30	–	20	–	0.2	–	0.133	–
Grape pomace, wet	AB	0.04	Median-P	15	0.27	0	–	20	–	0	–	0.053	–
Almond hulls	AM/AV	0.23	Median-P	90	0.26	10	–	10	–	0.026	–	0.026	–
Apple pomace, wet	AB	0.057	Median-P	40	0.14	10	10	–	–	0.014	0.014	–	–
Citrus dried pulp	AB	0.015	Median-P	91	0.02	0	10	10	–	0	0.002	0.002	–
					Total	65	20	80	–	0.388	0.016	**0.411**	–

FLUBENDIAMIDE (242) BEEF CATLE

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Soybean asp gr fn	SM	28.6	Median-P	85	33.65	5	–	–	–	1.682	–	–	–
Soybean hay	AL	41	Highest	85	48.24	–	–	80	–	–	–	38.59	–
Cowpea forage	AL	14	Highest	30	46.67	–	35	20	–	–	16.33	9.333	–
Corn, field forage/silage	AF/AS	8.4	Highest	40	21.00	15	65	–	–	3.150	13.65	–	–
Cotton gin byproducts	AM/AV	7.45	Median-P	90	8.28	5	–	–	–	0.414	–	–	–
Corn, field asp gr fn	CM/CF	3.18	Median-P	85	3.74	5	–	–	–	0.187	–	–	–
Rice grain	GC	1.15	STMR	88	1.31	20	–	–		0.261	–	–	–
Rice bran/pollard	CM/CF	1.15	STMR-P	90	1.28	10	–	–	20	0.128	–	–	0.256
Soybean hulls	SM	0.22	Median-P	90	0.24	10	–	–	5	0.024	–	–	0.012
Soybean seed	VD	0.18	STMR	89	0.20	5	–	–	15	0.010	–	–	0.030
Soybean okara	SM	0.18	STMR	92	0.20		–	–	35		–	–	0.068
Corn gluten feed	CM/CF	0.01	Median-P	40	0.03	25	–	–	5	0.006	–	–	0.001

FLUBENDIAMIDE (242) **BEEF CATLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Corn field grain	GC	0.01	STMR	88	0.01	–	–	–	20	–	–	–	0.002
Total						**100**	100	100	100	5.863	29.98	**47.92**	0.37
Estimated mean dietary burden													
Soybean asp gr fn	SM	28.6	Median-P	85	33.65	5	–	–	–	1.682	–	–	–
Soybean hay	AL	27.5	Median	85	32.35	–	–	80	–	–	–	25.88	–
Cowpea forage	AL	6.05	Median	30	20.17	–	35	20	–	–	7.058	4.033	–
Corn, field forage/silage	AF/AS	3.8	Median	40	9.50	15	65	–	–	1.425	6.175	–	–
Cotton gin byproducts	AM/AV	7.45	Median-P	90	8.28	5	–	–	–	0.414	–	–	–
Corn, field asp gr fn	CM/CF	3.18	Median-P	85	3.74	5	–	–	–	0.187	–	–	–
Rice grain	GC	1.15	STMR	88	1.31	20	–	–	–	0.261	–	–	–
Rice bran/pollard	CM/CF	1.15	STMR-P	90	1.28	10	–	–	20	0.128	–	–	0.256
Soybean hulls	SM	0.22	Median-P	90	0.24	10	–	–	5	0.024	–	–	0.012
Soybean seed	VD	0.18	STMR	89	0.20	5	–	–	15	0.010	–	–	0.030
Soybean okara	SM	0.18	STMR	92	0.20	–	–	–	35		–	–	0.068
Corn gluten feed	CM/CF	0.01	Median-P	40	0.03	25	–	–	5	0.006	–	–	0.001
Corn field grain	GC	0.01	STMR	88	0.01	–	–	–	20	–	–	–	0.00
					Total	100	100	100	100	4.138	13.23	**29.92**	0.370

FLUBENDIAMIDE (242) **DAIRY CATLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Soybean hay	AL	41	Highest	85	48.24	20	–	40	–	9.647	–	19.29	–
Cowpea forage	AL	14	Highest	30	46.67	–	35	20	–	–	16.3333	9.333	–
Grape pomace, wet	AB	2.45	Median-P	15	16.33	–	–	20	–	–	–	3.267	–
Cowpea hay	AL	26	Highest	86	30.23	–	–	20	–	–	–	6.046	–
Corn, field forage/silage	AF/AS	8.4	Highest	40	21.00	45	60	–	50	9.450	12.6	–	10.5
Almond hulls	AM/AV	2.45	Median-P	90	2.72	10	–	–	–	0.272	–	–	–
Rice grain	GC	1.15	STMR	88	1.31	20	–	–	–	0.261	–	–	–
Rice bran/pollard	CM/CF	1.15	STMR-P	90	1.28	5	5	–	10	0.064	0.064	–	0.128
Soybean seed	VD	0.18	STMR	89	0.20	–	–	–	10	–	–	–	0.020
Soybean okara	SM	0.18	STMR-P	92	0.20	–	–	–	20	–	–	–	0.039
Corn gluten feed	CM/CF	0.01	Median-P	40	0.03	–	–	–	10	–	–	–	0.002

FLUBENDIAMIDE (242) **DAIRY CATLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
					Total	100	100	100	100	19.69	28.10	**37.94**	10.69
Estimated mean dietary burden													
Soybean hay	AL	27.5	Median	85	32.35	20	0	40	–	6.471	0	12.94	–
Cowpea forage	AL	6.05	Median	30	20.17	0	35	20	–	0	7.058	4.033	–
Grape pomace. wet	AB	2.45	Median-P	15	16.33	0	–	20	–	0	–	3.267	–
Cowpea hay	AL	13.5	Median	86	15.70	0	–	20	–	0	–	3.139	–
Corn. field forage/silage	AF/AS	3.8	Median	40	9.50	45	60	–	50	4.275	5.7	–	4.75
Almond hulls	AM/AV	2.45	Median-P	90	2.72	10	–	–	–	0.272	–	–	–
Rice grain	GC	1.15	STMR	88	1.31	20	–	–	–	0.261	–	–	–
Rice bran/pollard	CM/CF	1.15	STMR-P	90	1.28	5	5	–	10	0.064	0.064	–	0.128
Soybean seed	VD	0.18	STMR	89	0.20	0	–	–	10	0	–	–	0.020
Soybean okara	SM	0.18	STMR	92	0.20	0	–	–	20	0	–	–	0.03913
Corn gluten feed	CM/CF	0.01	Median-P	40	0.03	0	–	–	10	0.000	–	–	0.003
Total						100	100	100	100	11.34	12.82	**23.38**	4.940

FLUBENDIAMIDE (242) **POULTRY BROILER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Rice grain	GC	1.15	STMR	88	1.31	20	–	50	–	0.261	–	0.65341	–
Rice bran/pollard	CM/CF	1.15	STMR-P	90	1.28	10	10	20	5	0.128	0.128	0.256	0.064
Soybean hulls	SM	0.22	Median-P	90	0.24	–	5	–	–	–	0.012	–	–
Lupin seed meal	SM	0.18	Median-P	85	0.21	–	5	20	–	–	0.011	0.042	–
Bean seed	VD	0.18	STMR	88	0.20	–	20	10	–	–	0.041	0.020	–
Cowpea seed	VD	0.18	STMR	88	0.20	10	–	–	–	0.020	–	–	–
Soybean seed	VD	0.18	STMR	89	0.20	10	–	–	–	0.02	–	–	–
Cotton meal	SM	0.08	Median-P	89	0.09	20	–	–	–	0.018	–	–	–
Corn, field milled bypdts	CM/CF	0.01	Median-P	85	0.01	30	50	–	–	0.004	0.006	–	–
Corn. field grain	GC	0.01	STMR	88	0.01	–	10	–	70	–	0.001	–	0.008
Soybean meal	SM	0.01	Median-P	92	0.01	–	–	–	25	–	–	–	0.003
Total						100	100	100	100	0.451	0.198	**0.972**	0.075
Estimated maximum dietary burden													
Rice bran/pollard	CM/CF	1.15	STMR-P	90	1.28	10	10	20	5	0.13	0.128	0.25556	0.064

FLUBENDIAMIDE (242) **POULTRY BROILER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Soybean hulls	SM	0.22	Median-P	90	0.24	–	5	–	–	–	0.012	–	–
Lupin seed meal	SM	0.18	Median-P	85	0.21	–	5	20	–	–	0.011	0.042	–
Bean seed	VD	0.18	STMR	88	0.20	–	20	10	–	–	0.041	0.020	–
Cowpea seed	VD	0.18	STMR	88	0.20	10	–	–	–	0.02	–	–	–
Soybean seed	VD	0.18	STMR	89	0.20	10	–	–	–	0.02	–	–	–
Cotton meal	SM	0.08	Median-P	89	0.09	20	–	–	–	0.018	–	–	–
Corn. field milled bypdts	CM/CF	0.01	Median-P	85	0.01	30	50	–	–	0.003	0.006	–	–
Corn. field grain	GC	0.01	STMR	88	0.01	–	10	–	70	–	0.001	–	0.008
Soybean meal	SM	0.01	Median-P	92	0.01	–	–	–	25	–	–	–	0.00272
					Total	100	100	100	100	0.451	0.198	**0.972**	0.075

FLUBENDIAMIDE (242) **POULTRY LAYER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Soybean hay	AL	41	Highest	85	48.24	–	10	–	–	–	4.823	–	–
Rice grain	GC	1.15	STMR	88	1.31	20		50	–	0.261	–	0.653	–
Rice bran/pollard	CM/CF	1.15	STMR-P	90	1.28	10	5	20	20	0.128	0.064	0.256	0.256
Soybean hulls	SM	0.22	Median-P	90	0.24	–	5	–	–	–	0.012	–	–
Lupin seed meal	SM	0.18	Median-P	85	0.21	–	5	20	–	–	0.011	0.042	–
Bean seed	VD	0.18	STMR	88	0.20	–	20	10	–	–	0.041	0.020	–
Cowpea seed	VD	0.18	STMR	88	0.20	10	–	–	–	0.020	–	–	–
Soybean seed	VD	0.18	STMR	89	0.20	10	–	–	–	0.020	–	–	–
Cotton meal	SM	0.08	Median-P	89	0.09	20	–	–	–	0.02	–	–	–
Corn gluten meal	CM/CF	0.009	Median-P	40	0.02	–	5	–	–	–	0.001	–	–
Corn, field milled bypdts	CM/CF	0.01	Median-P	85	0.01	30	40	–	–	0.004	0.005	–	–
Corn field grain	GC	0.01	STMR	88	0.01	–	10	–	80	–	0.001	–	0.009
					Total	100	100	100	100	0.451	**4.958**	0.972	0.264
Estimated mean dietary burden													
Soybean hay	AL	27.5	Median	85	32.35	–	10	–	–	–	3.235	–	–
Rice grain	GC	1.15	STMR	88	1.31	20	–	50	–	0.261	–	0.653	–
Rice bran/pollard	CM/CF	1.15	STMR-P	90	1.28	10	5	20	20	0.128	0.064	0.256	0.256
Soybean hulls	SM	0.22	Median	90	0.24	–	5	–	–	–	0.012	–	–

FLUBENDIAMIDE (242) **POULTRY LAYER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Lupin seed meal	SM	0.18	Median-P	85	0.21	–	5	20	–	–	0.011	0.042	–
Bean seed	VD	0.18	STMR	88	0.20	–	20	10	–		0.041	0.020	–
Cowpea seed	VD	0.18	STMR	88	0.20	10	–	–	–	0.020	–	–	–
Soybean seed	VD	0.18	STMR	89	0.20	10	–	–	–	0.020	–	–	–
Cotton meal	SM	0.08	Median-P	89	0.09	20	–	–	–	0.018	–	–	–
Corn gluten meal	CM/CF	0.009	Median-P	40	0.02	–	5	–	–	–	0.001	–	–
Corn, field milled bypdts	CM/CF	0.01	Median-P	85	0.01	30	40	–	–	0.003	0.005	–	–
Corn field grain	GC	0.01	STMR	88	0.01	–	10	–	80	–	0.001	–	0.009
					Total	100	100	100	100	0.451	**3.37**	0.972	0.265

FLUDIOXONIL (211) **BEEF CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Kale leaves	AM/AV	7.1	HR	15	47.33	–	20	–	–	–	9.467	–	–
Bean vines	AL	11	Highest	35	31.43	–	–	60	–	–	–	18.86	–
Potato process waste	AB	2.535	STMR	12	21.13	30	40	5	–	6.338	8.45	1.057	–
Potato culls	VR	2.9	Highest	20	14.50	30	30	10	–	4.350	4.35	1.45	–
Pineapple process waste	AB	2	STMR	25	8.00	–	–	25	–	–	–	2	–
Beet, sugar dried pulp	AB	1.4	Median-P	88	1.59	–	–	–	5	–	–	–	0.080
Beet, sugar molasses	DM	0.62	Median-P	75	0.83	10	10	–	–	0.083	0.083	–	–
Barley grain	GC	0.02	STMR	88	0.02	30	–	–	70	0.007	–	–	0.016
Corn field grain	GC	0.02	STMR	88	0.02	–	–	–	25	–	–	–	0.006
					Total	100	100	100	100	10.78	22.35	**23.36**	0.101
Estimated mean dietary burden													
Potato process waste	AB	2.535	STMR	12	21.13	30	40	5	–	6.337	8.45	1.056	–
Bean vines	AL	3.75	Median	35	10.71	–	–	60	–	–	–	6.429	–
Kale leaves	AM/AV	1.2	STMR	15	8.00	–	20	–	–	–	1.6	–	–
Pineapple process waste	AB	2	STMR	25	8.00	–	–	35	–	–	–	2.8	–
Potato culls	VR	1.5	Median	20	7.50	30	30	–	–	2.25	2.25	–	–
Beet, sugar dried pulp	AB	1.4	Median-P	88	1.59	–	–	–	5	–	–	–	0.080
Beet, sugar molasses	DM	0.62	Median-P	75	0.83	10	10	–	–	0.083	0.083	–	–
Barley grain	GC	0.02	STMR	88	0.02	30	–	–	70	0.007	–	–	0.016

FLUDIOXONIL (211) **BEEF CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Corn field grain	GC	0.02	STMR	88	0.02	–	–	–	25	–	–	–	0.006
					Total	100	100	100	100	8.677	**12.38**	10.28	0.101

FLUDIOXONIL (211) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Kale leaves	AM/AV	7.1	Highest	15	47.33	–	20	40	–	–	9.467	18.93	–
Bean vines	AL	11	Highest	35	31.43	–	20	60	–	–	6.286	18.86	–
Potato process waste	AB	2.535	STMR	12	21.13	10	30	–	–	2.113	6.337	–	–
Potato culls	VR	2.9	Highest	20	14.50	10	30	–	–	1.450	4.35	–	–
Almond hulls	AM/AV	1.8	Median-P	90	2.00	10	–	–	–	0.200	–	–	–
Beet, sugar dried pulp	AB	1.4	Median-P	88	1.59	5	–	–	40	0.080	–	–	0.636
Beet, sugar molasses	DM	0.62	Median-P	75	0.83	10	–	–	–	0.083	–	–	–
Cotton undelinted seed	SO	0.05	STMR	88	0.06	10	–	–	–	0.006	–	–	–
Corn, sweet cannery waste	AF/AS	0.01	HR	30	0.03	10	–	–	–	0.003	–	–	–
Barley grain	GC	0.02	STMR	88	0.02	35	–	–	40	0.008	–	–	0.009
Corn field grain	GC	0.02	STMR	88	0.02	–	–	–	20	–	–	–	0.005
					Total	100	100	100	100	3.942	26.44	**37.79**	0.65
Estimated mean dietary burden													
Potato process waste	AB	2.535	STMR	12	21.13	10	30	0	–	2.112	6.337	0	–
Bean vines	AL	3.75	Median	35	10.71	0	20	70	–	0	2.143	7.5	–
Kale leaves	AM/AV	1.2	STMR	15	8.00	0	20	30	–	0	1.6	2.4	–
Potato culls	VR	1.5	STMR	20	7.50	10	30	–	–	0.75	2.25	–	–
Almond hulls	AM/AV	1.8	Median	90	2.00	10	–	–	–	0.2	–	–	–
Beet, sugar dried pulp	AB	1.4	Median-P	88	1.59	5	–	–	40	0.079	–	–	0.636
Beet, sugar molasses	DM	0.62	Median-P	75	0.83	10	–	–	–	0.083	–	–	–
Cotton undelinted seed	SO	0.05	STMR	88	0.06	10	–	–	–	0.006	–	–	–
Corn, sweet cannery waste	AF/AS	0.01	STMR	30	0.03	10	–	–	–	0.003	–	–	–
Barley grain	GC	0.02	STMR	88	0.02	35	–	–	40	0.008	–	–	0.009
Corn field grain	GC	0.02	STMR	88	0.02	0	–	–	20	0.000	–	–	0.005

FLUDIOXONIL (211) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
					Total	100	100	100	100	3.242	**12.33**	9.9	0.65

FLUDIOXONIL (211) **POULTRY BROILER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Potato culls	VR	2.9	Highest	20	14.50	–	10	–	–	–	1.45	–	–
Pea seed	VD	0.11	STMR	90	0.12	20	20	5	–	0.024	0.024	0.006	–
Bean seed	VD	0.029	STMR	88	0.03	–	–	65	–	–	–	0.021	–
Barley grain	GC	0.02	STMR	88	0.02	75	70	15	10	0.017	0.016	0.003	0.002
Corn field grain	GC	0.02	STMR	88	0.02	–	–	–	60	–	–	–	0.013
Corn, pop grain	GC	0.02	STMR	88	0.02	–	–	–	30	–	–	–	0.007
Rye grain	GC	0.02	STMR	88	0.02	–	–	15	–	–	–	0.003	–
Canola meal	SM	0.02	Median-P	88	0.02	5	–	–	–	0.001	–	–	
Total						100	100	100	100	0.043	**1.490**	0.034	0.023
Estimated mean dietary burden													
Potato culls	VR	1.5	Median	20	7.50	–	10	–	–	–	0.75	–	–
Pea seed	VD	0.11	STMR	90	0.12	20	20	5	–	0.02	0.024	0.006	–
Bean seed	VD	0.029	STMR	88	0.03	–	–	65	–	–	–	0.021	–
Barley grain	GC	0.02	STMR	88	0.02	75	70	15	10	0.02	0.016	0.003	0.002
Corn field grain	GC	0.02	STMR	88	0.02	–	–	–	60	–	–	–	0.014
Corn, pop grain	GC	0.02	STMR	88	0.02	–	–		30	–	–	–	0.007
Rye grain	GC	0.02	STMR	88	0.02	–	–	15		–	–	0.003	–
Canola meal	SM	0.02	Median-P	88	0.02	5	–	–	–	0.001	–	–	–
Total						100	100	100	100	0.043	**0.790**	0.034	0.023

FLUDIOXONIL (211) POULTRY LAYER

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Potato culls	VR	2.9	Highest	20	14.50	–	10	–	–	–	1.45	–	–
Cabbage heads, leaves	AM/AV	1.2	Highest	15	8.00	–	5	–	–	–	0.4	–	–
Pea seed	VD	0.11	STMR	90	0.12	20	20	5	–	0.024	0.024	0.006	–
Bean seed	VD	0.029	STMR	88	0.03	–	–	65	–	–	–	0.021	–
Barley grain	GC	0.02	STMR	88	0.02	75	65	15	–	0.017	0.015	0.003	–
Corn field grain	GC	0.02	STMR	88	0.02	–	–	–	80	–	–	–	0.018
Corn, pop grain	GC	0.02	STMR	88	0.02	–	–	–	20	–	–	–	0.004
Rye grain	GC	0.02	STMR	88	0.02	–	–	15		–	–	0.003	–
Canola meal	SM	0.02	Median-P	88	0.02	5	–	–	–	0.00	–	–	–
					Total	100	100	100	100	0.043	**1.889**	0.034	0.023
Estimated mean dietary burden													
Potato culls	VR	1.5	Median	20	7.50	–	10	–	–	–	0.75	–	–
Cabbage heads, leaves	AM/AV	0.24	Median	15	1.60	–	5	–	–	–	0.08	–	–
Pea seed	VD	0.11	STMR	90	0.12	20	20	5	–	0.024	0.024	0.006	–
Bean seed	VD	0.029	STMR	88	0.03			65	–	–	–	0.021	–
Barley grain	GC	0.02	STMR	88	0.02	75	65	15	–	0.017	0.015	0.003	–
Corn field grain	GC	0.02	STMR	88	0.02	–	–	–	80	–	–	–	0.018
Corn, pop grain	GC	0.02	STMR	88	0.02	–	–	–	20	–	–	–	0.004
Rye grain	GC	0.02	STMR	88	0.02	–	–	15	–	–	–	0.003	–
Canola meal	SM	0.02	Median-P	88	0.02	5	–	–	–	0.001	–	–	–
					Total	100	100	100	100	0.043	**0.869**	0.034	0.023

FLUOPYRAM (243) BEEF CATTLE

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Bean vines	AL	25	Highest	35	71.43	–	–	60	–	–	–	42.86	–
Pea hay	AL	48	Highest	88	54.55	–	25	40	–	–	13.64	21.82	–
Beet, sugar tops	AM/AV	8.3	Highest	23	36.09	–	20	–	–	–	7.22	–	–
Corn, field asp gr fn	CM/CF	16	Median-P	85	18.82	5	–	–	–	0.941	–	–	–
Corn, field stover	AF/AS	13	Highest	83	15.66	15	25	–	–	2.349	3.92	–	–
Cotton gin byproducts	AM/AV	5.4	Highest-P	90	6.00	5	–	–	–	0.300	–	–	–

FLUOPYRAM (243) **BEEF CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Corn, field forage/silage	AF/AS	3.9	Highest	40	9.75	–	30	–	–	–	2.93	–	–
Rice straw	AF/AS	6.7	Highest	90	7.44	–	–	–	55	–	–	–	4.09
Soybean asp gr fn	SM	4.6	Median-P	85	5.41	5	–	–	–	0.271	–	–	–
Rice bran/pollard	CM/CF	0.68	STMR	90	0.76	10	–	–	20	0.076	–	–	0.15
Potato process waste	AB	0.09	STMR	12	0.75	30	–	–	–	0.225	–	–	–
Rice grain	GC	0.615	STMR	88	0.70	20	–	–	–	0.140	–	–	–
Potato culls	VR	0.069	Highest	20	0.35	10	–	–	–	0.035	–	–	–
Rape meal	SM	0.23	Median-P	88	0.26	–	–	–	15	–	–	–	0.04
Sorghum, grain grain	GC	0.18	STMR	86	0.21	–	–	–	10	–	–	–	0.02
					Total	100	100	100	100	4.336	27.69	**64.68**	4.31
Estimated mean dietary burden													
Bean vines	AL	14	Median	35	40.00	–	–	60	–	–	–	24	–
Pea vines	AL	5.6	Median	25	22.40	–	20		–	–	4.48		–
Pea hay	AL	18	Median	88	20.45	–	5	40	–	–	1.02	8.18	–
Corn, field asp gr fn	CM/CF	16	Median-P	85	18.82	5	–	–	–	0.94	–	–	–
Cotton gin byproducts	AM/AV	5.4	Median-P	90	6.00	5	–	–	–	0.30	–	–	–
Soybean asp gr fn	SM	4.6	Median-P	85	5.41	5	–	–	–	0.27	–	–	–
Corn, field forage/silage	AF/AS	2	Median	40	5.00	15	75	–	–	0.75	3.75	–	–
Rice straw	AF/AS	2.55	Median	90	2.83	–	–	–	55	–	–	–	1.56
Rice bran/pollard	CM/CF	0.68	STMR-P	90	0.76	10	–	–	20	0.076	–	–	0.15
Potato process waste	AB	0.09	STMR	12	0.75	30	–	–	–	0.225	–	–	–
Rice grain	GC	0.615	STMR	88	0.70	20	–	–	–	0.140	–	–	–
Rape meal	SM	0.23	STMR	88	0.26	–	–	–	15	–	–	–	0.04
Sorghum, grain	GC	0.18	STMR	86	0.21	10	–	–	10	0.021	–	–	0.02
					Total	100	100	100	100	2.723	9.3	**32.2**	1.77

FLUOPYRAM (243) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Bean vines	AL	25	Highest	35	71.43	–	20	70	–	–	14.29	50.00	–
Pea hay	AL	48	Highest	88	54.55	10	10	–	–	5.455	5.45	–	–
Beet, sugar tops	AM/AV	8.3	Highest	23	36.09	–	30	–	–	–	10.83	–	–

FLUOPYRAM (243) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Peanut hay	AL	21	Highest	85	24.71	5	–	–	–	1.235	–	–	–
Soybean hay	AL	20	Highest	85	23.53	5	–	–		1.176	–	–	–
Corn, field stover	AF/AS	13	Highest	83	15.66	15	20	30	–	2.349	3.13	4.70	–
Corn, field forage/silage	AF/AS	3.9	Highest	40	9.75	30	20	–	50	2.925	1.95	–	4.88
Sorghum, grain forage	AF/AS	3.2	Highest	35	9.14	35	–	–	–	3.200	–	–	–
Rice bran/pollard	CM/CF	0.68	STMR-P	90	0.76	–	–	–	10	–	–	–	0.08
Rape meal	SM	0.23	Median-P	88	0.26	–	–	–	25	–	–	–	0.07
Sorghum grain grain	GC	0.18	STMR	86	0.21	–	–	–	15	–	–	–	0.03
					Total	100	100	100	100	16.34	35.65	**54.70**	5.05
Estimated mean dietary burden													
Bean vines	AL	14	Median	35	40.00	–	20	70	–	–	8.000	28.00	–
Pea vines	AL	5.6	Median)	25	22.40	10	–	–	–	2.240	–	–	–
Pea hay	AL	18	Median	88	20.45	0	10	–	–	0.000	2.045	–	–
Grape pomace, wet	AB	1.86	Median-P	15	12.40	0	–	20	–	0.000	–	2.480	–
Soybean hay	AL	6.1	Median	85	7.18	10	–	–	–	0.718	–	–	–
Corn, field forage/silage	AF/AS	2	Median	40	5.00	45	60	10	50	2.250	3.000	0.500	2.500
Almond hulls	AM/AV	3.6	Median-P	90	4.00	10	–	–	–	0.400	–	–	–
Beet, sugar tops	AM/AV	0.46	Median	23	2.00	0	10	–	–	0.000	0.200	–	–
Apple pomace, wet	AB	0.31	Median-P	40	0.78	10	–	–	–	0.078	–	–	–
Rice bran/pollard	CM/CF	0.68	STMR-P	90	0.76	15	–	–	–	0.113	–	–	0.076
Rape meal	SM	0.23	Median-P	88	0.26	0	–	–	25	0.000	–	–	0.065
Sorghum grain	GC	0.18	STMR	86	0.21	0	–	–	15	0.000	–	–	0.031
					Total	100	100	100	100	5.798	13.24	**30.98**	2.672

FLUOPYRAM (243) **POULTRY BROILER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Carrot culls	VR	0.19	Highest	12	1.58	–	10	–	–	–	0.158	–	–
Rice bran/pollard	CM/CF	0.68	STMR-P	90	0.76	10	10	20	5	0.076	0.076	0.151	0.038
Rice grain	GC	0.615	STMR	88	0.70	20	–	50	–	0.140	–	0.349	–

FLUOPYRAM (243) **POULTRY BROILER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Canola meal	SM	0.23	Median-P	88	0.26	15	18	5	–	0.039	0.047	0.013	–
Rape meal	SM	0.23	Median-P	88	0.26	–	–	–	5	–	–	–	0.013
Sorghum, grain	GC	0.18	STMR	86	0.21	55	62	25	65	0.115	0.130	0.052	0.136
Corn field grain	GC	0.01	STMR	88	0.01	–	–	–	25	–	–	–	0.003
					Total	100	100	100	100	0.370	0.411	**0.566**	0.190
Estimated mean dietary burden													
Rice bran/pollard	CM/CF	0.68	STMR-P	90	0.76	10	10	20	5	0.076	0.076	0.151	0.038
Carrot culls	VR	0.09	Median	12	0.75	–	10	–	–	–	0.075	–	–
Rice grain	GC	0.615	STMR	88	0.70	20	–	50	–	0.140	–	0.349	–
Canola meal	SM	0.23	Median-P	88	0.26	15	18	5	–	0.039	0.047	0.013	–
Rape meal	SM	0.23	Median-P	88	0.26	–	–	–	5	–	–	–	0.013
Sorghum grain	GC	0.18	STMR	86	0.21	55	62	25	65	0.115	0.130	0.052	0.136
Corn field grain	GC	0.01	STMR	88	0.01	–	–	–	25	–	–	–	0.003
					Total	100	100	100	100	0.370	0.327	**0.566**	0.190

FLUOPYRAM (243) **POULTRY LAYER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Pea hay	AL	48	Highest	88	54.55	–	10	–	–	–	5.45	–	–
Beet, sugar tops	AM/AV	8.3	Highest	23	36.09	–	5	–	–	–	1.80	–	–
Sorghum, grain forage	AF/AS	3.2	Highest	35	9.14	–	10	–	–	–	0.91	–	–
Carrot culls	VR	0.19	Highest	12	1.58	–	10	–	–	–	0.16	–	–
Rice bran/pollard	CM/CF	0.68	STMR-P	90	0.76	10	5	20	20	0.076	0.04	0.15	0.15
Rice grain	GC	0.615	STMR	88	0.70	20	–	50	–	0.140	–	0.35	–
Canola meal	SM	0.23	Median-P	88	0.26	15	10	5	–	0.039	0.03	0.01	–
Rape meal	SM	0.23	Median-P	88	0.26	–	–	–	15	–	–	–	0.04
Sorghum grain	GC	0.18	STMR	86	0.21	55	50	25	55	0.12	0.10	0.05	0.12
Wheat milled bypdts	CM/CF	0.095	Median-P	88	0.11	–	–	–	10	–	–	–	0.01
					Total	100	100	100	100	0.370	**8.50**	0.57	0.32
Estimated mean dietary burden													
Pea vines	AL	5.6	Median	25	22.40	–	10	–	–	–	2.24	–	–
Beet, sugar tops	AM/AV	0.46	Median	23	2.00	–	5	–	–	–	0.10	–	–

FLUOPYRAM (243) **POULTRY LAYER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Wheat hay	AF/AS	1.2	Median	88	1.36	–	10	–	–	–	0.14	–	–
Rice bran/pollard	CM/CF	0.68	STMR-P	90	0.76	10	5	20	20	0.08	0.04	0.15	0.15
Carrot culls	VR	0.09	Median	12	0.75	–	10	–	–	–	0.08	–	–
Rice grain	GC	0.615	STMR	88	0.70	20		50	–	0.14	–	0.35	–
Canola meal	SM	0.23	Median-P	88	0.26	15	10	5	–	0.04	0.03	0.01	–
Rape meal	SM	0.23	Median-P	88	0.26	–	–	–	15	–	–	–	0.04
Sorghum grain	GC	0.18	STMR	86	0.21	55	50	25	55	0.12	0.10	0.05	0.12
Wheat milled bypdts	CM/CF	0.095	Median-P	88	0.11	–	–	–	10	–	–	–	0.01
					Total	100	100	100	100	0.37	**2.72**	0.57	0.32

INDOXACARB (216) **BEEF CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Bean vines	AL	32	Highest	35	91.43	–	–	60	–	–	–	54.86	–
Alfalfa hay	AL	43	Highest	100	43.00	15	–	40	10	6.450	–	17.2	4.3
Alfalfa forage	AL	28	Highest	100	28.00	–	70	–	–	–	19.6	–	–
Cabbage heads. leaves	AM/AV	2	Highest	15	13.33	–	20	–	–	–	2.667	–	–
Corn, field stover	AF/AS	9.1	Highest	83	10.96	15	10	–	–	1.645	1.096	–	–
Cotton gin byproducts	AM/AV	8	Highest-P	90	8.89	5	–	–	–	0.444	–	–	–
Cotton meal	SM	0.36	Median-P	89	0.40	5	–	–		0.020	–	–	–
Soybean hulls	SM	0.23	Median-P	90	0.26	10	–	–	5	0.026	–	–	0.013
Potato culls	VR	0.0085	Highest	20	0.04	30	–	–		0.013	–	–	
Soybean seed	VD	0.027	STMR	89	0.03	5	–	–	15	0.002	–	–	0.004
Corn gluten feed	CM/CF	0.01	Median-P	40	0.03	15	–	–	25	0.004	–	–	0.006
Corn field grain	GC	0.01	STMR	88	0.01	–	–	–	45	–	–	–	0.005
					Total	100	100	100	100	8.603	23.36	**72.06**	4.329
Estimated mean dietary burden													
Bean vines	AL	11	Median	35	31.43	–	–	60	–	–	–	18.86	–
Alfalfa forage	AL	16	Median	100	16.00	–	70	40	–	–	11.2	6.4	–
Alfalfa hay	AL	16	Median	100	16.00	15	–	–	10	2.4	–	–	1.6
Cotton gin byproducts	AM/AV	8	Median-P	90	8.89	5	–	–	–	0.444	–	–	–
Corn, field forage/silage	AF/AS	1.6	Median	40	4.00	15	30	–	–	0.6	1.2	–	–

INDOXACARB (216) **BEEF CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Cotton meal	SM	0.36	Median	89	0.40	5	–	–	–	0.020	–	–	–
Soybean hulls	SM	0.23	Median-P	90	0.26	10	–	–	5	0.026	–	–	0.01278
Soybean seed	VD	0.027	STMR	89	0.03	5	–	–	15	0.001	–	–	0.00455
Corn gluten feed	CM/CF	0.01	Median-P	40	0.03	45	–	–	25	0.011	–	–	0.00625
Corn field grain	GC	0.01	STMR	88	0.01	–	–	–	45		–	–	0.005
					Total	100	100	100	100	3.503	12.4	**25.26**	1.629

INDOXACARB (216) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Bean vines	AL	32	Highest	35	91.43	–	20	70	–	–	18.29	64	–
Peanut hay	AL	45	Highest	100	45.00	15	–	–	–	6.750		–	–
Alfalfa hay	AL	43	Highest	100	43.00	5	20	–	25	2.150	8.6	–	10.75
Corn. sweet forage	AF/AS	9.1	Highest	48	18.96	45	–	30	–	8.531	–	5.687	–
Cabbage heads, leaves	AM/AV	2	Highest	15	13.33	–	20	–	–	–	2.667	–	–
Corn, field stover	AF/AS	9.1	Highest or HR	83	10.96	–	20	–	–	–	2.193	–	–
Corn, field forage/silage	AF/AS	3.4	Highest	40	8.50	–	20	–	50	–	1.7	–	4.25
Almond hulls	AM/AV	2.65	Median-P	90	2.94	10	–	–	–	0.294	–	–	–
Apple pomace, wet	AB	0.55	Median-P	40	1.38	10	–	–	–	0.138	–	–	–
Cotton undelinted seed	SO	0.36	STMR	88	0.41	10	–	–	–	0.041	–	–	–
Cotton meal	SM	0.36	Median-P	89	0.40	5	–	–	–	0.020	–	–	–
Soybean seed	VD	0.027	STMR	89	0.03	–	–	–	10	–	–	–	0.003
Corn gluten feed	CM/CF	0.01	Median-P	40	0.03	–	–	–	15	–	–	–	0.00
					Total	100	100	100	100	17.92	33.44	**69.69**	15.01
Estimated mean dietary burden													
Bean vines	AL	11	Median	35	31.43	–	20	70	–	–	6.286	22	–
Peanut hay	AL	18	Median	100	18.00	15	–	–	–	2.7	–	–	–
Alfalfa forage	AL	16	Median	100	16.00	5	20	–	–	0.8	3.2	–	–
Alfalfa hay	AL	16	Median	100	16.00	0	–	–	25	0	–	–	4
Corn, sweet cannery waste	AF/AS	3.7	STMR	30	12.33	10	–	10	–	1.233	–	1.233	–
Corn, sweet stover	AF/AS	7.8	Median	100	7.80	5	–	10	–	0.39	–	0.78	–

INDOXACARB (216) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Corn, sweet forage	AF/AS	2.8	Median	48	5.83	30	–	10	–	1.75	–	0.583	–
Corn field forage/silage	AF/AS	1.6	Median	40	4.00	35	60	–	50	1.4	2.4	–	2
Soybean seed	VD	0.027	STMR	89	0.03	0	–	–	10	0	–	–	0.003
Corn gluten feed	CM/CF	0.01	Median-P	40	0.03	0	–	–	15	0	–	–	0.004
					Total	100	100	100	100	8.273	11.89	**24.60**	6.007

INDOXACARB (216) **POULTRY BROILER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Cotton meal	SM	0.36	Median-P	89	0.40	20	5	10	–	0.081	0.020	0.040	–
Potato culls	VR	0.0085	Highest	20	0.04	–	10	–	–	–	0.004	–	–
Soybean seed	VD	0.027	STMR	89	0.03	20	20	15	–	0.006	0.006	0.004	–
Corn gluten feed	CM/CF	0.01	Median-P	40	0.03	–	10	–	–	–	0.002	–	–
Bean seed	VD	0.02	STMR	88	0.02	–	–	55	–	–	–	0.012	–
Corn. field milled bypdts	CM/CF	0.01	Median-P	85	0.01	50	55	–	–	0.006	0.006	–	–
Corn field grain	GC	0.01	STMR	88	0.01	10	–	–	70	0.00	–	–	0.008
Corn, field hominy meal	CM/CF	0.01	STMR	88	0.01	–	–	20	–	–	–	0.002	–
Soybean meal	SM	0.0038	Median-P	92	0.00	–	–		30	–	–	–	0.001
					Total	100	100	100	100	**0.094**	0.039	0.060	0.009
Estimated mean dietary burden													
Cotton meal	SM	0.36	Median-P	89	0.40	20	5	10	–	0.08	0.020	0.040	–
Soybean seed	VD	0.027	STMR	89	0.03	20	20	15	–	0.01	0.006	0.004	–
Corn gluten feed	CM/CF	0.01	Median-P	40	0.03	–	10	–	–	–	0.002	–	–
Bean seed	VD	0.02	STMR	88	0.02	–	–	55	–	–	–	0.012	–
Potato culls	VR	0.003	Median-P	20	0.02	–	10	–	–	–	0.001	–	–
Corn field milled bypdts	CM/CF	0.01	Median-P	85	0.01	50	55	–	–	0.01	0.006	–	–
Corn field grain	GC	0.01	STMR	88	0.01	10	–	–	70	0.00	–	–	0.008
Corn field hominy meal	CM/CF	0.01	Median-P	88	0.01	–	–	20	–	–	–	0.002	–
Soybean meal	SM	0.0038	Median-P	92	0.00	–	–	–	30	–	–	–	0.001
					Total	100	100	100	100	**0.094**	0.037	0.060	0.009

INDOXACARB (216) POULTRY LAYER

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Cabbage heads, leaves	AM/AV	2	Highest	15	13.33	–	5	–	–	–	0.667	–	–
Cotton meal	SM	0.36	Median-P	89	0.40	20	5	10	–	0.081	0.020	0.040	–
Potato culls	VR	0.0085	Highest	20	0.04	–	10	–	–	–	0.004	–	–
Soybean seed	VD	0.027	STMR	89	0.03	20	15	15	–	0.006	0.004	0.004	–
Corn gluten feed	CM/CF	0.01	Median-P	40	0.03	–	–	–	10	–	–	–	0.002
Corn gluten meal	CM/CF	0.01	Median-P	40	0.03	–	10	–	–	–	0.002	–	–
Bean seed	VD	0.02	STMR	88	0.02	–	5	55	–	–	0.001	0.012	–
Corn field milled bypdts	CM/CF	0.01	Median-P	85	0.01	50	40	–	–	0.006	0.005	–	–
Corn field grain	GC	0.01	STMR	88	0.01	10	10	–	80	0.00	0.001	–	0.01
Corn. field hominy meal	CM/CF	0.01	Median-P	88	0.01	–	–	20	–	–	–	0.002	
Soybean meal	SM	0.0038	Median-P	92	0.00	–	–	–	10	–	–	–	0.000
					Total	100	100	100	100	0.094	**0.705**	0.060	0.012
Estimated mean dietary burden													
Cabbage heads. leaves	AM/AV	0.44	Median	15	2.93	–	5	–	–	–	0.147	–	–
Cotton meal	SM	0.36	Median-P	89	0.40	20	5	10	–	0.081	0.020	0.040	–
Soybean seed	VD	0.027	STMR	89	0.03	20	15	15	–	0.006	0.004	0.004	–
Corn gluten feed	CM/CF	0.01	Median-P	40	0.03	–	–	–	10	–	–	–	0.002
Corn gluten meal	CM/CF	0.01	Median-P	40	0.03	–	10	–	–	–	0.003	–	–
Bean seed	VD	0.02	STMR	88	0.02	–	5	55	–	–	0.001	0.012	–
Potato culls	VR	0.003	Median	20	0.02	–	10	–	–	–	0.001	–	–
Corn field milled bypdts	CM/CF	0.01	Median-P	85	0.01	50	40	–	–	0.006	0.005	–	–
Corn field grain	GC	0.01	STMR	88	0.01	10	10	–	80	0.001	0.001	–	0.01
Corn field hominy meal	CM/CF	0.01	Median-P	88	0.01	–	–	20	–	–	–	0.002	–
Soybean meal	SM	0.0038	Median-P	92	0.00	–	–	–	10	–	–	–	0.000
					Total	100	100	100	100	0.094	**0.182**	0.060	0.012

IPFLUFENOQUIN (345) BEEF CATTLE

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum and mean dietary burden													
Apple pomace, wet	AB	2.16	Median-P	40	5.40	–	20	20	–	–	1.08	1.08	–
Almond hulls	AM/AV	0.648	Median-P	90	0.72	–	–	10	–	–	–	0.072	–

IPFLUFENOQUIN (345) **BEEF CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
					Total	20	30			–	1.08	**1.152**	–

IPFLUFENOQUIN (345) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum and mean dietary burden													
Apple pomace, wet	AB	2.16	Median-P	40	5.40	10	10	10	–	0.540	0.540	0.540	–
					Total	10	10	10	–	0.540	0.540	0.540	–

MALATHION (049) **BEEF CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum and mean dietary burden													
Wheat asp gr fn	CM/CF	2452	Median-P	85	2884.71	5	–	–	–	144.2	–	–	–
Corn field hominy meal	CM/CF	24.5	Median-P	88	27.84	45	–	40	35	12.53	–	11.14	9.744
Barley grain	GC	13.7	STMR	88	15.57	50	70	60	65	7.784	10.90	9.341	10.12
Corn field grain	GC	13.7	STMR	88	15.57	–	30	–	–	–	4.671	–	–
					Total	100	100	100	100	**164.6**	15.57	20.48	19.87

MALATHION (049) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum and mean dietary burden													
Corn field hominy meal	CM/CF	24.5	Median-P	88	27.84	25	–	40	–	6.960	–	11.14	–
					Total	25	–	40	–	6.960	–	11.14	–

MALATHION (049) POULTRY BROILER AND LAYER

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum and mean dietary burden													
Corn field hominy meal	CM/CF	24.5	Median-P	88	27.84	20	–	20	–	5.568	–	5.568	–
					Total	20	–	20	–	**5.568**	–	5.568	–

MEFENTRIFLUCONAZOLE (320) BEEF CATTLE

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Kale leaves	AM/AV	12	Highest	15	80.00	–	20	–	–	–	16	–	–
Wheat silage	AF/AS	62	Highest	100	62.00	–	–	90	–	–	–	55.8	–
Pea vines	AL	10	Highest	25	40.00	–	20	10	–	–	8	4	–
Rye forage	AF/AS	9.6	Highest	30	32.00	–	20	–	–	–	6.4	–	–
Barley hay	AF/AS	26	Highest	100	26.00	15		–	–	3.900		–	–
Barley straw	AF/AS	26	Highest	100	26.00	–	10	–	–	–	2.6	–	–
Rice straw	AF/AS	26	Highest	100	26.00	–		–	55	–		–	14.3
Pea hay	AL	13	Highest	100	13.00	–	5	–	–	–	0.65	–	–
Apple pomace. wet	AB	3.9	Median-P	40	9.75	–	20	–	–	–	1.95	–	–
Sorghum grain stover	AF/AS	9.1	Highest	100	9.10	–	5	–	–	–	0.455	–	–
Wheat asp gr fn	CM/CF	3.5	Median-P	85	4.12	5	–	–	–	0.206	–	–	–
Barley bran fractions	CM/CF	2.1	STMR-P	90	2.33	—	–	–	10	–	–	–	0.233
Rice grain	GC	1.2	STMR	88	1.36	20	–	–	–	0.273	–	–	–
Soybean asp gr fn	SM	0.93	Median-P	85	1.09	**5**	–	–	–	0.055	–	–	–
Brewer's grain dried	SM	1	Median-P	92	1.09	–	–	–	35	–	–	–	0.38
Pineapple process waste	AB	0.14	STMR	25	0.56	10	–	–	–	0.056	–	–	–
Rice bran/pollard	CM/CF	0.44	STMR-P	90	0.49	10	–	–	–	0.049	–	–	–
Barley grain	GC	0.425	STMR	88	0.48	35	–	–	–	0.169	–	–	–
					Total	100	100	100	100	4.707	36.06	**59.8**	14.91
Estimated maean dietary burden													
Kale leaves	AM/AV	6.65	Median	15	44.33	–	20	–	–	–	8.867		–
Rape forage	AM/AV	6.65	Median	30	22.17	–	–	100	–	–	–	22.17	–
Pea vines	AL	3.5	Median	25	14.00	–	20	–	–	–	2.8	–	–

MEFENTRIFLUCONAZOLE (320) BEEF CATTLE

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Barley hay	AF/AS	10	Median	100	10.00	15	–	–	–	1.5	–	–	–
Barley straw	AF/AS	10	Median	100	10.00	–	30	–	–	–	3	–	–
Rice straw	AF/AS	10	Median	100	10.00	–		–	55	–	–	–	5.5
Apple pomace, wet	AB	3.9	Median-P	40	9.75	–	20	–	–	–	1.95	–	–
Wheat forage	AF/AS	9.6	Median	100	9.60	–	10	–	–	–	0.96	–	–
Wheat asp gr fn	CM/CF	3.5	Median-P	85	4.12	5	–	–		0.206	–	–	–
Barley bran fractions	CM/CF	2.1	STMR-P	90	2.33	–	–	–	10	–	–	–	0.233
Rice grain	GC	1.2	STMR	88	1.36	20	–	–	–	0.273	–	–	–
Soybean asp gr fn	SM	0.93	Median-P	85	1.09	5	–	–	–	0.055	–	–	–
Brewer's grain dried	SM	1	Median-P	92	1.09	–	–	–	35	–	–	–	0.38
Pineapple process waste	AB	0.14	STMR	25	0.56	10	–	–	–	0.056	–	–	–
Rice bran/pollard	CM/CF	0.44	STMR-P	90	0.49	10	–	–	–	0.049	–	–	–
Barley grain	GC	0.425	STMR	88	0.48	35	–	–	–	0.169	–	–	–
					Total	100	100	100	100	2.307	17.58	**22.17**	6.114

MEFENTRIFLUCONAZOLE (320) DAIRY CATTLE

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Kale leaves	AM/AV	12	Highest	15	80.00	–	20	40	–	–	16	32	–
Wheat silage	AF/AS	62	Highest	100	62.00	–	–	50	–	–	–	31	–
Pea vines	AL	10	Highest	25	40.00	10	20	10	–	4.000	8	4	–
Rape forage	AM/AV	12	Highest	30	40.00	10	–	–	–	4.000	–	–	–
Rye forage	AF/AS	9.6	Highest	30	32.00	20	20	–	–	6.400	6.4	–	–
Peanut hay	AL	30	Highest	100	30.00	5	–	–	–	1.500	–	–	–
Barley straw	AF/AS	26	Highest	100	26.00	–	10	–	–	–	2.6	–	–
Oat hay	AF/AS	26	Highest	100	26.00	10	–	–	5	2.600	–	–	1.3
Rice straw	AF/AS	26	Highest	100	26.00	–	–	–	20	–	–	–	5.2
Beet. sugar tops	AM/AV	5.7	Highest	23	24.78	–	10	–	–	–	2.478	–	–
Sorghum. grain forage	AF/AS	4.8	Highest	35	13.71	10	–	–	15	1.371	–	–	2.057
Pea hay	AL	13	Highest	100	13.00	–	20	–	–	–	2.6	–	–
Soybean hay	AL	12	Highest	100	12.00	5	–	–	–	0.600	–	–	–
Apple pomace. wet	AB	3.9	Median-P	40	9.75	10	–	–	–	0.975	–	–	–

MEFENTRIFLUCONAZOLE (320) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Corn. field forage/silage	AF/AS	7.2	Highest	100	7.20	20	–	–	10	1.440	–	–	0.72
Brewer's grain dried	SM	1	Median-P	92	1.09	–	–	–	40	–	–	–	0.435
Rice bran/pollard	CM/CF	0.44	STMR-P	90	0.49	–	–	–	10	–	–	–	0.049
Total						100	–	100	100	22.89	**38.08**	67	9.761
Estimated mean dietary burden													
Kale leaves	AM/AV	6.65	Median	15	44.33	–	20	40	–	–	8.867	17.73	–
Rape forage	AM/AV	6.65	Median	30	22.17	10	–	–	–	2.217	–	–	–
Wheat silage	AF/AS	18	Median	100	18.00	0	–	50	–	0	–	9	–
Pea vines	AL	3.5	Median	25	14.00	10	20	10	–	1.4	2.8	1.4	–
Beet. sugar tops	AM/AV	2.367	Median	23	10.29	0	10	–	–	0	1.029	–	–
Barley hay	AF/AS	10	Median	100	10.00	20	–	–	–	2	–	–	–
Barley straw	AF/AS	10	Median	100	10.00	0	30	–		0	3	–	–
Oat hay	AF/AS	10	Median	100	10.00	10	–	–	5	1	–	–	0.5
Rice straw	AF/AS	10	Median	100	10.00	0	–	–	20	0	–	–	2
Apple pomace. wet	AB	3.9	Median-P	40	9.75	10	10	–	–	0.975	0.975	–	–
Wheat forage	AF/AS	9.6	Median	100	9.60	0	10	–	–	0.000	0.960	–	–
Peanut hay	AL	8	Median	100	8.00	5	–	–	–	0.4	–	–	–
Sorghum. grain forage	AF/AS	1.7	Median	35	4.86	35	–	–	15	1.7	–	–	0.729
Corn. field forage/silage	AF/AS	3.1	Median	100	3.10	0	–	–	10	0	–	–	0.31
Brewer's grain dried	SM	1	Median-P	92	1.09	0	–	–	40	0.00	–	–	0.43
Rice bran/pollard	CM/CF	0.44	STMR-P	90	0.49	0	–	–	10	0	–	–	0.049
					Total	100	100	100	100	9.692	17.63	**28.13**	4.022

MEFENTRIFLUCONAZOLE (320) **POULTRY BROILER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Carrot culls	VR	0.38	Highest	12	3.17	–	10	–	–	–	0.317	–	–
Barley bran fractions	CM/CF	2.1	STMR-P	90	2.33	8	–	–	–	0.187	–	–	–
Rice grain	GC	1.2	STMR	88	1.36	20	–	50	–	0.273	–	0.682	–
Brewer's grain dried	SM	1	Median-P	92	1.09	–	10	–	–	–	0.109	–	–
Rice bran/pollard	CM/CF	0.44	STMR-P	90	0.49	2	10	20	5	0.010	0.049	0.098	0.024
Barley grain	GC	0.425	STMR	88	0.48	70	70	–	10	0.338	0.338	–	0.048

MEFENTRIFLUCONAZOLE (320) **POULTRY BROILER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Sorghum grain	GC	0.41	STMR	86	0.48	–	–	30	55	–	–	0.143	0.262
Corn field grain	GC	0.01	STMR	88	0.01	–	–	–	30	–	–	–	0.003
					Total	100	100	100	100	0.807	0.812	**0.923**	0.338
Estimated mean dietary burden													
Barley bran fractions	CM/CF	2.1	Median-P	90	2.33	8	–	–	–	0.19	–	–	–
Rice grain	GC	1.2	STMR	88	1.36	20	–	50	–	0.27	–	0.682	–
Brewer's grain dried	SM	1	Median-P	92	1.09	–	10	–	–	–	0.109	–	–
Carrot culls	VR	0.1	Median	12	0.83	–	10	–	–	–	0.083	–	–
Rice bran/pollard	CM/CF	0.44	STMR-P	90	0.49	2	10	20	5	0.010	0.049	0.098	0.024
Barley grain	GC	0.425	STMR	88	0.48	70	70	–	10	0.34	0.338	–	0.048
Sorghum grain	GC	0.41	STMR	86	0.48	–	–	30	55	–	–	0.143	0.262
Corn field grain	GC	0.01	STMR	88	0.01	–	–		30	–	–	–	0.003
					Total	100	100	100	100	0.807	0.579	**0.923**	0.338

MEFENTRIFLUCONAZOLE (320) **POULTRY LAYER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Pea vines	AL	10	Highest	25	40.00	–	10	–	–	–	4	–	–
Rape forage	AM/AV	12	Highest	30	40.00	–	10	–	–	–	4	–	–
Rye forage	AF/AS	9.6	Highest	30	32.00	–	10	–	–	–	3.2	–	–
Carrot culls	VR	0.38	Highest	12	3.17	–	10	–	–	–	0.317	–	–
Barley bran fractions	CM/CF	2.1	Median-P	90	2.33	–	–	–	5	–	–	–	0.117
Rice grain	GC	1.2	STMR	88	1.36	20	–	50	–	0.273	–	0.682	–
Brewer's grain dried	SM	1	Median-P	92	1.09		10	–	–	–	0.109	–	–
Rice bran/pollard	CM/CF	0.44	Median-P	90	0.49	10	5	20	15	0.049	0.024	0.098	0.073
Barley grain	GC	0.425	STMR	88	0.48	70	45	–	–	0.34	0.217	–	–
Sorghum grain	GC	0.41	STMR	86	0.48	–	–	30	55	–	–	0.143	0.262
Wheat milled bypdts	CM/CF	0.32	Median-P	88	0.36	–	–	–	25	–	–	–	0.091
					Total	100	100	100	100	0.660	**11.87**	0.923	0.543
Estimated mean dietary burden													
Rape forage	AM/AV	6.65	Median	30	22.17	–	10	–	–	–	2.217	–	–
Pea vines	AL	3.5	Median	25	14.00	–	10	–	–	–	1.4	–	–

MEFENTRIFLUCONAZOLE (320) POULTRY LAYER

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Barley straw	AF/AS	10	Median	100	10.00	–	5	–	–	–	0.5	–	–
Wheat hay	AF/AS	10	Median	100	10.00	–	5	–	–	–	0.5	–	–
Barley bran fractions	CM/CF	2.1	Median-P	90	2.33	–	–	–	5	–	–	–	0.117
Rice grain	GC	1.2	STMR	88	1.36	20	–	50	–	0.273	–	0.682	–
Brewer's grain dried	SM	1	Median-P	92	1.09	–	10	–	–	–	0.109	–	–
Carrot culls	VR	0.1	Median	12	0.83	–	10	–	–	–	0.083	–	–
Rice bran/pollard	CM/CF	0.44	Median-P	90	0.49	10	5	20	15	0.049	0.024	0.098	0.07
Barley grain	GC	0.425	STMR	88	0.48	70	45	–	–	0.338068	0.217	–	–
Sorghum grain	GC	0.41	STMR	86	0.48	–	–	30	55	–	–	0.143	0.262
Wheat milled bypdts	CM/CF	0.32	Median-P	88	0.36	–	–	–	25	–	–	–	0.091
					Total	100	100	100	100	0.660	**5.05**	0.923	0.543

MEPIQUAT-CHLORIDE/CATION (336) BEEF CATTLE

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum and mean dietary burden													
Cotton meal	SM	19	Median-P	89	21.35	5	5	30	–	1.067	1.067	6.404	–
Cotton gin byproducts	AM/AV	10	Highest-P	90	11.11	5	–	–	–	0.556	–	–	–
Cotton undelinted seed	SO	10	STMR	88	11.36	–	–	30	–	–	–	3.409	–
Grape pomace. wet	AB	0.78	Median-P	15	5.20	–	–	20	–	–	–	1.04	–
Cotton hulls	SM	2.8	Median-P	90	3.11	5	–	–	–	0.156	–	–	–
					Total	15	5	80	–	1.779	1.067	**10.85**	–

MEPIQUAT-CHLORIDE/CATION (336) DAIRY CATTLE

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum and mean dietary burden													
Cotton meal	SM	19	Median-P	89	21.35	10	5	15	–	2.135	1.067	3.202	–
Cotton undelinted seed	SO	10	STMR	88	11.36	10	10	20	–	1.136	1.136	2.273	–

MEPIQUAT-CHLORIDE/CATION (336) DAIRY CATTLE

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Grape pomace. wet	AB	0.78	Median-P	15	5.20	–	–	20	–	–	–	1.04	–
					Total	20	15	55	–	3.271	2.204	**6.515**	–

MEPIQUAT-CHLORIDE/CATION (336) POULTRY BROILER AND LAYER

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum and mean dietary burden													
Cotton meal	SM	19	Median-P	89	21.35	20	5	10	–	4.270	1.067	2.135	–
					Total	20	5	10	–	**4.270**	1.067	2.135	–

METAFLUMIZONE (236) BEEF CATTLE

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum and mean dietary burden													
Grape pomace. wet	AB	2.45	Median-P	15	16.33	–	–	20	–	–	–	3.267	–
Apple pomace. wet	AB	0.97	Median-P	40	2.43	–	20	–	–	–	0.485	–	–
Potato process waste	AB	0.02	STMR	12	0.17	30	20	–	–	0.050	0.033	–	–
Potato culls	VR	0.02	Highest/median	20	0.10	30	30	10	–	0.030	0.03	0.01	–
Corn gluten feed	CM/CF	0.02	Median-P	40	0.05	40	30	20	25	0.020	0.015	0.01	0.013
Corn. field hominy meal	CM/CF	0.02	Median-P	88	0.02	–	–	20	10	–	–	0.005	0.002
Soybean seed	VD	0.02	STMR	89	0.02	–	–	20	15	–	–	0.004	0.003
Soybean meal	SM	0.02	Median-P	92	0.02	–	–	10	50	–	–	0.002	0.011
					Total	100	100	100	100	0.100	0.563	**3.298**	0.029

METAFLUMIZONE (236) DAIRY CATTLE

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum and mean dietary burden													
Grape pomace. wet	AB	2.45	Median-P	15	16.33	–	–	20	–	–	–	3.267	–
Apple pomace. wet	AB	0.97	Median-P	40	2.43	10	10	–	–	0.243	0.243	–	–
Potato process waste	AB	0.02	STMR	12	0.17	–	20	–	–	–	0.033	–	–
Potato culls	VR	0.02	Highest/median	20	0.10	10	30	10	–	0.010	0.03	0.01	–
Corn gluten feed	CM/CF	0.02	Median-P	40	0.05	25	30	–	25	0.013	0.015	–	0.013
Corn field milled bypdts	CM/CF	0.02	Median-P	85	0.02	–	–	15	–	–	–	0.004	–
Corn field hominy meal	CM/CF	0.02	Median-P	88	0.02	–	–	25	–	–	–	0.006	–
Soybean seed	VD	0.02	STMR	89	0.02	10	10	20	10	0.002	0.002	0.004	0.002
Soybean meal	SM	0.02	Median-P	92	0.02	10	–	10	60	0.002	–	0.002	0.013
Soybean okara	SM	0.02	STMR	92	0.02	–	–	–	5	–	–	–	0.001
					Total	65	100	100	100	0.269	0.323	**3.293**	0.029

METAFLUMIZONE (236) POULTRY BROILER

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum and mean dietary burden													
Potato culls	VR	0.02	Highest/median	20	0.10	–	10	–	–	–	0.01	–	–
Corn gluten feed	CM/CF	0.02	Median-P	40	0.05	–	10	–	–	–	0.005	–	–
Corn, field milled bypdts	CM/CF	0.02	Median-P	85	0.02	50	50	–	–	0.012	0.012	–	–
Corn, field hominy meal	CM/CF	0.02	STMR	88	0.02	–	–	20	–	–	–	0.005	–
Potato dried pulp	AB	0.02	Median-P	88	0.02	–	20	–	–	–	0.005	–	–
Soybean seed	VD	0.02	STMR	89	0.02	20	10	15	–	0.004	0.002	0.003	–
Soybean meal	SM	0.02	Median-P	92	0.02	25		25	35	0.01	–	0.005	0.008
					Total	95	100	60	35	0.022	**0.034**	0.013	0.008

METAFLUMIZONE (236) POULTRY LAYER

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum and mean dietary burden													
Potato culls	VR	0.02	Highest/median	20	0.10	–	10	–	–	–	0.01	–	–
Corn gluten feed	CM/CF	0.02	Median-P	40	0.05	–	–	–	10	–	–	–	0.005
Corn gluten meal	CM/CF	0.02	Median-P	40	0.05	–	10	–	–	–	0.005	–	–
Corn, field milled bypdts	CM/CF	0.02	Median-P	85	0.02	50	40	–	–	0.012	0.009	–	–
Corn, field hominy meal	CM/CF	0.02	STMR	88	0.02	–	–	20	–	–	–	0.005	–
Potato dried pulp	AB	0.02	Median-P	88	0.02	–	15	–	–	–	0.003	–	–
Soybean seed	VD	0.02	STMR	89	0.02	20	15	15		0.004	0.003	0.003	
Soybean meal	SM	0.02	Median-P	92	0.02	25	10	25	30	0.005	0.002	0.005	0.007
					Total	95	100	60	40	0.02	**0.033**	0.013	0.01

METAYLPICOXAMID (346) BEEF CATTLE

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum and mean dietary burden													
Soybean asp gr fn	SM	0.02	Median-P	85	0.02	5	–	–	–	0.001	–	–	–
Soybean seed	VD	0.02	STMR	89	0.02	5	10	20	15	0.001	0.002	0.004	0.003
Soybean meal	SM	0.02	Median-P	92	0.02	–	20	10	65	–	0.004	0.002	0.014
Soybean hulls	SM	0.02	Median-P	90	0.02	10	–	–	–	0.002	–	–	–
Soybean okara	SM	0.02	STMR	92	0.02	–	–	–	20	–	–	–	0.004
					Total	20	30	30	100	0.005	0.007	0.007	**0.022**

METAYLPICOXAMID (346) DAIRY CATTLE

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum and mean dietary burden													
Soybean seed	VD	0.02	STMR	89	0.02	10	10	20	10	0.002	0.002	0.004	0.002
Soybean meal	SM	0.02	Median-P	92	0.02	10	25	15	60	0.002	0.005	0.003	0.013

METAYLPICOXAMID (346) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Total						20	35	35	70	0.004	0.008	0.008	**0.015**

METAYLPICOXAMID (346) **POULTRY BROILER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum and mean dietary burden													
Soybean seed	VD	0.02	STMR	89	0.02	20	20	15	–	0.004	0.004	0.003	–
Soybean meal	SM	0.02	Median-P	92	0.02	25	40	25	35	0.005	0.009	0.005	0.008
					Total	45	60	40	35	0.010	**0.013**	0.009	0.008

METAYLPICOXAMID (346) **POULTRY LAYER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum and mean dietary burden													
Soybean seed	VD	0.02	STMR	89	0.02	20	15	15	–	0.004	0.003	0.003	–
					Total	20	15	15	–	**0.004**	0.003	0.003	–

METCONAZOLE (313) **BEEF CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Barley hay	AF/AS	13	Highest	88	14.77	15	–	100	–	2.216	–	14.77	–
Triticale hay	AF/AS	13	Highest	88	14.77	–	20	–	–	–	2.955	–	–
Barley straw	AF/AS	8.5	Highest	89	9.55	–	10	–	–	–	0.955	–	–
Corn. field forage/silage	AF/AS	2.7	Highest	40	6.75	–	70	–	–	–	4.725	–	–

METCONAZOLE (313) **BEEF CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Cotton gin byproducts	AM/AV	2.65	Highest-P	90	2.94	5	–	–	–	0.147	–	–	–
Sunflower meal	SM	0.068	Median-P	92	0.07	5	–	–	–	0.004	–	–	–
Cotton hulls	SM	0.0345	Median-P	90	0.04	5	–	–	–	0.002	–	–	–
Beet. sugar molasses	DM	0.02	Median-P	75	0.03	10	–	–	–	0.003	–	–	–
Corn gluten feed	CM/CF	0.01	Median-P	40	0.03	60	–	–	25	0.015	–	–	0.006
Beet. sugar dried pulp	AB	0.02	Median-P	88	0.02	–	–	–	5	–	–	–	0.001
Rape meal	SM	0.02	Median-P	88	0.02	–	–	–	15	–	–	–	0.003
Corn. field grain	GC	0.01	STMR	88	0.01	–	–	–	55	–	–	–	0.006
					Total	100	100	100	100	2.386	8.635	**14.77**	0.017
Estimated mean dietary burden													
Barley hay	AF/AS	5.9	Median	88	6.70	15		100	–	1.006		6.705	–
Triticale hay	AF/AS	5.9	Median	88	6.70		20	–	–		1.341	–	–
Cotton gin byproducts	AM/AV	2.65	Median-P	90	2.94	5		–	–	0.147	–	–	–
Barley straw	AF/AS	2.3	Median	89	2.58	–	10	–	–	–	0.258	–	–
Corn. field forage/silage	AF/AS	0.91	Median	40	2.28	–	70	–	–	–	1.593	–	–
Sunflower meal	SM	0.068	Median-P	92	0.07	5	–	–	–	0.003696	–	–	–
Cotton hulls	SM	0.0345	Median-P	90	0.04	5	–	–	–	0.002	–	–	–
Beet. sugar molasses	DM	0.02	Median-P	75	0.03	10	–	–	–	0.003	–	–	–
Corn gluten feed	CM/CF	0.01	Median-P	40	0.03	60	–	–	25	0.015	–	–	0.006
Beet. sugar dried pulp	AB	0.02	Median-P	88	0.02	–	–	–	5	–	–	–	0.001
Rape meal	SM	0.02	Median-P	88	0.02	–	–	–	15	–	–	–	0.003
Corn. field grain	GC	0.01	STMR	88	0.01	–	–	–	55	–	–	–	0.006
					Total	100	100	100	100	1.176	3.192	**6.705**	0.017

METCONAZOLE (313) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Barley hay	AF/AS	13	Highest	88	14.77	20	–	50	–	2.955	–	7.386	–
Triticale hay	AF/AS	13	Highest	88	14.77	–	20	50	–	–	2.955	7.386	–
Oat hay	AF/AS	13	Highest	90	14.44	10	–	–	5	1.444	–	–	0.722
Barley straw	AF/AS	8.5	Highest or HR	89	9.55	–	10	–	–	–	0.955	–	–
Corn. field forage/silage	AF/AS	2.7	Highest	40	6.75	15	30	–	45	1.013	2.025	–	3.038

METCONAZOLE (313) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Soybean silage	AL	1.8	Highest	30	6.00	20	–	–	–	1.200		–	–
Beet. sugar tops	AM/AV	1.2	Highest	23	5.22	–	30	–	–	–	1.565	–	–
Corn. field stover	AF/AS	3.2	Highest	83	3.86	–	10	–	–	–	0.386	–	–
Rape forage	AM/AV	0.13	Highest	30	0.43	10	–	–	–	0.043	–	–	–
Sunflower meal	SM	0.068	Median-P	92	0.07	10	–	–	–	0.007	–	–	–
Cotton undelinted seed	SO	0.0345	STMR	88	0.04	10	–	–	–	0.004	–	–	–
Beet. sugar molasses	DM	0.02	Median-P	75	0.03	5	–	–	–	0.001	–	–	–
Corn gluten feed	CM/CF	0.01	Median-P	40	0.03	–	–	–	25	–	–	–	0.01
Beet. sugar dried pulp	AB	0.02	Median-P	88	0.02	–	–	–	25	–	–	–	0.006
					Total	100	100	100	100	6.667	7.885	**14.77**	3.772
Estimated mean dietary burden													
Barley hay	AF/AS	5.9	Median	88	6.70	20	0	50	–	1.341	0	3.352	–
Triticale hay	AF/AS	5.9	Median	88	6.70	0	20	50	–	0	1.341	3.352	–
Oat hay	AF/AS	5.9	Median	90	6.56	10	–	–	5	0.656	–	–	0.328
Soybean silage	AL	1	Median-P	30	3.33	20	–	–	–	0.667	–	–	–
Barley straw	AF/AS	2.3	Median	89	2.58	0	10	–	–	0	0.258	–	–
Corn. field forage/silage	AF/AS	0.91	Median	40	2.28	15	30	–	45	0.341	0.683	–	1.024
Beet. sugar tops	AM/AV	0.15	Median	23	0.65	0	30	–	–	0	0.196	–	–
Rape forage	AM/AV	0.09	Median	30	0.30	10	–	–	–	0.03	–	–	–
Beet. sugar ensiled pulp	AB	0.02	Median-P	15	0.13	0	10	–	–	0	0.013	–	–
Sunflower meal	SM	0.068	Median-P	92	0.07	10	–	–	–	0.007	–	–	–
Cotton undelinted seed	SO	0.0345	STMR	88	0.04	10	–	–	–	0.004	–	–	–
Beet. sugar molasses	DM	0.02	Median-P	75	0.03	5	–	–	–	0.001	–	–	–
Corn gluten feed	CM/CF	0.01	Median-P	40	0.03	0	–	–	25	0	–	–	0.006
Beet. sugar dried pulp	AB	0.02	Median-P	88	0.02	0	–	–	25	0	–	–	0.006
					Total	100	100	100	100	3.05	2.49	**6.70**	1.36

METCONAZOLE (313) **POULTRY BROILER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum and mean dietary burden													
Sunflower meal	SM	0.068	Median-P	92	0.07	25	10	15	–	0.018	0.007	0.011	–
Pea seed	VD	0.041	STMR	90	0.05	20	20	5	–	0.009	0.009	0.002	–

METCONAZOLE (313) **POULTRY BROILER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Bean seed	VD	0.04	STMR	88	0.05	–	–	65	–	–	–	0.03	–
Corn gluten feed	CM/CF	0.01	Median-P	40	0.03	–	10	–	–	–	0.003	–	–
Canola meal	SM	0.02	Median-P	88	0.02	–	8	–	–	–	0.002	–	–
Rape meal	SM	0.02	Median-P	88	0.02	–		–	5	–	–	–	0.001
Corn. field milled bypdts	CM/CF	0.01	Median-P	85	0.01	50	52	–	–	0.01	0.006	–	–
Corn field grain	GC	0.01	STMR	88	0.01	5	–	–	70	0.001	–	–	0.008
Corn field hominy meal	CM/CF	0.01	Median-P	88	0.01	–	–	15	–	–	–	0.002	–
Soybean meal	SM	0.01	Median-P	92	0.01	–	–	–	25	–	–	–	0.003
					Total	100	100	100	100	0.034	0.027	**0.045**	0.012

METCONAZOLE (313) **POULTRY LAYER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Wheat hay	AF/AS	13	Highest	88	14.77	–	10	–	–	–	1.477	–	–
Soybean silage	AL	1.8	Highest	30	6.00	–	10	–	–	–	0.6	–	–
Beet. sugar tops	AM/AV	1.2	Highest	23	5.22	–	5	–	–	–	0.261	–	–
Rape forage	AM/AV	0.13	Highest	30	0.43	–	5	–	–	–	0.022	–	–
Sunflower meal	SM	0.068	Median-P	92	0.07	25	10	15	–	0.018	0.007	0.011	–
Pea seed	VD	0.041	STMR	90	0.05	20	20	5	–	0.009	0.009	0.002	–
Bean seed	VD	0.04	STMR	88	0.05	–	–	65	–	–	–	0.03	–
Corn gluten feed	CM/CF	0.01	Median-P	40	0.03	–	–	–	10	–	–	–	0.003
Corn gluten meal	CM/CF	0.01	Median-P)	40	0.03	–	10	–	–	–	0.003	–	–
Rape meal	SM	0.02	Median-P	88	0.02	–	–	–	15	–	–	–	0.003
Corn. field milled bypdts	CM/CF	0.01	Median-P)	85	0.01	50	30	–	–	0.006	0.004	–	–
Corn field grain	GC	0.01	Median or STMR	88	0.01	5	–	–	75	0.001	–	–	0.009
Corn field hominy meal	CM/CF	0.01	STMR	88	0.01	–	–	15	–	–	–	0.002	–
					Total	100	100	100	100	0.034	**2.382**	0.045	0.014
Estimated mean dietary burden													
Wheat hay	AF/AS	5.9	Median	88	6.70	–	10	–	–	–	0.67	–	–
Soybean silage	AL	1	Median	30	3.33	–	10	–	–	–	0.333	–	–
Beet, sugar tops	AM/AV	0.15	Median-P	23	0.65	–	5	–	–	–	0.033	–	–

METCONAZOLE (313) POULTRY LAYER

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Rape forage	AM/AV	0.09	Median	30	0.30	–	5	–	–	–	0.015	–	–
Sunflower meal	SM	0.068	Median-P	92	0.07	25	10	15	–	0.018	0.007	0.011	–
Pea seed	VD	0.041	STMR	90	0.05	20	20	5	–	0.009	0.009	0.002	–
Bean seed	VD	0.04	STMR	88	0.05	–	–	65	–	–	–	0.03	–
Corn gluten feed	CM/CF	0.01	Median-P	40	0.03	–	–	–	10	–	–	–	0.003
Corn gluten meal	CM/CF	0.01	Median-P	40	0.03	–	10	–	–	–	0.003	–	–
Rape meal	SM	0.02	Median-P	88	0.02	–	–	–	15	–	–	–	0.003
Corn field milled bypdts	CM/CF	0.01	Median-P	85	0.01	50	30	–	–	0.006	0.004	–	–
Corn field grain	GC	0.01	STMR	88	0.01	5	–	–	75	0.001	–	–	0.009
Corn field hominy meal	CM/CF	0.01	Median-P	88	0.01	–	–	15	–	–	–	0.002	–
					Total	100	100	100	100	0.034	**1.074**	0.045	0.014

PROQUINAZID (347) BEEF CATTLE

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Barley forage	AF/AS	2	Highest	30	6.67	–	30	50	–	–	2	3.333	–
Oat forage	AF/AS	2	Highest	30	6.67	–	–	50	–	–	–	3.333	–
Triticale hay	AF/AS	0.94	Highest	88	1.07	15	–	–	–	0.160	–	–	–
Apple pomace. wet	AB	0.28	Median-P	40	0.70	–	20	–	–	–	0.14	–	–
Wheat gluten meal	CM/CF	0.02	Median-P	40	0.05	10	15	–	–	0.005	0.008	–	–
Barley grain	GC	0.04	STMR	88	0.05	50	35	–	70	0.023	0.016	–	0.032
Wheat milled bypdts	CM/CF	0.02	Median-P	88	0.02	25	–	–	30	0.006	–	–	0.007
Total						100	100	100	100	0.194	2.163	**6.667**	0.039
Estimated mean dietary burden													
Wheat forage	AF/AS	0.975	Median	25	3.90	–	20	100	–	–	0.78	3.9	–
Barley forage	AF/AS	1.15	Median	30	3.83	–	10	–	–	–	0.383	–	–
Apple pomace. wet	AB	0.28	Median-P	40	0.70	–	20	–	–	–	0.14	–	–
Triticale hay	AF/AS	0.41	Median	88	0.47	15	–	–	–	0.070	–	–	–
Wheat gluten meal	CM/CF	0.02	Median-P	40	0.05	10	15	–	–	0.005	0.008	–	–
Barley grain	GC	0.04	STMR	88	0.05	50	35	–	70	0.023	0.016	–	0.032
Wheat milled bypdts	CM/CF	0.02	Median-P	88	0.02	25	–	–	30	0.006		–	0.007
					Total	100	100	100	100	0.103	1.327	**3.9**	0.039

PROQUINAZID (347) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Barley forage	AF/AS	2	Highest	30	6.67	–	30	50	–	–	2	3.333	–
					Total	–	30	50	–	–	2	**3.333**	–
Estimated mean dietary burden													
Wheat forage	AF/AS	0.975	Median	25	3.90	20	20	60	–	0.78	0.78	2.34	–
					Total	20	20	60	–	0.78	0.78	**2.34**	–

PYRACLOSTROBIN (210) **BEEF CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Peanut hay	AL	24	Highest	85	28.24	–	–	60	–	–	–	16.94	–
Pea vines	AL	7	Highest	25	28.00	–	20	–	–	–	5.6	–	–
Cowpea forage	AL	7	Highest	30	23.33	–	15	40	–	–	3.5	9.333	–
Beet, sugar tops	AM/AV	5.3	Highest	23	23.04	–	20	–	–	–	4.609	–	–
Corn, field stover	AF/AS	19	Highest	83	22.89	15	25	–	–	3.434	5.723	–	–
Alfalfa hay	AL	19.83	Highest	89	22.28	15	–	–	10	3.342	–	–	2.228
Barley straw	AF/AS	19	Highest	89	21.35		20	–	–		4.27	–	–
Citrus dried pulp	AB	3.37	Median-P	91	3.70	10	–	–	–	0.370	–	–	–
Rice straw	AF/AS	2.69	Highest	90	2.99	–	–	–	55	–	–	–	1.644
Cotton gin byproducts	AM/AV	1.575	Highest-P	90	1.75	5	–	–	–	0.088	–	–	–
Barley grain	GC	0.345	STMR	88	0.39	50	–	–	35	0.196	–	–	0.137
Rice bran/pollard	CM/CF	0.14	STMR-P	90	0.16	5	–	–	–	0.008	–	–	–
Total						100	100	100	100	7.437	23.7	26.27	4.009
Estimated maximum dietary burden (without pea and bean vines, not included in the Australian diet)													
Peanut hay	AL	24	Highest	85	28.24	–	–	60	–	–	–	16.94	–
Beet, sugar tops	AM/AV	5.3	Highest	23	23.04	–	20	–	–	–	4.609	–	–
Corn, field stover	AF/AS	19	Highest	83	22.89	15	25	40	–	3.434	5.723	9.157	–
Alfalfa hay	AL	19.83	Highest	89	22.28	15	–	–	10	3.342	–	–	2.228
Barley straw	AF/AS	19	Highest	89	21.35	–	5	–	–	–	1.067	–	–
Alfalfa forage	AL	6.61	Highest	35	18.89	–	50	–	–	–	9.443	–	–

PYRACLOSTROBIN (210) **BEEF CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Citrus dried pulp	AB	3.37	Median-P	91	3.70	10	–	–	–	0.370	–	–	–
Rice straw	AF/AS	2.69	Highest	90	2.99	–	–	–	55	–	–	–	1.644
Cotton gin byproducts	AM/AV	1.575	Highest-P	90	1.75	5	–	–	–	0.088	–	–	–
Barley grain	GC	0.345	STMR	88	0.39	50	–	–	35	0.196	–	–	0.137
Rice bran/pollard	CM/CF	0.14	STMR-P	90	0.16	5	–	–	–	0.008	–	–	–
					Total	100	100	100	100	7.437	20.84	**26.1**	4.009
Estimated mean dietary burden													
Pea vines	AL	5.1	Median	25	20.40	–	20	60	–	–	4.08	12.24	–
Cowpea forage	AL	5.1	Median	30	17.00	–	15	40	–	–	2.55	6.8	–
Alfalfa hay	AL	7.455	Median	89	8.38	15		–	10	1.256		–	0.838
Beet, sugar tops	AM/AV	1.64	Median	23	7.13	–	20	–	–	–	1.426	–	–
Alfalfa forage	AL	1.775	Median	35	5.07	–	45	–	–	–	2.282	–	–
Citrus dried pulp	AB	3.37	Median-P	91	3.70	10	–	–	–	0.370	–	–	–
Corn, field stover	AF/AS	1.5	Median	83	1.81	15	–	–	–	0.271	–	–	–
Cotton gin byproducts	AM/AV	1.575	Median-P	90	1.75	5	–	–	–	0.087	–	–	–
Rice straw	AF/AS	0.856	Median	90	0.95		–	–	55		–	–	0.523
Barley grain	GC	0.345	STMR	88	0.39	50	–	–	35	0.196	–	–	0.137
Rice bran/pollard	CM/CF	0.14	STMR-P	90	0.16	5	–	–	–	0.008	–	–	
					Total	100	100	100	100	2.189	10.34	19.04	1.498
Estimated mean dietary burden (without pea and bean vines, not included in the Australian diet)													
Peanut hay	AL	9	Median	85	10.59	–	–	60	–	–	–	6.353	–
Alfalfa hay	AL	7.455	Median	89	8.38	15	–	40	10	1.256	–	3.351	0.838
Beet, sugar tops	AM/AV	1.64	Median	23	7.13	–	20	–	–	–	1.426	–	–
Alfalfa forage	AL	1.775	Median	35	5.07	–	70	–	–	–	3.55	–	–
Alfalfa silage	AL	1.775	Median	40	4.44	–	10	–	–	–	0.444	–	–
Citrus dried pulp	AB	3.37	Median-P	91	3.70	10	–	–	–	0.370	–	–	–
Corn. field stover	AF/AS	1.5	Median	83	1.81	15	–	–	–	0.271	–	–	–
Cotton gin byproducts	AM/AV	1.575	Median-P	90	1.75	5	–	–	–	0.087	–	–	–
Rice straw	AF/AS	0.856	Median	90	0.95	–	–	–	55	–	–	–	0.523
Barley grain	GC	0.345	STMR	88	0.39	50	–	–	35	0.196	–	–	0.137
Rice bran/pollard	CM/CF	0.14	STMR-P	90	0.16	5	–	–	–	0.008	–	–	–
					Total	100	100	100	100	2.189	5.42	9.704	1.498

PYRACLOSTROBIN (210) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Peanut hay	AL	24	Highest	85	28.24	15	–	60	–	4.235	–	16.94	–
Pea vines	AL	7	Highest	25	28.00	–	20		–	–	5.6	–	–
Bean vines	AL	8.45	Highest	35	24.14	–	–	40	–	–	–	9.657	–
Cowpea forage	AL	7	Highest	30	23.33	5	15	–	–	1.167	3.5	–	–
Beet. sugar tops	AM/AV	5.3	Highest	23	23.04	–	30	–	–	–	6.913	–	–
Corn, field stover	AF/AS	19	Highest	83	22.89	15	20	–	–	3.434	4.578	–	–
Alfalfa hay	AL	19.83	Highest	89	22.28	–	15	–	25	–	3.342	–	5.57
Barley hay	AF/AS	19	Highest	88	21.59	5	–	–		1.080	–	–	
Rye straw	AF/AS	19	Highest	88	21.59	–	–	–	5	–	–	–	1.08
Oat hay	AF/AS	19	Highest	90	21.11	10	–	–		2.111	–	–	
Sorghum, grain silage	AF/AS	1.33	Highest	21	6.33	10	–	–	5	0.633	–	–	0.317
Sorghum, grain forage	AF/AS	1.33	Highest	35	3.80	–	–	–	30	–	–	–	1.14
Citrus dried pulp	AB	3.37	Median-P	91	3.70	10	–	–	–	0.370	–	–	–
Carrot culls	VR	0.3	Highest	12	2.50	10	–	–	–	0.250	–	–	–
Almond hulls	AM/AV	1.55	Media(-P	90	1.72	10	–	–	–	0.172	–	–	–
Barley grain	GC	0.345	STMR	88	0.39	10	–	–	35	0.039	–	–	0.137
Total						100	100	100	100	13.49	23.93	26.6	8.244
Estimated maximum dietary burden (without pea and bean vines. not included in the Australian diet)													
Peanut hay	AL	24	Highest	85	28.24	15	–	60	–	4.235	–	16.94	–
Beet, sugar tops	AM/AV	5.3	Highest	23	23.04	–	30	–	–		6.913	–	–
Corn, field stover	AF/AS	19	Highest	83	22.89	15	20	40	–	3.434	4.578	9.157	–
Alfalfa hay	AL	19.83	Highest	89	22.28	5	40	–	25	1.114	8.912	–	5.57
Barley hay	AF/AS	19	Highest	88	21.59	5	–	–	–	1.080	–	–	
Rye straw	AF/AS	19	Highest	88	21.59	–	–	–	5	–	–	–	1.08
Barley straw	AF/AS	19	Highest	89	21.35	–	10	–	–	–	2.135	–	–
Oat hay	AF/AS	19	Highest	90	21.11	10	–	–	–	2.111	–	–	–
Sorghum, grain silage	AF/AS	1.33	Highest	21	6.33	10	–	–	5	0.633	–	–	0.317
Sorghum, grain forage	AF/AS	1.33	Highest	35	3.80	–	–	–	30	–	–	–	1.14
Citrus dried pulp	AB	3.37	Median-P	91	3.70	10	–	–	–	0.370	–	–	–
Carrot culls	VR	0.3	Highest	12	2.50	10	–	–	–	0.250	–	–	–
Almond hulls	AM/AV	1.55	Median-P	90	1.72	10	–	–	–	0.172	–	–	–
Barley grain	GC	0.345	STMR	88	0.39	10	–	–	35	0.039	–	–	0.137
					Total	100	100	100	100	13.44	22.54	**26.1**	8.244
Estimated mean dietary burden													
Pea vines	AL	5.1	Median	25	20.40	10	20	40	–	2.04	4.08	8.16	–
Cowpea forage	AL	5.1	Median	30	17.00	10	15	20	–	1.7	2.55	3.4	–

PYRACLOSTROBIN (210) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Peanut hay	AL	9	Median	85	10.59	0	–	40	–	0	–	4.235	–
Alfalfa hay	AL	7.455	Median	89	8.38	0	5	–	25	0	0.419	–	2.094
Beet, sugar tops	AM/AV	1.64	Median	23	7.13	0	30	–	–	0	2.139	–	–
Alfalfa forage	AL	1.775	Median	35	5.07	0	30	–	–	0	1.521	–	–
Citrus dried pulp	AB	3.37	Median-P	91	3.70	10	–	–	–	0.370	–	–	–
Corn. field stover	AF/AS	1.5	Median	83	1.81	15	–	–	–	0.271	–	–	–
Almond hulls	AM/AV	1.55	Median-P	90	1.72	10	–	–	–	0.172	–	–	–
Barley hay	AF/AS	1.5	Median	88	1.70	5	–	–	–	0.085	–	–	–
Rye straw	AF/AS	1.5	Median	88	1.70	0	–	–	5	0.000	–	–	0.085
Oat hay	AF/AS	1.5	Median	90	1.67	10	–	–	–	0.167	–	–	
Sorghum, grain silage	AF/AS	0.305	Median	21	1.45	30	–	–	5	0.436	–	–	0.073
Rice straw	AF/AS	0.856	Median	90	0.95	0	–	–	15	0	–	–	0.143
Sorghum, grain forage	AF/AS	0.305	Median	35	0.87	0	–	–	15	0.00	–	–	0.13
Barley grain	GC	0.345	STMR	88	0.39	0	–	–	35	0	–	–	0.137
Total						100	100	100	100	5.241	**10.71**	15.8	2.663
Estimated mean dietary burden (without pea and bean vines. not included in the Australian diet)													
Peanut hay	AL	9	Median	85	10.59	15	0	60	–	1.588	0	6.353	–
Alfalfa hay	AL	7.455	Median	89	8.38	5	40	–	25	0.419	3.351	–	2.094
Grape pomace, wet	AB	1.08	Median-P	15	7.20	0	–	20	–	0	–	1.44	–
Beet, sugar tops	AM/AV	1.64	Median	23	7.13	0	30	–	–	0	2.139	–	–
Alfalfa forage	AL	1.775	Median	35	5.07	0	30	–	–	0	1.521	–	–
Citrus dried pulp	AB	3.37	Median-P	91	3.70	10	–	20	–	0.370	–	0.741	–
Corn, field stover	AF/AS	1.5	Median	83	1.81	15	–	–	–	0.271	–	–	–
Almond hulls	AM/AV	1.55	Median-P	90	1.72	10	–	–	–	0.172	–	–	–
Barley hay	AF/AS	1.5	Median	88	1.70	5	–	–		0.085	–	–	–
Rye straw	AF/AS	1.5	Median	88	1.70	0	–	–	5	0	–	–	0.085
Oat hay	AF/AS	1.5	Median	90	1.67	10	–	–		0.167	–	–	
Sorghum, grain silage	AF/AS	0.305	Median	21	1.45	30	–	–	5	0.436	–	–	0.073
Rice straw	AF/AS	0.856	Median	90	0.95	0	–	–	15	0	–	–	0.143
Sorghum, grain forage	AF/AS	0.305	Median	35	0.87	0	–	–	15	0	–	–	0.131
Barley grain	GC	0.345	STMR	88	0.39	0	–	–	35	0.00	–	–	0.14
					Total	100	100	100	100	3.508	7.011	8.534	2.663

PYRACLOSTROBIN (210) **POULTRY BROILER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Swede roots	VR	0.3	HR	10	3.00	–	10	–	–	–	0.3	–	–
Barley grain	GC	0.345	STMR	88	0.39	75	70	15	10	0.294	0.274	0.059	0.039
Rice grain	GC	0.195	STMR	88	0.22			35	–	–	–	0.078	
Rice bran/pollard	CM/CF	0.14	STMR-P	90	0.16	10	10	20	5	0.016	0.016	0.031	0.008
Cowpea seed	VD	0.059	STMR	88	0.07	10	5	5	–	0.007	0.003	0.003	–
Pea seed	VD	0.059	STMR	90	0.07	5	5	–	–	0.003	0.003	–	–
Canola meal	SM	0.055	Median-P	88	0.06	–	–	5	–	–	–	0.003	–
Sunflower meal	SM	0.055	Median-P	92	0.06	–	–	10	–	–	–	0.006	–
Sorghum grain	GC	0.025	STMR	86	0.03	–	–	10	55	–	–	0.003	0.016
Corn field grain	GC	0.02	STMR	88	0.02	–	–	–	30	–	–	–	0.007
					Total	100	100	100	100	0.320	0.597	0.183	0.07
Estimated mean dietary burden													
Swede roots	VR	0.12	STMR	10	1.20	–	10	–	–	–	0.12	–	–
Barley grain	GC	0.345	STMR	88	0.39	75	70	15	10	0.29	0.274	0.059	0.039
Rice grain	GC	0.195	STMR	88	0.22	–	–	35	–	–	–	0.078	
Rice bran/pollard	CM/CF	0.14	STMR-P	90	0.16	10	10	20	5	0.02	0.016	0.031	0.008
Cowpea seed	VD	0.059	STMR	88	0.07	10	5	5	–	0.007	0.003	0.003	–
Pea seed	VD	0.059	STMR	90	0.07	5	5	–	–	0.00	0.003	–	–
Canola meal	SM	0.055	Median-P	88	0.06	–	–	5	–	–	–	0.003	–
Sunflower meal	SM	0.055	Median-P	92	0.06	–	–	10	–	–	–	0.006	–
Sorghum grain	GC	0.025	STMR	86	0.03	–	–	10	55	–	–	0.003	0.016
Corn field grain	GC	0.02	STMR	88	0.02	–	–		30	–	–	–	0.007
					Total	100	100	100	100	0.320	0.417	0.183	0.07

PYRACLOSTROBIN (210) **POULTRY LAYER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Pea vines	AL	7	Highest	25	28.00	–	10	–	–	–	2.8	–	–
Beet. sugar tops	AM/AV	5.3	Highest	23	23.04	–	5	–	–	–	1.152	–	–
Wheat hay	AF/AS	19	Highest	88	21.59	–	10	–	–	–	2.159	–	–
Swede roots	VR	0.3	Highest	10	3.00	–	10	–	–	–	0.3	–	–

PYRACLOSTROBIN (210) **POULTRY LAYER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Barley grain	GC	0.345	STMR	88	0.39	75	65	15	–	0.294	0.255	0.059	–
Rice grain	GC	0.195	STMR	88	0.22		–	35	–	–	–	0.078	–
Rice bran/pollard	CM/CF	0.14	STMR-P	90	0.16	10	–	20	20	0.016	–	0.031	0.031
Cowpea seed	VD	0.059	STMR	88	0.07	10	–	5	–	0.007	–	0.003	–
Pea seed	VD	0.059	STMR	90	0.07	5	–	–	–	0.00	–	–	–
Canola meal	SM	0.055	Median-P	88	0.06	–	–	5	–	–	–	0.003	–
Sunflower meal	SM	0.055	Median-P	92	0.06	–	–	10	–	–	–	0.006	–
Sorghum, grain	GC	0.025	STMR	86	0.03	–	–	10	55	–	–	0.003	0.016
Corn field grain	GC	0.02	STMR	88	0.02	–	–	–	25	–	–	–	0.006
					Total	100	100	100	100	0.320	**6.666**	0.183	0.053
Estimated maximum dietary burden (without pea vines. not included in Australian diet)													
Beet. sugar tops	AM/AV	5.3	Highest	23	23.04	–	5	–	–	–	1.152	–	–
Wheat hay	AF/AS	19	Highest	88	21.59	–	10	–	–	–	2.159	–	–
Soybean forage	AL	3.22	Highest	56	5.75	–	10	–	–	–	0.575	–	–
Swede roots	VR	0.3	Highest	10	3.00	–	10	–	–	–	0.3	–	–
Barley grain	GC	0.345	STMR	88	0.39	75	65	15	–	0.294	0.255	0.059	–
Rice grain	GC	0.195	STMR	88	0.22	–	–	35	–	–	–	0.078	–
Rice bran/pollard	CM/CF	0.14	STMR-P	90	0.16	10	–	20	20	0.016	–	0.031	0.031
Cowpea seed	VD	0.059	STMR	88	0.07	10	–	5	–	0.007	–	0.003	–
Pea seed	VD	0.059	STMR	90	0.07	5	–	–	–	0.00	–	–	–
Canola meal	SM	0.055	Median-P	88	0.06	–	–	5	–	–	–	0.003	–
Sunflower meal	SM	0.055	Median-P	92	0.06	–	–	10	–	–	–	0.006	–
Sorghum grain	GC	0.025	STMR	86	0.03	–	–	10	55	–	–	0.003	0.016
Corn field grain	GC	0.02	STMR	88	0.02	–	–		25	–	–	–	0.006
					Total	100	100	100	100	0.320	4.441	0.183	0.053
Estimated mean dietary burden													
Pea vines	AL	5.1	Median	25	20.40	–	10	–	–	–	2.04	–	–
Beet, sugar tops	AM/AV	1.64	Median	23	7.13	–	5	–	–	–	0.357	–	–
Wheat hay	AF/AS	1.5	Median	88	1.70	–	10	–	–	–	0.17	–	–
Swede roots	VR	0.12	STMR	10	1.20	–	10	–	–	–	0.12	–	–
Barley grain	GC	0.345	STMR	88	0.39	75	65	15	–	0.294	0.255	0.059	–
Rice grain	GC	0.195	STMR	88	0.22	–	–	35	–	–	–	0.078	–
Rice bran/pollard	CM/CF	0.14	STMR-P	90	0.16	10	–	20	20	0.016	–	0.031	0.031
Cowpea seed	VD	0.059	STMR	88	0.07	10	–	5	–	0.007	–	0.003	–
Pea seed	VD	0.059	STMR	90	0.07	5	–	–	–	0.003	–	–	–
Canola meal	SM	0.055	Median	88	0.06	–	–	5	–	–	–	0.003	–
Sunflower meal	SM	0.055	Median	92	0.06	–	–	10	–	–	–	0.006	–

PYRACLOSTROBIN (210) **POULTRY LAYER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Sorghum grain	GC	0.025	STMR	86	0.03	–	–	10	55	–	–	0.003	0.016
Corn field grain	GC	0.02	STMR	88	0.02	–	–	–	25	–	–	–	0.006
Total						100	100	100	100	0.320	**2.942**	0.183	0.053
Estimated mean dietary burden (without pea vines. not included in Australian diet)													
Beet, sugar tops	AM/AV	1.64	Median	23	7.13	–	5	–	–	–	0.357	–	–
Soybean forage	AL	1.66	Median	56	2.96	–	10	–	–	–	0.296	–	–
Wheat hay	AF/AS	1.5	Median	88	1.70	–	10	–	–	–	0.17	–	–
Swede roots	VR	0.12	STMR	10	1.20	–	10	–	–	–	0.12	–	–
Barley grain	GC	0.345	STMR	88	0.39	75	65	15	–	0.294	0.255	0.059	–
Rice grain	GC	0.195	STMR	88	0.22	–	–	35	–	–	–	0.078	–
Rice bran/pollard	CM/CF	0.14	STMR-P	90	0.16	10	–	20	20	0.016	–	0.031	0.031
Cowpea seed	VD	0.059	STMR	88	0.07	10	–	5	–	0.007	–	0.003	–
Pea seed	VD	0.059	STMR	90	0.07	5	–		–	0.003	–		–
Canola meal	SM	0.055	Median	88	0.06	–	–	5	–	–	–	0.003	–
Sunflower meal	SM	0.055	Median	92	0.06	–	–	10	–	–	–	0.006	–
Sorghum grain	GC	0.025	STMR	86	0.03	–	–	10	55	–	–	0.003	0.016
Corn field grain	GC	0.02	STMR	88	0.02	–	–	–	25	–	–	–	0.006
					Total	100	100	100	100	0.320	1.198	0.183	0.053

PYRIOFENONE (310) **BEEF AND DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum and mean dietary burden													
Grape pomace, wet	AB	0.46	Median-P	15	3.07	–	–	20	–	–	–	6.613	–
					Total	–	–	20	–	–	–	**6.613**	–

PYRIPROXYFEN (200) BEEF CATTLE

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Kale leaves	AM/AV	1.6	HR	15	10.67	–	20	–	–	–	2.133	–	–
Cotton gin byproducts	AM/AV	0.91	Highest-P	90	1.01	5	–	–	–	0.051	–	–	–
Grape pomace. wet	AB	0.145	Median-P	15	0.97	–	–	20	–	–	–	0.193	–
Citrus dried pulp	AB	0.76	Median-P	91	0.84	10	5	10	–	0.084	0.042	0.084	–
Pineapple process waste	AB	0.01	STMR	25	0.04	–	–	30	–	–	–	0.012	–
Cotton undelinted seed	SO	0.01	STMR	88	0.01	–	–	30	–	–	–	0.003	–
Cotton hulls	SM	0.01	Median-P	90	0.01	10	–	10	–	0.001	–	0.001	–
Cotton meal	SM	0.001	Median-P	89	0.00	–	5	–	–	–	0	–	–
					Total	25	30	100	–	0.135	**2.175**	0.293	–
Estimated mean dietary burden													
Kale leaves	AM/AV	0.345	STMR	15	2.30	–	20	–	–	–	0.46	–	–
Cotton gin byproducts	AM/AV	0.91	Median-P	90	1.01	5	–	–	–	0.050556	–	–	–
Grape pomace. wet	AB	0.145	Median-P	15	0.97	–	–	20	–	–	–	0.193	–
Citrus dried pulp	AB	0.76	Median-P	91	0.84	10	5	10	–	0.083	0.042	0.084	–
Pineapple process waste	AB	0.01	STMR	25	0.04	–	–	30	–	–	–	0.012	–
Cotton undelinted seed	SO	0.01	STMR	88	0.01	–	–	30	–	–	–	0.003	–
Cotton hulls	SM	0.01	Median-P	90	0.01	10	–	10	–	0.001	–	0.001	–
Cotton meal	SM	0.001	Median-P	89	0.00	–	5	–	–	–	0	–	–
					Total	25	30	100	–	0.135	**0.502**	0.293	–

PYRIPROXYFEN (200) DAIRY CATTLE

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Kale leaves	AM/AV	1.6	HR	15	10.67	–	20	40	–	–	2.133	4.267	–
Grape pomace. wet	AB	0.145	Median-P	15	0.97	–	–	20	–	–	–	0.193	–
Citrus dried pulp	AB	0.76	Median-P	91	0.84	10	20	10	–	0.084	0.167	0.084	–
Cotton undelinted seed	SO	0.01	STMR	88	0.01	10	10	20	–	0.001	0.001	0.002	–
Cotton hulls	SM	0.01	Median-P	90	0.01	–	–	10	–	–	–	0.001	–
Cotton meal	SM	0.001	Median-P	89	0.00	10	5	–	–	0.000	0	–	–
					Total	30	55	100	–	0.085	2.302	**4.547**	–
Estimated mean dietary burden													

PYRIPROXYFEN (200) DAIRY CATTLE

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Kale leaves	AM/AV	0.345	STMR	15	2.30	–	20	40	–	–	0.46	0.92	–
Grape pomace. wet	AB	0.145	Median-P	15	0.97	0	–	20	–	0	–	0.193	–
Citrus dried pulp	AB	0.76	Median-P	91	0.84	10	20	10	–	0.083	0.167	0.084	–
Cotton undelinted seed	SO	0.01	STMR	88	0.01	10	10	20	–	0.001	0.001	0.002	–
Cotton hulls	SM	0.01	Median-P	90	0.01	0	–	10	–	0	–	0.001	–
Cotton meal	SM	0.001	Median-P	89	0.00	10	5	–	–	0.000	0	–	–
					Total	30	55	100	–	0.085	0.628	**1.2**	–

PYRIPROXYFEN (200) POULTRY BROILER

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum and mean dietary burden													
Cotton meal	SM	0.001	Median-P	89	0.00	20	5	10	–	0.000	0	0.000	–
					Total	20	5	10	–	0.000	0	0.000	–

PYRIPROXYFEN (200) POULTRY LAYER

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Cabbage heads, leaves	AM/AV	0.33	Highest	15	2.20	–	5	–	–	–	0.11	–	–
Cotton meal	SM	0.001	Median-P	89	0.00	20	5	10	–	0.000	0	0	–
					Total	20	10	10	–	0.000	**0.11**	0	–
Estimated mean dietary burden													
Cabbage heads, leaves	AM/AV	0.105	STMR-P	15	0.70	–	5	–	–	–	0.035	–	–
Cotton meal	SM	0.001	Median-P	89	0.00	20	5	10	–	0.000	0	0	–
					Total	20	10	10	–	0.000	**0.035**	0	–

SPIDOXAMAT (348) **BEEF CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Soybean asp gr fn	SM	25.91	Median-P	85	30.48	5	–		–	1.524	–	–	–
Grape pomace. wet	AB	0.54	Median-P	15	3.60	–	–	20	–	–	–	0.72	–
Potato culls	VR	0.66	Highest	20	3.30	30	30	10	–	0.990	0.99	0.33	–
Cabbage heads, leaves	AM/AV	0.46	Highest	15	3.07	–	20	–	–	–	0.613	–	–
Soybean hulls	SM	0.269	Media-P	90	0.30	10	10	–	5	0.030	0.03	–	0.015
Apple pomace, wet	AB	0.1	Media-P	40	0.25	–	20	–	–		0.05	–	–
Citrus dried pulp	AB	0.174	Median-P	91	0.19	10	–	10	–	0.019	–	0.019	–
Potato process waste	AB	0.0075	STMR	12	0.06	20	20	–	–	0.013	0.013	–	–
Soybean seed	VD	0.05	STMR	89	0.06	5	–	20	15	0.003	–	0.011	0.008
Soybean okara	SM	0.05	STMR	92	0.05	–	–		35	–	–	–	0.019
Soybean meal	SM	0.0309	Median-P	92	0.03	–	–	10	45	–	–	0.003	0.015
					Total	80	100	70	100	**2.578**	1.696	1.084	0.058
Estimated mean dietary burden													
Soybean asp gr fn	SM	25.91	Median-P	85	30.48	5	–	–	–	1.524	–	–	–
Grape pomace. wet	AB	0.54	Median-P	15	3.60	–	–	20	–	–	–	0.72	–
Soybean hulls	SM	0.269	Median-P	90	0.30	10	10	–	5	0.030	0.03	–	0.015
Apple pomace, wet	AB	0.1	Median-P	40	0.25	–	20	–	–	–	0.05	–	–
Citrus dried pulp	AB	0.174	Median-P	91	0.19	10	–	10	–	0.019	–	0.019	–
Cabbage heads, leaves	AM/AV	0.0265	Median-P	15	0.18	–	20	–	–	–	0.035	–	–
Potato culls	VR	0.018	Median-P	20	0.09	30	30	10	–	0.027	0.027	0.009	–
Potato process waste	AB	0.0075	STMR	12	0.06	20	20	–	–	0.012	0.013	–	–
Soybean seed	VD	0.05	STMR	89	0.06	5	–	20	15	0.003	–	0.011	0.008
Soybean okara	SM	0.05	STMR	92	0.05	–	–		35	–	–	–	0.019
Soybean meal	SM	0.0309	Median-P	92	0.03	–	–	10	45	–	–	0.003	0.015
					Total	80	100	70	100	**1.615**	0.155	0.763	0.058

SPIDOXAMAT (348) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Grape pomace. wet	AB	0.54	Median-P	15	3.60	–	–	20	–	–	–	0.72	–
Potato culls	VR	0.66	Highest	20	3.30	10	30	10	–	0.330	0.99	0.33	–

SPIDOXAMAT (348) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Cabbage heads, leaves	AM/AV	0.46	Highest	15	3.07	–	20	–	–	–	0.613	–	–
Soybean hulls	SM	0.269	Median-P	90	0.30	10	–	–	–	0.030	–	–	–
Apple pomace. wet	AB	0.1	Median-P	40	0.25	10	10	–	–	0.025	0.025	–	–
Citrus dried pulp	AB	0.174	Median-P	91	0.19	–	10	10	–	–	0.019	0.019	–
Potato process waste	AB	0.0075	STMR	12	0.06	–	10	–	–	–	0.006	–	–
Soybean seed	VD	0.05	STMR	89	0.06	10	10	20	10	0.006	0.006	0.011	0.006
Soybean okara	SM	0.05	STMR	92	0.05	–	–	–	20	–	–	–	0.011
Soybean meal	SM	0.0309	Median-P	92	0.03	–	10	15	40	–	0.003	0.005	0.013
					Total	40	100	75	70	0.391	**1.663**	1.085	0.03
Estimated mean dietary burden													
Grape pomace, wet	AB	0.54	Median-P	15	3.60	–	0	20	–	–	0	0.72	–
Soybean hulls	SM	0.269	Median-P	90	0.30	10	–	–	–	0.030	–	–	–
Apple pomace, wet	AB	0.1	Median-P	40	0.25	10	10	–	–	0.025	0.025	–	–
Citrus dried pulp	AB	0.174	Median-P	91	0.19	0	10	10	–	0	0.019	0.019	–
Cabbage heads, leaves	AM/AV	0.0265	Median-P	15	0.18	0	20		–	0	0.035	–	–
Potato culls	VR	0.018	STMR	20	0.09	10	30	10	–	0.009	0.027	0.009	–
Potato process waste	AB	0.0075	STMR	12	0.06	0	10	–	–	0	0.006	–	–
Soybean seed	VD	0.05	STMR	89	0.06	10	10	20	10	0.006	0.006	0.011	0.006
Soybean okara	SM	0.05	STMR	92	0.05	0	–	–	20	0	–	–	0.011
Soybean meal	SM	0.0309	Median-P	92	0.03	0	10	15	40	0	0.003	0.005	0.013
					Total	40	100	75	70	0.070	0.122	**0.764**	0.030

SPIDOXAMAT (348) **POULTRY BROILER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Potato culls	VR	0.66	Highest	20	3.30	–	10	–	–	–	0.33	–	–
Soybean hulls	SM	0.269	Median-P	90	0.30	–	5	–	–	–	0.015	–	–
Soybean seed	VD	0.05	STMR	89	0.06	20	20	15	–	0.011	0.011	0.008	–
Soybean meal	SM	0.0309	Median-P	92	0.03	25	35	25	35	0.008	0.012	0.008	0.012
Potato dried pulp	AB	0.024	Median-P	88	0.03	–	20	–	–	–	0.005	–	–
					Total	45	90	40	35	0.020	**0.373**	0.017	0.012
Estimated mean dietary burden													

SPIDOXAMAT (348) **POULTRY BROILER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Soybean hulls	SM	0.269	Median-P	90	0.30	–	5	–	–	–	0.015	–	–
Potato culls	VR	0.018	Median	20	0.09	–	10	–	–	–	0.009	–	–
Soybean seed	VD	0.05	STMR	89	0.06	20	20	15	–	0.01	0.011	0.008	–
Soybean meal	SM	0.0309	Median-P	92	0.03	25	35	25	35	0.01	0.012	0.008	0.012
Potato dried pulp	AB	0.024	Median-P	88	0.03	–	20	–	–	–	0.005	–	–
					Total	45	90	40	35	0.02	**0.052**	0.017	0.012

SPIDOXAMAT (348) **POULTRY LAYER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Potato culls	VR	0.66	Highest	20	3.30	–	10	–	–	–	0.33	–	–
Cabbage heads, leaves	AM/AV	0.46	Highest	15	3.07	–	5	–	–	–	0.153	–	–
Soybean hulls	SM	0.269	Median-P	90	0.30	–	5	–	–	–	0.015	–	–
Soybean seed	VD	0.05	STMR	89	0.06	20	15	15	–	0.011	0.008	0.008	–
Soybean meal	SM	0.0309	Median-P	92	0.03	25	20	25	30	0.008	0.007	0.008	0.01
Potato dried pulp	AB	0.024	Median-P	88	0.03	–	15	–	–	–	0.004	–	–
					Total	45	70	40	30	0.020	**0.518**	0.017	0.01
Estimated mean dietary burden													
Soybean hulls	SM	0.269	Median-P	90	0.30	–	5	–	–	–	0.015	–	–
Cabbage heads, leaves	AM/AV	0.0265	Median	15	0.18	–	5	–	–	–	0.009	–	–
Potato culls	VR	0.018	Median	20	0.09	–	10	–	–	–	0.009	–	–
Soybean seed	VD	0.05	STMR	89	0.06	20	15	15	–	0.011	0.008	0.008	–
Soybean meal	SM	0.0309	Median-P	92	0.03	25	20	25	30	0.008	0.007	0.008	0.010
Potato dried pulp	AB	0.024	Median-P	88	0.03	–	15	–	–	–	0.004	–	–
					Total	45	70	40	30	0.020	**0.052**	0.017	0.01

SPINETORAM (233) **BEEF CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Corn, field forage/silage	AF/AS	2.72	Highest	40	6.80	15	80	80	–	1.020	5.44	5.44	–
Beet, sugar tops	AM/AV	0.2	Highest	23	0.87	–	20	–	–	–	0.174	–	–
Rice straw	AF/AS	0.5	Highest	90	0.56	–	–	–	55	–	–	–	0.306
Apple pomace, wet	AB	0.081	Median-P	40	0.20	–	–	20	–	–	–	0.041	–
Potato process waste	AB	0.01	STMR	12	0.08	30	–	–	–	0.025	–	–	–
Potato culls	VR	0.01	Highest	20	0.05	30	–	–	–	0.015	–	–	–
Sugarcane molasses	DM	0.02	Median-P	75	0.03	10	–	–		0.003	–	–	
Corn gluten feed	CM/CF	0.01	Median-P	40	0.03	15	–	–	25	0.004	–	–	0.006
Corn field grain	GC	0.01	STMR	88	0.01	–	–	–	20	–	–	–	0.002
					Total	100	100	100	100	1.066	**5.614**	5.481	0.314
Estimated mean dietary burden													
Beet, mangel fodder	AM/AV		Median	15	0.90	–	30	–	–	–	0.27	–	–
Corn, field forage/silage	AF/AS	0.155	Median	40	0.39	15	70	80		0.058	0.271	0.31	–
Apple pomace, wet	AB	0.15	Median-P	40	0.38	–	–	20	–	–	–	0.075	–
Rice straw	AF/AS	0.16	Median	90	0.18	–	–	–	55	–	–	–	0.098
Citrus dried pulp	AB	0.105	Median-P	91	0.12	10	–	–	–	0.012	–	–	–
Potato culls	VR	0.02	STMR	20	0.10	30	–	–	–	0.03	–	–	–
Corn gluten feed	CM/CF	0.02	Median	40	0.05	45	–	–	25	0.022	–	–	0.013
Corn field grain	GC	0.02	STMR	88	0.02	–	–	–	20	–	–	–	0.005
					Total	100	100	100	100	0.122	**0.541**	0.385	0.115

SPINETORAM (233) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Corn field forage/silage	AF/AS	2.72	Highest	40	6.80	45	60	80	50	3.060	4.08	5.44	3.4
Beet, sugar tops	AM/AV	0.2	Highest	23	0.87	–	30	–	–	–	0.261	–	–
Apple pomace, wet	AB	0.081	Median-P	40	0.20	10	10	10	–	0.020	0.02	0.02	–
Sugarcane bagasse	DM	0.02	Median-P	32	0.06	–	–	10	–	–	–	0.006	–
Potato culls	VR	0.01	Highest	20	0.05	10	–	–	–	0.005	–	–	–
Sugarcane molasses	DM	0.02	Median-P	75	0.03	10	–	–		0.003	–	–	–
Corn gluten feed	CM/CF	0.01	Median-P	40	0.03	25	–	–	25	0.006	–	–	0.006

SPINETORAM (233) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Corn field grain	GC	0.01	STMR	88	0.01	–	–	–	25	–	–	–	0.003
Total						100	100	100	100	3.094	4.361	**5.467**	3.409
Estimated mean dietary burden													
Beet, mangel fodder	AM/AV	0.135	Median	15	0.90	–	25	0	–	–	0.225	0	–
Beet, sugar tops	AM/AV	0.135	Median	23	0.59	0	5	–	–	0	0.029	–	–
Corn, field forage/silage	AF/AS	0.155	Median	40	0.39	45	60	80	50	0.174	0.233	0.31	0.194
Apple pomace, wet	AB	0.15	Median-P	40	0.38	10	10	10	–	0.037	0.038	0.038	–
Citrus dried pulp	AB	0.105	Median-P	91	0.12	0	–	10	–	0	–	0.012	–
Potato culls	VR	0.02	Median	20	0.10	10	–	–	–	0.01	–	–	–
Corn gluten feed	CM/CF	0.02	Median-P	40	0.05	25	–	–	25	0.012	–	–	0.013
Corn gluten meal	CM/CF	0.02	Median	40	0.05	10	–	–	–	0.005	–	–	–
Corn field grain	GC	0.02	STMR	88	0.02	0	–	–	25	0	–	–	0.006
					Total	100	100	100	100	0.239	**0.524**	0.359	0.212

SPINETORAM (233) **POULTRY BROILER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Potato culls	VR	0.01	Highest	20	0.05	–	10	–	–	–	0.005	–	–
Corn gluten feed	CM/CF	0.01	Median-P	40	0.03	–	10	–	–	–	0.003	–	–
Rice grain	GC	0.02	STMR	88	0.02	20	–	50	–	0.005	–	0.011	–
Rice bran/pollard	CM/CF	0.02	STMR-P	90	0.02	10	–	20	5	0.002	–	0.004	0.001
Corn, field milled bypdts	CM/CF	0.01	Median-P	85	0.01	40	50	–	–	0.005	0.006	–	–
Corn field grain	GC	0.01	STMR	88	0.01	30	30	–	70	0.003	0.003	–	0.008
Soybean seed	VD	0.01	STMR	89	0.01	–	–	15	–	–	–	0.002	–
Corn, field hominy meal	CM/CF	0.01	STMR	88	0.01	–	–	15	–	–	–	0.002	–
Soybean meal	SM	0.01	Median-P	92	0.01	–	–	–	25	–	–	–	0.003
					Total	100	100	100	100	0.015	0.017	**0.019**	0.012
Estimated mean dietary burden													
Potato culls	VR	0.02	STMR	20	0.10	–	10	–	–	–	0.01	–	–
Corn gluten feed	CM/CF	0.02	Median	40	0.05	–	10	–	–	–	0.005	–	–
Rice grain	GC	0.04	STMR	88	0.05	20	–	50	–	0.01	–	0.023	–
Rice bran/pollard	CM/CF	0.04	STMR-P	90	0.04	10	–	20	5	0.00	–	0.009	0.002

SPINETORAM (233) **POULTRY BROILER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Corn, field milled bypdts	CM/CF	0.02	Median-P	85	0.02	40	50	–	–	0.009	0.012	–	–
Corn field grain	GC	0.02	STMR	88	0.02	30	30	–	70	0.01	0.007	–	0.016
Soybean seed	VD	0.02	STMR	89	0.02	–	–	15	–	–	–	0.003	–
Cotton meal	SM	0.02	Median-P	89	0.02	–	–	10	–	–	–	0.002	–
Soybean meal	SM	0.02	Median-P	92	0.02	–	–	5	25	–	–	0.001	0.005
					Total	100	100	100	100	0.030	0.034	**0.038**	0.024

SPINETORAM (233) **POULTRY LAYER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Beet, sugar tops	AM/AV	0.2	Highest	23	0.87	–	5	–	–	–	0.043	–	–
Potato culls	VR	0.01	Highest	20	0.05	–	10	–	–	–	0.005	–	–
Corn gluten feed	CM/CF	0.01	Median-P	40	0.03	–	–	–	10	–	–	–	0.003
Corn gluten meal	CM/CF	0.01	Median-P	40	0.03	–	10	–	–	–	0.003	–	–
Rice grain	GC	0.02	STMR	88	0.02	20	–	50	–	0.005	–	0.011	–
Rice bran/pollard	CM/CF	0.02	STMR-P	90	0.02	10	–	20	10	0.002	–	0.004	0.002
Corn, field milled bypdts	CM/CF	0.01	Median-P	85	0.01	40	40	–	–	0.005	0.005	–	–
Corn field grain	GC	0.01	STMR	88	0.01	30	35	–	80	0.003	0.004	–	0.009
Soybean seed	VD	0.01	STMR	89	0.01	–	–	15	–	–	–	0.002	–
Corn, field hominy meal	CM/CF	0.01	STMR	88	0.01	–	–	15	–	–	–	0.002	–
					Total	100	100	100	100	0.015	**0.06**	0.019	0.014
Estimated mean dietary burden													
Beet, sugar tops	AM/AV	0.135	Median	23	0.59	–	5	–	–	–	0.029	–	–
Potato culls	VR	0.02	Median	20	0.10	–	10	–	–	–	0.01	–	–
Corn gluten feed	CM/CF	0.02	Median-P	40	0.05	–	–	–	10	–	–	–	0.005
Corn gluten meal	CM/CF	0.02	Median	40	0.05	–	10	–	–	–	0.005	–	–
Rice grain	GC	0.04	STMR	88	0.05	20	–	50	–	0.009	–	0.023	–
Rice bran/pollard	CM/CF	0.04	STMR-P	90	0.04	10	–	20	10	0.004	–	0.009	0.004
Corn, field milled bypdts	CM/CF	0.02	Median-P	85	0.02	40	40	–	–	0.009	0.009	–	–
Corn field grain	GC	0.02	STMR	88	0.02	30	35	–	80	0.007	0.008	–	0.018
Soybean seed	VD	0.02	STMR	89	0.02	–	–	15	–	–	–	0.003	–
Cotton meal	SM	0.02	Median-P	89	0.02	–	–	10	–	–	–	0.002	–

SPINETORAM (233) **POULTRY LAYER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Soybean meal	SM	0.02	Median-P	92	0.02	–	–	5	–	–	–	0.001	–
					Total	100	100	100	100	0.030	**0.062**	0.038	0.028

THIAMETHOXAM (245) **BEEF CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Rice hulls	CM/CF	95.2	Median-P	90	105.78	–	–	5	–	–	–	5.289	–
Cabbage heads leaves	AM/AV	3	Highest	15	20.00	–	20	–	–	–	4	–	–
Rice grain	GC	17	STMR	88	19.32	20	–	40	–	3.864	–	7.727	–
Rice bran/pollard	CM/CF	9.35	Median-P	90	10.39	15	–	35	20	1.558	–	3.636	2.078
Wheat forage	AF/AS	2	Highest	25	8.00	–	20	20	–	–	1.6	1.6	–
Barley hay	AF/AS	6.7	Highest	88	7.61	15	–	–	–	1.142		–	–
Barley straw	AF/AS	6.7	Highest	89	7.53	–	10	–	–	–	0.753	–	–
Turnip tops (leaves)	AM/AV	1.9	Highest	30	6.33	–	20	–	–	–	1.267	–	–
Swede roots	VR	0.2	HR	10	2.00	–	30	–	–	–	0.6	–	–
Rice straw	AF/AS	1	Highest	90	1.11	–	–	–	55	–	–	–	0.611
Potato culls	VR	0.2	Highest	20	1.00	30	–	–	–	0.300	–	–	
Barley grain	GC	0.112	STMR	88	0.13	20	–		25	0.025	–	–	0.032
					Total	100	100	100	100	6.89	8.22	**18.25**	2.72
Estimated maximum dietary burden													
Rice hulls	CM/CF	95.2	Median-P	90	105.78	–	–	5	–	–	–	5.289	–
Rice grain	GC	17	STMR	88	19.32	20	–	40	–	3.864	–	7.727	–
Rice bran/pollard	CM/CF	9.35	STMR-P	90	10.39	15	–	35	20	1.558	–	3.636	2.078
Cabbage heads, leaves	AM/AV	0.78	Median	15	5.20	–	20	–	–	–	1.04	–	–
Corn, sweet forage	AF/AS	1.5	Median	48	3.13	–	–	20	–	–	–	0.625	–
Turnip tops (leaves)	AM/AV	0.54	STMR	30	1.80	–	20	–	–	–	0.36	–	–
Wheat straw	AF/AS	0.53	Median	88	0.60	10	20	–	–	0.060	0.12	–	–
Barley straw	AF/AS	0.53	Median	89	0.60	–	10	–	–	–	0.06	–	–
Rice straw	AF/AS	0.47	Median	90	0.52	–		–	55	–		–	0.287
Apple pomace, wet	AB	0.11	Median-P	40	0.28	–	20	–	–	–	0.055	–	–
Barley hay	AF/AS	0.2	Median	88	0.23	5	–	–	–	0.011	–	–	–
Triticale hay	AF/AS	0.2	Median	88	0.23	–	10	–	–		0.023	–	–

THIAMETHOXAM (245) **BEEF CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Barley grain	GC	0.112	STMR	88	0.13	30	–	–	25	0.038	–	–	0.032
Distiller's grain dried	SM	0.112	Median-P	92	0.12	20	–	–	–	0.024	–	–	–
					Total	100	100	100	100	5.56	1.66	**17.28**	2.40

THIAMETHOXAM (245) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Rice hulls	CM/CF	95.2	Median-P	90	105.78	–	–	10	–	–	–	10.58	–
Cabbage heads, leaves	AM/AV	3	Highest	15	20.00	–	20	–	–	–	4	–	–
Rice grain	GC	17	STMR	88	19.32	20	–	20	–	3.864	–	3.864	–
Kale leaves	AM/AV	1.9	Highest	15	12.67	–	–	40	–	–	–	5.067	–
Rice bran/pollard	CM/CF	9.35	Median-P	90	10.39	15	20	30	10	1.558	2.078	3.117	1.039
Wheat forage	AF/AS	2	Highest	25	8.00	20	20	–	–	1.600	1.6	–	–
Barley straw	AF/AS	6.7	Highest	89	7.53		10	–	–	–	0.753	–	–
Oat hay	AF/AS	6.7	Highest	90	7.44	10	–	–	5	0.744	–	–	0.372
Turnip tops (leaves)	AM/AV	1.9	Highest	30	6.33	30	–	–	–	1.900	–	–	–
Corn, sweet forage	AF/AS	2.8	Highest	48	5.83	5	–	–	–	0.292	–	–	–
Bean vines	AL	1.4	Highest	35	4.00	–	20	–	–	–	0.8	–	–
Swede roots	VR	0.2	HR	10	2.00	–	10	–	–	–	0.2	–	–
Rice straw	AF/AS	1	Highest	90	1.11	–	–	–	20	–	–	–	0.22
Sorghum, grain forage	AF/AS	0.3	Highest	35	0.86	–	–	–	15	–	–	–	0.129
Barley grain	GC	0.112	STMR	88	0.13	–	–	–	40	–	–	–	0.051
Corn, field forage/silage	AF/AS	0.05	Highest	40	0.13	–	–	–	10	–	–	–	0.013
					Total	100	100	100	100	9.96	9.43	**22.62**	1.83
Estimated mean dietary burden													
Rice hulls	CM/CF	95.2	Median-P	90	105.78	–	0	10	–	–	0	10.58	–
Rice grain	GC	17	STMR	88	19.32	20	–	20	–	3.864	–	3.864	–
Rice bran/pollard	CM/CF	9.35	STMR-P	90	10.39	15	20	30	10	1.558	2.078	3.117	1.039
Cabbage heads, leaves	AM/AV	0.78	Median	15	5.20	0	20	–	–	0	1.04	–	–
Kale leaves	AM/AV	0.54	STMR	15	3.60	0	–	40	–	0	–	1.44	–
Corn, sweet forage	AF/AS	1.5	Median	48	3.13	45	–	–	–	1.406	–	–	–
Bean vines	AL	0.875	Median	35	2.50	0	20	–	–	0	0.5	–	–

THIAMETHOXAM (245) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Turnip tops (leaves)	AM/AV	0.54	STMR	30	1.80	20	–	–	–	0.36	–	–	–
Wheat straw	AF/AS	0.53	Median	88	0.60	0	20	–	–	0	0.12	–	–
Barley straw	AF/AS	0.53	Median	89	0.60	0	20	–	–	0	0.119	–	–
Oat straw	AF/AS	0.53	Median	90	0.59	0	–	–	5	0.000	–	–	0.029
Rice straw	AF/AS	0.47	Median	90	0.52	0	–	–	20	0	–	–	0.104
Sorghum grain forage	AF/AS	0.06	Median	35	0.17	0	–	–	15	0	–	–	0.026
Barley grain	GC	0.112	STMR	88	0.13	0	–	–	40	0	–	–	0.051
Brewer's grain dried	SM	0.112	Median-P	92	0.12	0	–	–	10	0.00	–	–	0.01
					Total	100	100	100	100	7.19	3.86	**19.00**	1.26

THIAMETHOXAM (245) **POULTRY BROILER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Rice grain	GC	17	STMR	88	19.32	20	–	50	–	3.864	–	9.659	–
Rice bran/pollard	CM/CF	9.35	STMR-P	90	10.39	10	10	20	5	1.039	1.039	2.078	0.519
Swede roots	VR	0.2	HR	10	2.00	–	10	–	–	–	0.2	–	–
Cassava/tapioca roots	VR	0.2	HR	37	0.54	–	10	–	–	–	0.054	–	–
Barley grain	GC	0.112	STMR	88	0.13	70	70	–	10	0.089	0.089	–	0.013
Distiller's grain dried	SM	0.112	Median-P	92	0.12	–	–	–	5	–	–	–	0.006
Sorghum grain	GC	0.079	STMR	86	0.09	–	–	30	55	–	–	0.028	0.051
Corn field grain	GC	0.02	STMR	88	0.02	–	–		25	–	–		0.006
					Total	100	100	100	100	4.99	1.38	**11.76**	0.59
Estimated mean dietary burden													
Rice grain	GC	17	STMR	88	19.32	20	–	50	–	3.86	–	9.659	–
Rice bran/pollard	CM/CF	9.35	STMR-P	90	10.39	10	10	20	5	1.04	1.039	2.078	0.519
Barley grain	GC	0.112	STMR	88	0.13	70	70	–	10	0.09	0.089	–	0.013
Oat grain	GC	0.112	STMR	89	0.13	–	20	–		–	0.025	–	
Distiller's grain dried	SM	0.112	Median-P	92	0.12	–	–	–	5	–	–	–	0.006
Sorghum grain	GC	0.079	STMR	86	0.09	–	–	30	55	–	–	0.028	0.051
Corn field grain	GC	0.02	STMR	88	0.02	–	–	–	25	–	–	–	0.006
					Total	100	100	100	100	4.99	1.15	**11.76**	0.59

THIAMETHOXAM (245) **POULTRY LAYER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Cabbage heads leaves	AM/AV	3	Highest	15	20.00	–	5	–	–	–	1	–	–
Rice grain	GC	17	STMR	88	19.32	20	–	50	–	3.864	–	9.659	–
Rice bran/pollard	CM/CF	9.35	STMR-P	90	10.39	10	5	20	20	1.039	0.519	2.078	2.078
Wheat forage	AF/AS	2	Highest	25	8.00	–	10	–	–	–	0.8	–	–
Swede roots	VR	0.2	HR	10	2.00	–	10	–	–	–	0.2	–	–
Cassava/tapioca roots	VR	0.2	HR	37	0.54	–	5	–	–	–	0.027	–	–
Pea vines	AL	0.1	Highest	25	0.40	–	10	–	–	–	0.04	–	–
Rape forage	AM/AV	0.05	Highest	30	0.17	–	5	–	–	–	0.008	–	–
Barley grain	GC	0.112	STMR	88	0.13	70	50	–	–	0.09	0.064	–	–
Distiller's grain dried	SM	0.112	Median-P	92	0.12	–	–	–	5	–	–	–	0.006
Sorghum grain	GC	0.079	STMR	86	0.09	–	–	30	55	–	–	0.028	0.051
Wheat milled bypdts	CM/CF	0.0768	Median-P	88	0.09	–	–	–	20	–	–	–	0.017
					Total	100	100	100	100	4.99	2.66	**11.76**	2.15
Estimated mean dietary burden													
Rice grain	GC	17	STMR	88	19.32	20	–	50	–	3.864	–	9.659	–
Rice bran/pollard	CM/CF	9.35	STMR-P	90	10.39	10	5	20	20	1.039	0.519	2.078	2.078
Cabbage heads leaves	AM/AV	0.78	Median	15	5.20	–	5	–	–	–	0.26	–	–
Wheat straw	AF/AS	0.53	Median	88	0.60	–	10	–	–	–	0.06	–	–
Rape forage	AM/AV	0.05	Median	30	0.17	–	5	–	–	–	0.008	–	–
Pea vines	AL	0.04	Median	25	0.16	–	10	–	–	–	0.016	–	–
Barley grain	GC	0.112	STMR	88	0.13	70	65	–	–	0.089	0.083	–	–
Distiller's grain dried	SM	0.112	Median-P	92	0.12	–	–	–	5	–	–	–	0.006
Sorghum grain	GC	0.079	STMR	86	0.09	–	–	30	55	–	–	0.028	0.05
Wheat milled bypdts	CM/CF	0.0768	Median-P	88	0.09	–	–	–	20	–	–	–	0.017
					Total	100	100	100	100	4.99	0.95	**11.76**	2.15

TIAFENACIL (349) **BEEF CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Wheat forage	AF/AS	0.02	Highest	25	0.08	–	20	100	–	–	0.016	0.08	–
Corn. field forage/silage	AF/AS	0.02	Highest	40	0.05	15	60	–	–	0.008	0.03	–	–

TIAFENACIL (349) **BEEF CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Corn gluten feed	CM/CF	0.02	Median-P	40	0.05	75	20	–	25	0.038	0.01	–	0.013
Corn field stover	AF/AS	0.02	Highest	83	0.02	10	–	–	–	0.002	–	–	–
Corn field grain	GC	0.02	STMR	88	0.02	–	–	–	75	–	–	–	0.017
					Total	100	100	100	100	0.047	**0.056**	0.08	0.03
Estimated mean dietary burden													
Wheat forage	AF/AS	0.02	Median	25	0.08	–	20	100	–	–	0.016	0.08	–
Corn. field forage/silage	AF/AS	0.02	Median	40	0.05	15	60	–	–	0.007	0.03	–	–
Corn gluten feed	CM/CF	0.02	Median-P	40	0.05	75	20	–	25	0.037	0.01	–	0.013
Corn field stover	AF/AS	0.02	Median	83	0.02	10	–	–	–	0.002	–	–	–
Corn field grain	GC	0.02	STMR	88	0.02	–	–	–	75		–	–	0.017
					Total	100	100	100	100	0.047	**0.056**	0.08	0.03

TIAFENACIL (349) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Wheat forage	AF/AS	0.02	Highest or HR	25	0.08	20	20	60	–	0.016	0.016	0.048	–
Soybean silage	AL	0.02	Highest or HR	30	0.07	20	–	40	–	0.013	–	0.027	–
Corn. field forage/silage	AF/AS	0.02	Highest or HR	40	0.05	25	40	–	50	0.013	0.02	–	0.025
Corn gluten feed	CM/CF	0.02	Median-P	40	0.05	25	30	–	25	0.013	0.015	–	0.013
Corn. field grain	GC	0.02	Median or STMR	88	0.02	10	10	–	25	0.002	0.002	–	0.006
					Total	100	100	100	100	0.057	0.053	**0.075**	0.043
Estimated mean dietary burden													
Wheat forage	AF/AS	0.02	Median	25	0.08	20	20	60	–	0.016	0.016	0.048	–
Soybean silage	AL	0.02	Median	30	0.07	20		40	–	0.013	–	0.027	–
Corn, field forage/silage	AF/AS	0.02	Median	40	0.05	25	40	–	50	0.012	0.02	–	0.025
Corn gluten feed	CM/CF	0.02	Median-P	40	0.05	25	30	–	25	0.012	0.015	–	0.013
Corn field grain	GC	0.02	STMR	88	0.02	10	10	–	25	0.002	0.002	–	0.006
					Total	100	100	100	100	0.057	0.053	**0.075**	0.043

TIAFENACIL (349) **POULTRY BROILER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Corn gluten feed	CM/CF	0.02	Median-P	40	0.05	–	10	–	–	–	0.005	–	–
Corn, field milled bypdts	CM/CF	0.02	Median-P	85	0.02	50	50	–	–	0.012	0.012	–	–
Corn field grain	GC	0.02	STMR	88	0.02	50	40	–	70	0.011	0.009	–	0.016
Corn, field hominy meal	CM/CF	0.02	STMR	88	0.02	–	–	20	–	–	–	0.005	–
Wheat milled bypdts	CM/CF	0.02	Median-P	88	0.02	–	–	–	5	–	–	–	0.001
Soybean seed	VD	0.02	STMR	89	0.02	–	–	15	–	–	–	0.003	–
Wheat grain	GC	0.02	STMR	89	0.02	–	–	65	–	–	–	0.015	–
Soybean meal	SM	0.02	Median-P	92	0.02	–	–	–	25	–	–	–	0.005
Total						100	100	100	100	0.023	**0.026**	0.023	0.022
Estimated mean dietary burden													
Corn gluten feed	CM/CF	0.02	Median-P	40	0.05	–	10	–	–	–	0.005	–	–
Corn, field milled bypdts	CM/CF	0.02	Median-P	85	0.02	50	50	–	–	0.01	0.012	–	–
Corn field grain	GC	0.02	STMR	88	0.02	50	40	–	70	0.01	0.009	–	0.016
Corn, field hominy meal	CM/CF	0.02	STMR	88	0.02	–	–	20	–	–	–	0.005	–
Wheat milled bypdts	CM/CF	0.02	Median-P	88	0.02	–	–	–	5	–	–	–	0.001
Soybean seed	VD	0.02	STMR	89	0.02	–	–	15	–	–	–	0.003	–
Wheat grain	GC	0.02	STMR	89	0.02	–	–	65	–	–	–	0.015	–
Soybean meal	SM	0.02	Median-P	92	0.02	–	–	–	25	–	–	–	0.005
Total						100	100	100	100	0.023	**0.026**	0.023	0.022

TIAFENACIL (349) **POULTRY LAYER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Wheat forage	AF/AS	0.02	Highest	25	0.08	–	10	–	–	–	0.008	–	–
Soybean silage	AL	0.02	Highest	30	0.07	–	10	–	–	–	0.007	–	–
Corn gluten feed	CM/CF	0.02	Median-P	40	0.05	–	–	–	10	–	–	–	0.005
Corn gluten meal	CM/CF	0.02	Median-P	40	0.05	–	10	–	–	–	0.005	–	–
Corn, field milled bypdts	CM/CF	0.02	Median-P	85	0.02	50	40	–	–	0.012	0.009	–	–
Corn field grain	GC	0.02	STMR	88	0.02	50	30	–	80	0.011	0.007	–	0.018
Corn, field hominy meal	CM/CF	0.02	STMR	88	0.02	–	–	20	–	–	–	0.005	–
Wheat milled bypdts	CM/CF	0.02	Median-P	88	0.02	–	–	–	10	–	–	–	0.002

TIAFENACIL (349) **POULTRY LAYER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Soybean seed	VD	0.02	STMR	89	0.02	–	–	15	–	–	–	0.003	–
Wheat grain	GC	0.02	STMR	89	0.02	–	–	55	–	–	–	0.012	–
Soybean meal	SM	0.02	Median-P	92	0.02	–	–	10	–	–	–	0.002	–
					Total	100	100	100	100	0.023	**0.036**	0.022	0.025
Estimated mean dietary burden													
Wheat forage	AF/AS	0.02	Median	25	0.08	–	10	–	–	–	0.008	–	–
Soybean silage	AL	0.02	Median	30	0.07	–	10	–	–	–	0.007	–	–
Corn gluten feed	CM/CF	0.02	Median-P	40	0.05	–	–	–	10	–	–	–	0.005
Corn gluten meal	CM/CF	0.02	Median-P	40	0.05	–	10	–	–	–	0.005	–	–
Corn, field milled bypdts	CM/CF	0.02	Median-P	85	0.02	50	40	–	–	0.012	0.009	–	–
Corn field grain	GC	0.02	STMR	88	0.02	50	30	–	80	0.011	0.007	–	0.018
Corn, field hominy meal	CM/CF	0.02	STMR	88	0.02	–	–	20	–	–	–	0.005	–
Wheat milled bypdts	CM/CF	0.02	Median-P	88	0.02	–	–	–	10	–	–	–	0.002
Soybean seed	VD	0.02	STMR	89	0.02	–	–	15	–	–	–	0.003	–
Wheat grain	GC	0.02	STMR	89	0.02	–	–	55	–	–	–	0.012	–
Soybean meal	SM	0.02	Median-P	92	0.02	–	–	10	–	–	–	0.002	–
					Total	100	100	100	100	0.023	**0.036**	0.022	0.025

TRIFLOXYSTROBIN (213) **BEEF CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Pea vines	AL	11	Highest	25	44.00	–	20	–	–	–	8.8	–	–
Beet. mangel fodder	AM/AV	10.9	Highest	100	10.90	–	30	–	–	–	3.27	–	–
Corn. field stover	AF/AS	8.55	Highest	83	10.30	15	25	40	–	1.545	2.575	4.12	–
Rice straw	AF/AS	8.1	Highest	90	9.00	–	–	–	55	–	–	–	4.95
Pea hay	AL	7	Highest	88	7.95	–	5	–	–	–	0.398	–	–
Apple pomace, wet	AB	2.6	Media-P	40	6.50	–	20	–	–	–	1.3	–	–
Potato process waste	AB	0.307	STMR	12	2.56	30	–	–	–	0.768	–	–	–
Cotton gin byproducts	AM/AV	0.71	Highest-P	90	0.79	5	–	–	–	0.039	–	–	–
Sorghum, grain asp gr fn	CM/CF	0.7	Median-P	85	0.82	5	–	–	–	0.041	–	–	–
Rice bran/pollard	CM/CF	0.25	STMR-P	90	0.28	10	–	–	20	0.028	–	–	0.056
Rice grain	GC	0.16	STMR	88	0.18	20	–	–	–	0.036	–	–	

TRIFLOXYSTROBIN (213) **BEEF CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Beet, sugar dried pulp	AB	0.077	Median-P	88	0.09	–	–	–	5	–	–	–	0.004
Wheat milled bypdts	CM/CF	0.062	Median-P	88	0.07	15	–	–	20	0.011	–	–	0.014
					Total	**100**	100	40	100	2.468	**16.34**	4.12	5.02
Estimated maximum dietary burden (without pea vines, not included in the Australian diet)													
Beet, mangel fodder	AM/AV	10.9	Highest	100	10.90	–	30	–	–	–	3.27	–	–
Corn, field stover	AF/AS	8.55	Highest	83	10.30	15	25	40	–	1.545	2.575	4.12	–
Rice straw	AF/AS	8.1	Highest	90	9.00	–	–	20	55	–	–	1.8	4.95
Pea hay	AL	7	Highest	88	7.95	–	25	40	–	–	1.989	3.182	–
Apple pomace. wet	AB	2.6	Median-P	40	6.50	–	20	–	–	–	1.3	–	–
Potato process waste	AB	0.307	STMR	12	2.56	30	–	–	–	0.768	–	–	–
Cotton gin byproducts	AM/AV	0.71	Highest-P	90	0.79	5	–	–	–	0.039	–	–	–
Sorghum grain asp gr fn	CM/CF	0.7	Median-P	85	0.82	5	–	–	–	0.041	–	–	–
Rice bran/pollard	CM/CF	0.25	STMR-P	90	0.28	10	–	–	20	0.028	–	–	0.056
Rice grain	GC	0.16	STMR	88	0.18	20	–	–	–	0.036	–	–	
Beet, sugar dried pulp	AB	0.077	Median-P	88	0.09	–	–	–	5	–	–	–	0.004
Wheat milled bypdts	CM/CF	0.062	Median-P	88	0.07	15	–	–	20	0.011	–	–	0.014
					Total	100	100	100	100	2.468	9.134	9.102	5.024
Estimated mean dietary burden													
Pea vines	AL	2.3	Median	25	9.20	–	20	60	–	–	1.84	5.52	–
Apple pomace, wet	AB	2.6	Median-P	40	6.50	–	20	20	–	–	1.3	1.3	–
Pea hay	AL	4.4	Median	88	5.00	–	5	20	–	–	0.25	1	–
Potato process waste	AB	0.307	STMR	12	2.56	30	20	–	–	0.767	0.512	–	–
Beet, mangel fodder	AM/AV	2.3	Median	100	2.30	–	30	–	–	–	0.69	–	–
Corn, field stover	AF/AS	1.75	Median	83	2.11	15	5	–	–	0.316	0.105	–	–
Rice straw	AF/AS	1.4	Median	90	1.56	–	–	–	55	–	–	–	0.856
Sorghum, grain asp gr fn	CM/CF	0.7	Median-P	85	0.82	5	–	–	–	0.041	–	–	–
Cotton gin byproducts	AM/AV	0.71	Median-P	90	0.79	5	–	–	–	0.039	–	–	–
Rice bran/pollard	CM/CF	0.25	STMR-P	90	0.28	10	–	–	20	0.028	–	–	0.056
Rice grain	GC	0.16	STMR	88	0.18	20	–	–	–	0.036	–	–	–
Beet, sugar dried pulp	AB	0.077	Median-P	88	0.09	–	–	–	5	–	–	–	0.004
Wheat milled bypdts	CM/CF	0.062	Median-P	88	0.07	15	–	–	20	0.011	–	–	0.014
					Total	100	100	100	100	1.239	4.697	7.82	0.93
Estimated mean dietary burden (without pea vines, not included in the Australian diet)													
Apple pomace, wet	AB	2.6	Median-P	40	6.50	–	20	20	–	–	1.3	1.3	–
Pea hay	AL	4.4	Median	88	5.00	–	25	80	–	–	1.25	4	–
Potato process waste	AB	0.307	STMR	12	2.56	30	20	–	–	0.767	0.512	–	–
Beet, mangel fodder	AM/AV	2.3	Median	100	2.30	–	30	–	–	–	0.69	–	–

TRIFLOXYSTROBIN (213) **BEEF CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Corn, field stover	AF/AS	1.75	Median	83	2.11	15	5	–	–	0.316	0.105	–	–
Rice straw	AF/AS	1.4	Median	90	1.56	–	–	–	55	–	–	–	0.856
Sorghum, grain asp gr fn	CM/CF	0.7	Median-P	85	0.82	5	–	–	–	0.041	–	–	–
Cotton gin byproducts	AM/AV	0.71	Median-P	90	0.79	5	–	–	–	0.039	–	–	–
Rice bran/pollard	CM/CF	0.25	Median-P	90	0.28	10	–	–	20	0.028	–	–	0.056
Rice grain	GC	0.16	STMR	88	0.18	20	–	–	–	0.036	–	–	–
Beet, sugar dried pulp	AB	0.077	Median-P	88	0.09	–	–	–	5	–	–	–	0.004
Wheat milled bypdts	CM/CF	0.062	Median-P	88	0.07	15	–	–	20	0.011	–	–	0.014
					Total	100	100	100	100	1.239	3.857	**5.3**	0.93

TRIFLOXYSTROBIN (213) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Pea vines	AL	11	Highest	25	44.00	10	20	40	–	4.400	8.8	17.6	–
Beet, mangel fodder	AM/AV	10.9	Highest	100	10.90	–	25	–	–	–	2.725	–	–
Beet, sugar tops	AM/AV	10.9	Highest	100	10.90	–	5	–	–	–	0.545	–	–
Corn, field stover	AF/AS	8.55	Highest	83	10.30	15	20	40	–	1.545	2.06	4.12	–
Rice straw	AF/AS	8.1	Highest or HR	90	9.00	–	–	–	25	–	–	–	2.25
Pea hay	AL	7	Highest	88	7.95	–	10	20	–	–	0.795	1.591	–
Apple pomace, wet	AB	2.6	Median-P	40	6.50	10	10	–	–	0.650	0.65	–	–
Peanut hay	AL	4.94	Highest	85	5.81	5	–	–	–	0.291	–	–	–
Barley straw	AF/AS	4.9	Highest	89	5.51		10	–	–		0.551	–	–
Almond hulls	AM/AV	1.08	Median-P	90	1.20	10	–	–		0.120	–	–	–
Rice bran/pollard	CM/CF	0.25	STMR-P	90	0.28	15	–	–	10	0.042	–	–	0.028
Rice grain	GC	0.16	STMR	88	0.18	20	–	–		0.036	–	–	
Beet, sugar dried pulp	AB	0.077	Median-P	88	0.09	5	–	–	40	0.004	–	–	0.04
Wheat milled bypdts	CM/CF	0.062	Median-P	88	0.07	10	–	–	25	0.007	–	–	0.018
					Total	100	100	100	100	7.095	**16.13**	23.31	2.33
Estimated maximum dietary burden (without pea vines. not included in the Australian diet													
Beet, mangel fodder	AM/AV	10.9	Highest	100	10.90	–	25	–	–	–	2.725	–	–

TRIFLOXYSTROBIN (213) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Beet, sugar tops	AM/AV	10.9	Highest	100	10.90	–	5	–	–	–	0.545	–	–
Corn, field stover	AF/AS	8.55	Highest	83	10.30	15	20	40	–	1.545	2.06	4.12	–
Rice straw	AF/AS	8.1	Highest	90	9.00	–	–	–	25	–	–	–	2.25
Pea hay	AL	7	Highest	88	7.95	10	30	60	–	0.795	2.386	4.773	–
Apple pomace, wet	AB	2.6	Median-P	40	6.50	10	10	–	–	0.650	0.65	–	–
Peanut hay	AL	4.94	Highest	85	5.81	5	–	–	–	0.291	–	–	–
Barley straw	AF/AS	4.9	Highest	89	5.51	–	10	–	–		0.551	–	–
Almond hulls	AM/AV	1.08	Median-P	90	1.20	10	–	–	–	0.120	–	–	–
Rice bran/pollard	CM/CF	0.25	Median-P	90	0.28	15	–	–	10	0.042	–	–	0.028
Rice grain	GC	0.16	STMR	88	0.18	20	–	–	–	0.036	–	–	
Beet, sugar dried pulp	AB	0.077	Median-P	88	0.09	5	–	–	40	0.004	–	–	0.035
Wheat milled bypdts	CM/CF	0.062	Median-P	88	0.07	10	–	–	25	0.007	–	–	0.02
Total						100	100	100	100	3.491	8.917	8.893	2.33
Estimated mean dietary burden													
Pea vines	AL	2.3	Median	25	9.20	10	20	40	–	0.92	1.84	3.68	–
Apple pomace, wet	AB	2.6	Median-P	40	6.50	10	10	10	–	0.65	0.65	0.65	–
Pea hay	AL	4.4	Median	88	5.00	0	10	50	–	0	0.5	2.5	–
Potato process waste	AB	0.307	STMR	12	2.56	0	20	–	–	0	0.512	–	–
Beet, mangel fodder	AM/AV	2.3	Median	100	2.30	0	25	–	–	0	0.575	–	–
Beet, sugar tops	AM/AV	2.3	Median	100	2.30	0	15	–	–	0	0.345	–	–
Corn, field stover	AF/AS	1.75	Median	83	2.11	15	–	–	–	0.316265	–	–	–
Rice straw	AF/AS	1.4	Median	90	1.56	0	–	–	25	0	–	–	0.389
Almond hulls	AM/AV	1.08	Median-P	90	1.20	10	–	–	–	0.12	–	–	–
Peanut hay	AL	0.85	Median	85	1.00	5	–	–	–	0.05	–	–	–
Rice bran/pollard	CM/CF	0.25	STMR	90	0.28	15	–	–	10	0.042	–	–	0.028
Rice grain	GC	0.16	STMR	88	0.18	20	–	–	–	0.036	–	–	
Beet, sugar dried pulp	AB	0.077	Median-P	88	0.09	5	–	–	40	0.004	–	–	0.035
Wheat milled bypdts	CM/CF	0.062	Median-P	88	0.07	10	–	–	25	0.007	–	–	0.018
					Total	100	100	100	100	2.15	4.42	6.83	0.47
Estimated mean dietary burden (without pea vines. not included in the Australian diet)													
Apple pomace, wet	AB	2.6	Median-P	40	6.50	10	10	10	–	0.65	0.65	0.65	–
Pea hay	AL	4.4	Median	88	5.00	10	30	70	–	0.5	1.5	3.5	–
Potato process waste	AB	0.307	STMR	12	2.56	0	20	–	–	0	0.512	–	–
Beet, mangel fodder	AM/AV	2.3	Median	100	2.30	0	25	–	–	0	0.575	–	–
Beet, sugar tops	AM/AV	2.3	Median	100	2.30	0	15	–	–	0	0.345	–	–
Corn, field stover	AF/AS	1.75	Median	83	2.11	15	–	20	–	0.316	–	0.422	–
Rice straw	AF/AS	1.4	Median	90	1.56	0	–	–	25	0	–	–	0.389

TRIFLOXYSTROBIN (213) **DAIRY CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Almond hulls	AM/AV	1.08	Median-P	90	1.20	10	–	–	–	0.12	–	–	–
Peanut hay	AL	0.85	Median	85	1.00	5	–	–	–	0.05	–	–	–
Rice bran/pollard	CM/CF	0.25	Median-P	90	0.28	15	–	–	10	0.042	–	–	0.028
Rice grain	GC	0.16	STMR	88	0.18	20	–	–	–	0.036	–	–	–
Beet, sugar dried pulp	AB	0.077	Median-P	88	0.09	5	–	–	40	0.004	–	–	0.035
Wheat milled bypdts	CM/CF	0.062	Median-P	88	0.07	10	–	–	25	0.007	–	–	0.018
					Total	100	100	100	100	1.726	3.582	**4.572**	0.469

TRIFLOXYSTROBIN (213) **POULTRY BROILER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum and mean dietary burden													
Rice bran/pollard	CM/CF	0.25	Median-P	90	0.28	10	10	20	5	0.028	0.028	0.056	0.014
Rice grain	GC	0.16	STMR	88	0.18	20	–	50	–	0.036	–	0.091	–
Wheat milled bypdts	CM/CF	0.062	Median-P	88	0.07	40	10	–	–	0.028	0.007	–	–
Barley grain	GC	0.04	STMR	88	0.05	30	70	–	10	0.014	0.032	–	0.005
Soybean seed	VD	0.023	STMR	89	0.03	–	10	15	–	–	0.003	0.004	–
Bean seed	VD	0.021	STMR	88	0.02	–	–	15	–	–	–	0.004	–
Corn field grain	GC	0.02	STMR	88	0.02	–	–	–	60	–	–	–	0.014
Soybean meal	SM	0.0008	Median-P	92	0.00	–	–	–	25	–	–	–	0
					Total	100	100	100	100	0.106	0.069	**0.154**	0.032

TRIFLOXYSTROBIN (213) **POULTRY LAYER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Pea vines	AL	11	Highest	25	44.00	–	10	–	–	–	4.4	–	–
Beet, sugar tops	AM/AV	10.9	Highest	100	10.90	–	5	–	–	–	0.545	–	–
Barley straw	AF/AS	4.9	Highest	89	5.51	–	5	–	–	–	0.275	–	–

TRIFLOXYSTROBIN (213) **POULTRY LAYER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Wheat straw	AF/AS	3.07	Highest	88	3.49	–	5	–	–	–	0.174	–	–
Rice bran/pollard	CM/CF	0.25	Median-P	90	0.28	10	5	20	20	0.028	0.014	0.056	0.056
Rice grain	GC	0.16	STMR	88	0.18	20	–	50	–	0.036	–	0.091	–
Wheat milled bypdts	CM/CF	0.062	Median-P	88	0.07	40	15	–	10	0.028	0.011	–	0.007
Barley grain	GC	0.04	STMR	88	0.05	30	55	–	–	0.014	0.025	–	–
Soybean seed	VD	0.023	STMR	89	0.03	–	–	15	–	–	–	0.004	–
Bean seed	VD	0.021	STMR	88	0.02	–	–	15	–	–	–	0.004	–
Corn field grain	GC	0.02	STMR	88	0.02	–	–	–	70	–	–	–	0.016
					Total	100	100	100	100	0.106	**5.444**	0.154	0.079
Estimated maximum dietary burden (without pea vines. not included in the Australian diet													
Beet, sugar tops	AM/AV	10.9	Highest	100	10.90	–	5	–	–	–	0.545	–	–
Pea hay	AL	7	Highest	88	7.95	–	10	–	–	–	0.795	–	–
Barley straw	AF/AS	4.9	Highest	89	5.51	–	5	–	–	–	0.275	–	–
Wheat straw	AF/AS	3.07	Highest	88	3.49	–	5	–	–	–	0.174	–	–
Rice bran/pollard	CM/CF	0.25	Median-P	90	0.28	10	5	20	20	0.028	0.014	0.056	0.056
Rice grain	GC	0.16	STMR	88	0.18	20	–	50	–	0.036	–	0.091	–
Wheat milled bypdts	CM/CF	0.062	Median-P	88	0.07	40	15	–	10	0.028	0.011	–	0.007
Barley grain	GC	0.04	STMR	88	0.05	30	55	–	–	0.014	0.025	–	–
Soybean seed	VD	0.023	STMR	89	0.03	–	–	15	–	–	–	0.004	–
Bean seed	VD	0.021	STMR	88	0.02	–	–	15	–	–	–	0.004	–
Corn field grain	GC	0.02	STMR	88	0.02	–	–	–	70	–	–	–	0.016
					Total	100	100	100	100	0.106	1.84	0.154	0.079
Estimated mean dietary burden													
Pea vines	AL	2.3	Median	25	9.20	–	10	–	–	–	0.92	–	–
Beet. sugar tops	AM/AV	2.3	Median	100	2.30	–	5	–	–	–	0.115	–	–
Barley straw	AF/AS	0.9	Median	89	1.01	–	5	–	–	–	0.051	–	–
Wheat straw	AF/AS	0.48	Median	88	0.55	–	5	–	–	–	0.027	–	–
Rice bran/pollard	CM/CF	0.25	Median-P	90	0.28	10	5	20	20	0.028	0.014	0.056	0.056
Rice grain	GC	0.16	STMR	88	0.18	20	–	50	–	0.036	–	0.091	
Wheat milled bypdts	CM/CF	0.062	Median-P	88	0.07	40	15	–	10	0.028	0.011	–	0.007
Barley grain	GC	0.04	STMR	88	0.05	30	55	–	–	0.014	0.025	–	–
Soybean seed	VD	0.023	STMR	89	0.03	–	–	15	–	–	–	0.004	–
Bean seed	VD	0.021	STMR	88	0.02	–	–	15	–	–	–	0.004	–
Corn field grain	GC	0.02	STMR	88	0.02	–	–	–	70	–	–	–	0.016
					Total	100	100	100	100	0.106	**1.162**	0.154	0.079
Estimated mean dietary burden (without pea vines. not included in the Australian diet)													
Pea hay	AL	4.4	Median	88	5.00	–	10	–	–	–	0.5	–	–

TRIFLOXYSTROBIN (213) **POULTRY LAYER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Beet, sugar tops	AM/AV	2.3	Median	100	2.30	–	5	–	–	–	0.115	–	–
Barley straw	AF/AS	0.9	Median	89	1.01	–	5	–	–	–	0.051	–	–
Wheat straw	AF/AS	0.48	Median	88	0.55	–	5	–	–	–	0.027	–	–
Rice bran/pollard	CM/CF	0.25	STMR-P	90	0.28	10	5	20	20	0.028	0.014	0.056	0.056
Rice grain	GC	0.16	STMR	88	0.18	20	–	50	–	0.036	–	0.091	–
Wheat milled bypdts	CM/CF	0.062	Median-P	88	0.07	40	15	–	10	0.028	0.011	–	0.007
Barley grain	GC	0.04	STMR	88	0.05	30	55	–	–	0.014	0.025	–	–
Soybean seed	VD	0.023	STMR	89	0.03	–	–	15	–	–	–	0.004	–
Bean seed	VD	0.021	STMR	88	0.02	–	–	15	–	–	–	0.004	–
Corn field grain	GC	0.02	STMR	88	0.02	–	–	–	70	–	–	–	0.016
					Total	100	100	100	100	0.106	0.742	0.154	0.079

Annex 6. Countries, year of surveys and number of individuals included in the GECDE calculations

Table A6.1 Countries, year of surveys and number of individuals included in the GECDE calculations

Country	Year	Subpopulation group[a]	Number of individuals
Austria	2014	Adults, male and female	2169
		Adults, female	1380
	2018	Children and adolescents	574
Bangladesh	2018	Adults, male and female	191
		Adults, female	97
		Children and adolescents	69
		Infants and toddlers	23
Belgium	2014	Adults, male and female	1234
		Adults, female	643
		Children and adolescents	1912
	2002	Infants and toddlers	36
Benin	2012	Adults, male and female	103
Bolivia (Plurinational State of)	2011	Adults, male and female	62
		Adults, female	22
		Children and adolescents	48
Brazil	2009	Adults, male and female	29092
		Adults, female	15830
		Children and adolescents	3808
Bulgaria	2007	Children and adolescents	995
		Infants and toddlers	2409
Burkina Faso	2010	Adults, female	476
China	2002	Adults, male and female	53255
		Adults, female	27960
		Children and adolescents	12079
		Infants and toddlers	838
Croatia	2011	Adults, male and female	2000
	2011	Adults, female	1031
Cyprus	2014	Adults, male and female	532
		Adults, female	268
		Children and adolescents	568
		Infants and toddlers	541
Czechia	2003	Adults, male and female	1666
		Adults, female	873
		Children and adolescents	687
Democratic Republic of the Congo	2016	Adults, female	177
Denmark	2005	Adults, male and female	2025
		Adults, female	1093
		Children and adolescents	675
	2006	Infants and toddlers	1743
Ethiopia	2016	Adults, female	121
Finland	2012	Adults, male and female	1708
		Adults, female	913
	2007	Children and adolescents	306
	2001	Infants and toddlers	1000
France	2014	Adults, male and female	2275
		Adults, female	1314

Country	Year	Subpopulation group[a]	Number of individuals
		Children and adolescents	1982
		Infants and toddlers	203
Greece	2014	Adults, male and female	517
		Adults, female	261
		Children and adolescents	274
Guatemala	2016	Adults, female	222
Hungary	2003	Adults, male and female	1360
		Adults, female	815
India	2015	Adults, female	230
Indonesia	2016	Adults, female	121
Ireland	2008	Adults, male and female	1500
		Adults, female	760
Italy	2006	Adults, male and female	2920
		Adults, female	1611
		Children and adolescents	351
		Infants and toddlers	36
Kenya	2018	Adults, female	195
Lao People's Democratic Republic	2017	Adults, female	70
Latvia	2012	Adults, male and female	1390
		Adults, female	740
		Children and adolescents	1402
		Infants and toddlers	413
Malaysia	2013	Adults, male and female	567
		Adults, female	352
Mexico	2012	Adults, male and female	370
		Adults, female	218
		Children and adolescents	439
		Infants and toddlers	119
Mozambique	2010	Adults, female	103
Netherlands (Kingdom of the)	2012	Adults, male and female	2150
		Adults, female	1078
		Children and adolescents	1723
		Infants and toddlers	440
Nigeria	2011	Adults, female	112
Pakistan	2016	Adults, female	240
Peru	2016	Infants and toddlers	43
Philippines	2016	Adults, male and female	61
		Adults, female	1566
	2000	Children and adolescents	406
Portugal	2015	Adults, male and female	3852
		Adults, female	2032
		Children and adolescents	1154
		Infants and toddlers	806
Republic of Korea	2015	Adults, male and female	16972
		Adults, female	9790
		Children and adolescents	3180
		Infants and toddlers	519
Romania	2012	Adults, male and female	1382
		Adults, female	743
Slovenia	2017	Adults, male and female	835
		Adults, female	437
		Children and adolescents	484
		Infants and toddlers	637
Spain	2013	Adults, male and female	800
		Adults, female	399
	2012	Children and adolescents	1165

Country	Year	Subpopulation group[a]	Number of individuals
		Infants and toddlers	615
Sweden	2010	Adults, male and female	1797
		Adults, female	1005
	2003	Children and adolescents	2491
Tunisia	2010	Adults, male and female	3073
		Adults, female	1931
		Children and adolescents	614
	1997	Infants and toddlers	7
Uganda	2010	Adults, female	174
United Kingdom	2008	Adults, male and female	1571
		Adults, female	880
		Children and adolescents	1317
	2011	Infants and toddlers	2683
United States	2010	Adults, male and female	16256
		Adults, female	8463
		Children and adolescents	5748
		Infants and toddlers	2669

Notes:

[a] Infants and toddlers included ages up to 35 months; children and adolescents included age groups from 3 years up to 14 or 17 years; adults included age groups from 15 or 18 years.

Annex 7. Additional information for the dietary exposure estimates from the GECDE for risk characterization purposes

This annex, introduced in the JMPR report in 2024, is a result of the discussions held within the meeting in 2023 which were captured in the general consideration, "Developments in dietary exposure methodology for pesticide residues in food".

It was concluded that when there is, for at least one subpopulation, an exceedance of the ADI from dietary exposures estimated using the GECDE (mean or high) that additional information be provided to assist in characterizing risk and in informing risk-management decisions. This information included the number of subpopulations for which the ADI was exceeded (included in Chapter 4 of this report) and the foods that were major contributors to the dietary exposure estimates (provided in this annex). "Rank", as used in the context of high contributors in this annex, refers to the first, second or third highest contributors to estimated dietary exposures. The data presented in this annex is provided for the first three highest contributors.

For some chemicals, there was no exceedance of the ADI for any subpopulation groups for the GECDE-mean. For these chemicals, the contributors are presented based on the results from the GECDE-high. It should be noted that within these results, the commodities and reported contributions are likely to be skewed as a result of there being one commodity in the calculation of the dietary exposure based on a consumption value at the highest reliable percentile (HRP) for consumers only. All other foods have consumption values at the mean for all survey respondents. No additional information is provided at this stage as to which commodity is the one for which the HRP was used in the GECDE-high calculation, or where these may have been captured within the results presented.

The meeting noted that this kind of information may trigger more in-depth considerations of the exceedance in relation to possible toxicological refinements and/or more detailed analysis of the contribution of foods as consumed. In this respect, the meeting considered that further elaboration and guidance for risk assessment, risk communication and the consequent risk management, if needed, is warranted.

Consequently, the content of this annex may be modified, refined or changed during subsequent JMPR meetings. This may also result from further analyses of relevant results undertaken by experts at the meeting and/or based on feedback from risk managers on the usefulness of such information.

Table A7.1 Azoxystrobin

Food commodity	Range of contributions to the GECDE-high (%)		Number of subpopulations where this food ranks among the top three contributors (n)		
	Minimum	Maximum	Rank 1	Rank 2	Rank 3
Sorghum, grains dry	98	99	5	0	0
Group of herbs, dried	18	98	14	17	11
Group of citrus fruits, whole fruit	50	96	8	3	1
Group of herbs, raw	4	96	16	8	13
Group of bulb vegs, raw	4	95	4	10	11
Potato, raw	19	90	36	19	12
Strawberry, raw	5	74	2	8	4

Food commodity	Range of contributions to the GECDE-high (%)		Number of subpopulations where this food ranks among the top three contributors (n)		
	Minimum	Maximum	Rank 1	Rank 2	Rank 3
Group of stone fruits, w/o stones	5	73	5	6	12
Group of citrus fruits, flesh	12	34	0	1	6
Group of brassica vegs, raw	12	28	0	7	12
Group of legume vegs, raw	4	6	0	1	2
Carrot, raw	3	3	0	0	1
Chilli peppers, dried	1	1	0	0	2

Note: There were no exceedances of the ADI at the GECDE-mean, therefore no rank contributor information was provided. Results are therefore shown for the GECDE-high. Note qualifiers in previous text about this information.

Table A7.2 Bifenthrin

Food commodity	Range of contributions to the GECDE-high (%)		Number of subpopulations where this food ranks among the top three contributors (n)		
	Minimum	Maximum	Rank 1	Rank 2	Rank 3
Subgroup of tea green & black, dry	91	94	9	0	0
Mustard greens, raw	91	94	5	0	0
Strawberry, raw	12	90	6	0	5
Blueberries, raw	6	86	9	2	3
Celery, raw	24	82	3	10	1
Cranberry, raw	33	78	1	5	3
Group of pome fruits, raw	16	41	0	4	6
Subgroup of peppers, raw	24	24	0	1	0
Group of brassica vegs, raw	22	22	0	1	1
Subgroup of peaches, w/o stones	20	20	0	1	0
Wheat, grains dry	8	16	0	9	9
Group of root & tuber vegs, raw	6	6	0	0	1

Note: There were no exceedances of the ADI at the GECDE-mean, therefore no rank contributor information was provided. Results are therefore shown for the GECDE-high. Note qualifiers in previous text about this information.

Table A7.3 Boscalid

Food commodity	Range of contributions to the GECDE-mean (%)		Number of subpopulations where this food ranks among the top three contributors (n)		
	Minimum	Maximum	Rank 1	Rank 2	Rank 3
Group of stalk & stem vegs, raw	5	62	9	9	9
Subgroup of cane berries, raw	3	11	0	0	5

Table A7.4 Cyantraniliprole

Food commodity	Range of contributions to the GECDE-mean (%)		Number of subpopulations where this food ranks among the top three contributors (n)		
	Minimum	Maximum	Rank 1	Rank 2	Rank 3
Group of leafy vegs, raw	21	60	5	3	0
Group of milks	5	19	0	2	5

Table A7.5 Cyprodinil

Food commodity	Range of contributions to the GECDE-mean (%)		Number of subpopulations where this food ranks among the top three contributors (n)		
	Minimum	Maximum	Rank 1	Rank 2	Rank 3
Subgroup of leafy greens, raw	13	77	15	9	0
Pomegranate, flesh	5	18	0	2	10
Subgroup of low growing berries, raw	5	10	0	4	4
Subgroup of bush berries, raw	7	7	0	0	1

Table A7.6 Difenoconazole

Food commodity	Range of contributions to the GECDE-mean (%)		Number of subpopulations where this food ranks among the top three contributors (n)		
	Minimum	Maximum	Rank 1	Rank 2	Rank 3
Rice, husked dry	3	92	10	1	0
Sweet potatoes, raw	1	91	2	0	2
Group of pome fruits, raw	1	54	30	40	40
Potato, raw	1	44	33	26	20
Blueberries, raw	9	13	0	0	2
Spring onion, raw	9	11	0	6	8
Mango, flesh	5	5	0	2	0
Group of mammalian edible offal	1	2	0	0	2
Maize, refined flour	1	1	0	0	1

Table A7.7 Flubendiamide

Food commodity	Range of contributions to the GECDE-high (%)		Number of subpopulations where this food ranks among the top three contributors (n)		
	Minimum	Maximum	Rank 1	Rank 2	Rank 3
Subgroup of tea green & black, dry	95	98	12	0	0
Celery, raw	14	77	10	7	4
Group of stone fruits, w/o stones	2	71	11	12	6
Group of milks	1	50	0	11	7
Group of legume vegs, raw	37	43	0	0	9
Tomato, paste	1	3	0	3	1
Grapes, raw	2	2	0	0	1
Group of milk fats	1	2	0	0	5

Note: There were no exceedances of the ADI at the GECDE–mean, therefore no rank contributor information was provided. Results are therefore shown for the GECDE–high. Note qualifiers in previous text about this information.

Table A7.8 Fluopyram

Food commodity	Range of contributions to the GECDE-mean (%)		Number of subpopulations where this food ranks among the top three contributors (n)		
	Minimum	Maximum	Rank 1	Rank 2	Rank 3
Group of milks	3	77	123	100	84
Rice, husked dry	10	24	1	2	1
Subgroup of green onions, raw	6	21	0	17	13
Basil leaves, raw	6	17	0	2	4

Food commodity	Range of contributions to the GECDE-mean (%)		Number of subpopulations where this food ranks among the top three contributors (n)		
	Minimum	Maximum	Rank 1	Rank 2	Rank 3
Subgroup of cherries, w/o stones	7	12	1	2	3
Subgroup of bush berries, raw	5	9	0	0	10
Group of mammalian edible offal	5	8	0	0	2
Group of eggs	4	8	0	2	1
Group of avian edible offal	7	7	0	0	2
Subgroup of peaches, w/o stones	4	4	0	0	3
Group of pome fruits, raw	3	3	0	0	2

Table A7.9 Mefentrifluconazole

Food commodity	Range of contributions to the GECDE–mean (%)		Number of subpopulations where this food ranks among the top three contributors (n)		
	Minimum	Maximum	Rank 1	Rank 2	Rank 3
Subgroup of leafy greens, raw	27	78	4	3	
Subgroup of cherries, w/o stones	8	9	0	0	3
Group of milks	4	4	0	1	0
Subgroup of peaches, w/o stones	4	4	0	0	1

Table A7.10 Spinetoram

Food commodity	Range of contributions to the GECDE-mean (%)		Number of subpopulations where this food ranks among the top three contributors (n)		
	Minimum[a]	Maximum[a]	Rank 1	Rank 2	Rank 3
Subgroup of tea green & black, dry	2	100	13	4	0
Group of milks	0	0	0	5	4
Tomato, raw	0	0	0	3	4
Peach, w/o stone	0	0	0	1	1
Spinach, raw	0	0	0	0	4

Note:
[a] All zeros are <1 percent contribution that rounded to zero.

Table A7.11 Trifloxystrobin

Food commodity	Range of contributions to the GECDE–high (%)		Number of subpopulations where this food ranks among the top three contributors (n)		
	Minimum	Maximum	Rank 1	Rank 2	Rank 3
Spinach, raw	3	98	16	11	9
Papaya, flesh	7	14	0	2	0
Group of stone fruits, w/o stones	1	6	0	2	3
Subgroup of oranges, whole fruit	5	5	0	0	1
Strawberry, raw	2	5	0	1	1
Group of pome fruits, raw	4	4	0	0	1

Note: There were no exceedances of the ADI at the GECDE-mean, therefore no rank contributor information was provided. Results are therefore shown for the GECDE-high. Note qualifiers in previous text about this information.

Annex 8. Reports and other documents resulting from previous joint meetings of the FAO panel of experts on pesticide residues in food and the environment and the WHO core assessment group on pesticide residues

1. Principles governing consumer safety in relation to pesticide residues. Report of a meeting of a WHO Expert Committee on Pesticide Residues held jointly with the FAO Panel of Experts on the Use of Pesticides in Agriculture. FAO Plant Production and Protection Division Report, No. PL/1961/11; WHO Technical Report Series, No. 240, 1962.

2. Evaluation of the toxicity of pesticide residues in food. Report of a Joint Meeting of the FAO Committee on Pesticides in Agriculture and the WHO Expert Committee on Pesticide Residues. FAO Meeting Report, No. PL/1963/13; WHO/Food Add./23, 1964.

3. Evaluation of the toxicity of pesticide residues in food. Report of the Second Joint Meeting of the FAO Committee on Pesticides in Agriculture and the WHO Expert Committee on Pesticide Residues. FAO Meeting Report, No. PL/1965/10; WHO/Food Add./26.65, 1965.

4. Evaluation of the toxicity of pesticide residues in food. FAO Meeting Report, No. PL/1965/10/1; WHO/Food Add./27.65, 1965.

5. Evaluation of the hazards to consumers resulting from the use of fumigants in the protection of food. FAO Meeting Report, No. PL/1965/10/2; WHO/Food Add./28.65, 1965.

6. Pesticide residues in food. Joint report of the FAO Working Party on Pesticide Residues and the WHO Expert Committee on Pesticide Residues. FAO Agricultural Studies, No. 73; WHO Technical Report Series, No. 370, 1967.

7. Evaluation of some pesticide residues in food. FAO/PL:CP/15; WHO/Food Add./67.32, 1967.

8. Pesticide residues. Report of the 1967 Joint Meeting of the FAO Working Party and the WHO Expert Committee. FAO Meeting Report, No. PL:1967/M/11; WHO Technical Report Series, No. 391, 1968.

9. 1967 Evaluations of some pesticide residues in food. FAO/PL:1967/M/11/1; WHO/Food Add./68.30, 1968.

10. Pesticide residues in food. Report of the 1968 Joint Meeting of the FAO Working Party of Experts on Pesticide Residues and the WHO Expert Committee on Pesticide Residues. FAO Agricultural Studies, No. 78; WHO Technical Report Series, No. 417, 1968.

11. 1968 Evaluations of some pesticide residues in food. FAO/PL:1968/M/9/1; WHO/Food Add./69.35, 1969.

12. Pesticide residues in food. Report of the 1969 Joint Meeting of the FAO Working Party of Experts on Pesticide Residues and the WHO Expert Group on Pesticide Residues. FAO Agricultural Studies, No. 84; WHO Technical Report Series, No. 458, 1970.

13. 1969 Evaluations of some pesticide residues in food. FAO/PL:1969/M/17/1; WHO/Food Add./70.38, 1970.

14. Pesticide residues in food. Report of the 1970 Joint Meeting of the FAO Working Party of Experts on Pesticide Residues and the WHO Expert Committee on Pesticide Residues. FAO Agricultural Studies, No. 87; WHO Technical Report Series, No. 4574, 1971.

15. 1970 Evaluations of some pesticide residues in food. AGP:1970/M/12/1; WHO/Food Add./71.42, 1971.

16. Pesticide residues in food. Report of the 1971 Joint Meeting of the FAO Working Party of Experts on Pesticide Residues and the WHO Expert Committee on Pesticide Residues. FAO Agricultural Studies, No. 88; WHO Technical Report Series, No. 502, 1972.

17. 1971 Evaluations of some pesticide residues in food. AGP:1971/M/9/1; WHO Pesticide Residue Series, No. 1, 1972.

18. Pesticide residues in food. Report of the 1972 Joint Meeting of the FAO Working Party of Experts on Pesticide Residues and the WHO Expert Committee on Pesticide Residues. FAO Agricultural Studies, No. 90; WHO Technical Report Series, No. 525, 1973.

19. 1972 Evaluations of some pesticide residues in food. AGP:1972/M/9/1; WHO Pesticide Residue Series, No. 2, 1973.

20. Pesticide residues in food. Report of the 1973 Joint Meeting of the FAO Working Party of Experts on Pesticide Residues and the WHO Expert Committee on Pesticide Residues. FAO Agricultural Studies, No. 92; WHO Technical Report Series, No. 545, 1974.

21. 1973 Evaluations of some pesticide residues in food. FAO/AGP/1973/M/9/1; WHO Pesticide Residue Series, No. 3, 1974.

22. Pesticide residues in food. Report of the 1974 Joint Meeting of the FAO Working Party of Experts on Pesticide Residues and the WHO Expert Committee on Pesticide Residues. FAO Agricultural Studies, No. 97; WHO Technical Report Series, No. 574, 1975.

23. 1974 Evaluations of some pesticide residues in food. FAO/AGP/1974/M/11; WHO Pesticide Residue Series, No. 4, 1975.

24. Pesticide residues in food. Report of the 1975 Joint Meeting of the FAO Working Party of Experts on Pesticide Residues and the WHO Expert Committee on Pesticide Residues. FAO Plant Production and Protection Series, No. 1; WHO Technical Report Series, No. 592, 1976.

25. 1975 Evaluations of some pesticide residues in food. AGP:1975/M/13; WHO Pesticide Residue Series, No. 5, 1976.

26. Pesticide residues in food. Report of the 1976 Joint Meeting of the FAO Panel of Experts on Pesticide Residues and the Environment and the WHO Expert Group on Pesticide Residues. FAO Food and Nutrition Series, No. 9; FAO Plant Production and Protection Series, No. 8; WHO Technical Report Series, No. 612, 1977.

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Annex 9. Errata: Corrections to the 2024 JMPR report

Contributors

The Secretariat sincerely apologizes for the following errors:

- The name of Dr Sangeeta Khare, Subject matter expert (microbiome), United States of America, was inadvertently omitted from the list of participants.
- The title of Dr Luc Ingenbleek, World Health Organization, Geneva, Switzerland, was incorrectly listed.
- The role of Prof Angelo Moretto, University of Padova, Occupational Health Unit, Padova University Hospital, Padova, Italy, was incorrectly listed as “Chair” rather than “Co-Chair”.

5.9 Cyclobutrifluram (339)

Table A9.1 Levels relevant to risk assessment of cyclobutrifluram

Species	Study	Effect	NOAEL	LOAEL
Mouse	90-day study of toxicity[a]	Toxicity	120 ppm, equal to 16.8 mg/kg bw per day	700 ppm, equal to 93.8 mg/kg bw per day
	78-week study of toxicity and carcinogenicity[a]	Toxicity	400 ppm, equal to 47.8 mg/kg bw per day[c]	–
		Carcinogenicity	400 ppm, equal to 47.8 mg/kg bw per day[c]	–
Rat	Acute neurotoxicity study[b]	Neurotoxicity	2000 mg/kg bw[c]	–
	90-day study of toxicity[a]	Toxicity	700 ppm, equal to 51.1 mg/kg bw per day	2500 ppm, equal to 187.0 mg/kg bw per day
	Two-year studies of toxicity and carcinogenicity[a]	Toxicity	500 ppm, equal to 23.0 mg/kg bw per day[c]	–
		Carcinogenicity	500 ppm, equal to 23.0 mg/kg bw per day[c]	–

Species	Study	Effect	NOAEL	LOAEL
	Two-generation study of reproductive toxicity[a]	Reproductive toxicity	700 ppm, equal to 43.1 mg/kg bw per day[c]	–
		Parental toxicity	700 ppm, equal to 43.1 mg/kg bw per day	–
		Offspring toxicity	700 ppm, equal to 43.1 mg/kg bw per day[c]	–
	Developmental toxicity study[b]	Maternal toxicity	250 mg/kg bw per day [c]	-
		Embryo/fetal toxicity	250 mg/kg bw per day[c]	–
Rabbit	Developmental toxicity study[b]	Maternal toxicity	75 mg/kg bw per day	125 mg/kg bw per day
		Embryo/fetal toxicity	125 mg/kg bw per day[c]	–
Dog	13-week study of toxicity[f]	Toxicity	100 mg/kg bw per day	300 mg/kg bw per day
Metabolites				
SYN510260 (2-trifluoromethyl)-pyridine-3-carboxylic acid)				
Rat	Acute oral toxicity	Acute toxicity	LD_{50} >5000 mg/kg bw	
Trifluoroacetic acid (TFA Na)				
Rat	90-day study of toxicity[a]	Toxicity	160 ppm, equal to 9.9 mg/kg bw per day[g]	1600 ppm, equal to 98 mg/kg bw per day[g]
	Extended one generation reproductive toxicity[a]	Offspring toxicity	3000/1500 ppm equal to 223 mg/kg bw per day[c, g]	–
		Reproductive toxicity	3000/1500 ppm equal to 223 mg/kg bw per day[c, g]	–
		Parental toxicity	120/60 ppm equal to 8.65 m/kg bw per day[g]	600/300 ppm equal to 44.3 mg/kg bw per day[g]
	Developmental toxicity study[b]	Embryo and fetal toxicity	150 mg/kg bw per day[c, g]	–
		Maternal toxicity	150 mg/kg bw per day[c, g]	–
Rabbits	Developmental toxicity study[b, d]	Embryo/fetal toxicity	60 mg/kg bw per day[g]	180 mg/kg bw per day[g]
		Maternal toxicity	30 mg/kg bw per day[g]	60 mg/kg bw per day[g]

Notes: See Table 5.9.2 in the report.

[a] Dietary administration.

[b] Gavage administration.

[c] Highest dose tested.

[d] Two or more studies combined.

[e] Lowest dose tested.

[f] Capsule administration.

[g] This value is expressed as sodium trifluoroacetate (molecular weight 136.01); not converted to TFA at this point.

5.22 Fosetyl aluminium (041)

Table A9.2 Estimated maximum and mean dietary burdens of farm animals (2019/2024)

	Livestock dietary burden, phosphonic acid, ppm of dry matter diet (2019/2024)							
	United States/Canada		European Union		Australia		Japan	
	Max	Mean	Max	Max	Mean	Mean	Max	Mean
Beef cattle	1.6/7	1.6/7	7.8/8	7.8/8	35/43.2[a]	35/43.2[c]	0/0	0/0
Dairy cattle	3.8/7	3.8/7	5.7/8.5	5.7/8.5	32/36.9[b]	32/36.9[d]	0/0	0/0
Poultry–broiler	0/2.9	0/2.9	0/0	0/0	0/7.2	0/7.2	0/0	0/0
Poultry–layer	0/2.9	0/2.9	0.1/0.1	0.1/0.1	0/7.2[e]	0/7.2[f]	0/0	0/0

Notes: See Table 5.22.2 in the report.
[a] Highest maximum beef or dairy cattle burden suitable for MRL estimates for mammalian tissues.
[b] Highest maximum dairy cattle burden suitable for MRL estimates for milk.
[c] Highest mean beef or dairy cattle burden suitable for STMR estimates for mammalian tissues.
[d] Highest mean dairy cattle burden suitable for STMR estimates for milk.
[e] Highest maximum poultry broiler or layer burden suitable for MRL estimates for poultry eggs and tissues.
[f] Highest mean poultry broiler or layer burden suitable for STMR estimates for poultry eggs and tissues.

5.29 Phosmet (103)

Table A9.3 Summary

	Value	Study	Safety factor
Phosmet			
ADI	0–0.006 mg/kg bw [a]	7-day study of toxicity in 11-17-day-old rats	200
ARfD	0.03 mg/kg bw[b]	Acute comparative neurotoxicity study in 11-day-old rats	100
Phthalic acid[c]			
ADI	0–0.1	28-day study if toxicity in rats	1000
Phthalamic acid			
ADI	0–0.1	1-year study of toxicity in dogs	100

Notes: See Table 5.29.4 in the report.
[a] ADI applies to the sum of phosmet plus *N*-(methylsulfonylmethyl) phthalamic acid expressed as phosmet plus 6× phosmet-oxon.
[b] ARfD applies to phosmet plus *N*-(methylsulfonylmethyl) phthalamic acid expressed as phosmet plus 25× phosmet-oxon.
[c] Also applies to phthalic anhydride.

Annex 5. Livestock dietary burden calculation

Table A9.4 Livestock dietary burden calculation

AZOXYSTROBIN (229) **BEEF CATTLE**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Beet, sugar tops	AM/AV	44	Highest	23	191.30		20		–	–	38.26	–	–
Sorghum, grain asp gr fn	CM/CF	92.5	Median	85	108.82	5	–	20	–	5.441	–	21.76	–
Soybean silage	AL	23	Highest	30	76.67	–	–	80	–	–	–	61.33	–
Sorghum, grain silage	AF/AS	12	Highest	21	57.14	15	–	–	–	8.571	–	–	–
Pea vines	AL	9.4	Highest	25	37.60	–	20	–	–	–	7.52	–	–
Sorghum, grain forage	AF/AS	12	Highest	35	34.29	–	20	–	–	–	6.857	–	–
Cowpea forage	AL	9.4	Highest	30	31.33	–	15	–	–	–	4.7	–	–
Corn, field stover	AF/AS	21	Highest	83	25.30	–	5	–	–	–	1.265	–	–
Pea silage	AL	9.4	Highest	40	23.50	–	20	–	–	–	4.7	–	–
Potato culls	VR	3.8	Highest	20	19.00	30	–	–	–	5.700	–	–	–
Potato process waste	AB	2.08	STMR	12	17.33	30	–	–	–	5.200	–	–	–
Rice straw	AF/AS	9.9	Highest	90	11.00	–	–	–	55	–	–	–	6.05
Soybean asp gr fn	SM	3	Median-P	85	3.53	5	–	–	–	0.176	–	–	–
Sorghum, grain	GC	1.85	STMR	86	2.15	15	–	–	35	0.323	–	–	0.75
Rice bran/pollard	CM/CF	0.82	STMR-P	90	0.91	–	–	–	10	–	–	–	0.091
					Total	100	100	100	100	**25.41**	63.3	83.1	6.894
Estimated mean dietary burden													
Sorghum. grain asp gr fn	CM/CF	92.5	Median-P	85	108.82	5	–	20	–	5.441	–	21.76	–
Beet, sugar tops	AM/AV	16	Median	23	69.57	–	20	–	–	–	13.91	–	–
Soybean hay	AL	31	Median	85	36.47	–	–	80	–	–	–	29.18	–
Potato process waste	AB	2.08	Median-P	12	17.33	30	40		–	5.2	6.933	–	–
Pea vines	AL	3.35	Median	25	13.40	–	20	–	–		2.68	–	–
Potato culls	VR	2.3	Median	20	11.50	30	20		–	3.45	2.3	–	–
Sorghum, grain silage	AF/AS	1.6	Median	21	7.62	15	–	–	–	1.1429	–	–	–
Soybean asp gr fn	SM	3	Median-P	85	3.53	5	–	–	–	0.1765	–	–	–
Sorghum, grain	GC	1.85	STMR	86	2.15	15	–	–	35	0.323	–	–	0.753
Rice straw	AF/AS	1.5	Median	90	1.67	–	–	–	55	–	–	–	0.917
Rice bran/pollard	CM/CF	0.82	STMR-P	90	0.91	–	–	–	10	–	–	–	0.091
					Total	100	100	100	100	15.7	25.8	**50.9**	1.8

AZOXYSTROBIN (229) DAIRY CATTLE

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Beet. sugar tops	AM/AV	44	Highest	23	191.30	–	30	–	–	–	57.39	–	–
Soybean silage	AL	23	Highest	30	76.67	20		40		15.333		30.67	–
Sorghum, grain silage	AF/AS	12	Highest	21	57.14	40	–	–	10	22.857	–	–	5.714
Pea vines	AL	9.4	Highest	25	37.60	–	20	–	–	–	7.52	–	–
Sorghum, grain forage	AF/AS	12	Highest	35	34.29	–	20	60	30	–	6.857	20.57	10.29
Cowpea forage	AL	9.4	Highest	30	31.33	–	30	–	–	–	9.4	–	–
Potato culls	VR	3.8	Highest	20	19.00	10		–	–	1.900	–	–	–
Corn, field forage/silage	AF/AS	7.2	Highest	40	18.00	30	–	–	10	5.400	–	–	1.8
Sorghum, grain	GC	1.85	STMR	86	2.15	–	–	–	30	–	–	–	0.645
Rice bran/pollard	CM/CF	0.82	STMR-P	90	0.91	–	–	–	10	–	–	–	0.091
Beet sugar dried pulp	AB	0.635	Median-P	88	0.72	–	–	–	10	–	–	–	0.072
					Total	100	100	100	100	45.49	**81.17**	51.24	18.61
Estimated mean dietary burden													
Beet, sugar tops	AM/AV	16	Median	23	69.57	–	30	0	–	–	20.87	0	–
Soybean hay	AL	31	Median	85	36.47	20	–	40	–	7.294	–	14.59	–
Tomato pomace,wet	AB	4.05	Median -P	20	20.25	0	–	10	–	0	–	2.025	–
Potato process waste	AB	2.08	Median -P	12	17.33	10	30	–	–	1.733	5.2	–	–
Pea vines	AL	3.35	Median	25	13.40	0	20	–	–	0	2.68	–	–
Potato culls	VR	2.3	Median -P	20	11.50	10	20	10	–	1.15	2.3	1.15	–
Cowpea forage	AL	3.35	Median	30	11.17	0	–	40	–	0	–	4.467	–
Sorghum, grain silage	AF/AS	1.6	Median	21	7.62	40	–	–	10	3.047	–	–	0.762
Sorghum, grain forage	AF/AS	1.6	Median	35	4.57	0	–	–	30	0	–	–	1.371
Corn, field forage/silage	AF/AS	1.6	Median	40	4.00	20	–	–	10	0.8	–	–	0.4
Sorghum, grain	GC	1.85	STMR	86	2.15	0	–	–	30	0	–	–	0.645
Rice straw	AF/AS	1.5	Median	90	1.67	0	–	–	20	0	–	–	0.333
					Total	100	100	100	100	14.0	**31.0**	22.2	3.5

AZOXYSTROBIN (229) POULTRY BROILER

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Potato culls	VR	3.8	Highest	20	19.00	–	10	–	–	–	1.9	–	–
Potato dried pulp	AB	10.1	STMR	88	11.48	–	20	–	–	–	2.295	–	–
Sorghum, grain	GC	1.85	STMR	86	2.15	75	70	70	65	1.613	1.506	1.506	1.398
Rice bran/pollard	CM/CF	0.82	STMR-P	90	0.91	10	–	20	5	0.091	–	0.182	0.046
Soybean seed	VD	0.06	STMR	89	0.07	15	–	10	–	0.010	–	0.007	–

AZOXYSTROBIN (229) **POULTRY BROILER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Corn, field grain	GC	0.01	STMR	88	0.01	–	–	–	30	–	–	–	0.003
					Total	100	100	100	100	1.71	**5.701**	1.695	1.447
Estimated mean dietary burden													
Potato culls	VR	2.3	Med-P	20	11.50	–	10	–	–	–	1.15	–	–
Potato dried pulp	AB	10.1	Med-P	88	11.48	–	20	–	–	–	2.295	–	–
Sorghum, grain	GC	1.85	STMR	86	2.15	75	70	70	65	1.61	1.506	1.506	1.398
Rice bran/pollard	CM/CF	0.82	STMR-P	90	0.91	10	–	20	5	0.09	–	0.182	0.046
Soybean seed	VD	0.06	STMR	89	0.07	15	–	10		0.01	–	0.007	–
Corn, field grain	GC	0.01	STMR	88	0.01	–	–	–	30	–	–	–	0.003
					Total	100	100	100	100	1.7	**5.0**	1.7	1.4

AZOXYSTROBIN (229) **POULTRY LAYER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Beet, sugar tops	AM/AV	44	Highest	23	191.30	–	5	–	–	–	9.565	–	–
Soybean silage	AL	23	Highest	30	76.67	–	10	–	–	–	7.667	–	–
Sorghum, grain forage	AF/AS	12	Highest	35	34.29	–	10	–	–	–	3.429	–	–
Potato culls	VR	3.8	Highest	20	19.00	–	10	–	–	–	1.9	–	–
Potato dried pulp	AB	10.1	Med-P	88	11.48	–	15	–	–	–	1.722	–	–
Sorghum, grain	GC	1.85	STMR	86	2.15	75	50	70	55	1.613	1.076	1.506	1.183
Rice bran/pollard	CM/CF	0.82	STMR-P	90	0.91	10	–	20	20	0.091	–	0.182	0.182
Soybean seed	VD	0.06	STMR	89	0.07	15	–	10		0.010	–	0.007	–
Corn, field grain	GC	0.01	STMR	88	0.01	–	–	–	25	–	–	–	0.00
					Total	100	100	100	100	1.715	**25.36**	1.695	1.368
Estimated mean dietary burden													
Beet, sugar tops	AM/AV	16	Median	23	69.57	–	5	–	–	–	3.478	–	–
Soybean hay	AL	31	Median	85	36.47	–	10	–	–	–	3.647	–	–
Potato culls	VR	2.3	Med -P	20	11.50	–	10	–	–	–	1.15	–	–
Potato dried pulp	AB	10.1	Med -P	88	11.48	–	15	–	–	–	1.722	–	–
Wheat forage	AF/AS	1.9	Median	25	7.60	–	10	–	–	–	0.76	–	–
Sorghum, grain	GC	1.85	STMR	86	2.15	75	50	70	55	1.613372	1.076	1.506	1.183
Rice bran/pollard	CM/CF	0.82	STMR-P	90	0.91	10	–	20	20	0.091111	–	0.182	0.182
Soybean seed	VD	0.06	STMR	89	0.07	15	–	10		0.010112	–	0.007	–
Corn, field grain	GC	0.01	STMR	88	0.01	–	–		25	–	–	–	0.00
					Total	100	100	100	100	1.7	**11.8**	1.7	1.4

CYPROCONAZOLE (239)			BEEF CATTLE										
Commodity	**CC**	**Residue (mg/kg)**	**Basis**	**DM (%)**	**Residue dw (mg/kg)**	**Diet content (%)**				**Residue contribution (ppm)**			
						United States/Canada	**European Union**	**Australia**	**Japan**	**United States/Canada**	**European Union**	**Australia**	**Japan**
Estimated maximum dietary burden													
Rape forage	AM/AV	1.9	Highest	30	6.33	–	10	100	–		0.633	6.333	–
Millet hay	AF/AS	3.6	Highest	85	4.24	10	–	–	–	0.424	–	–	–
Barley hay	AF/AS	3.6	Highest	88	4.09	5	–	–	–	0.205	–	–	–
Rye straw	AF/AS	3.6	Highest	88	4.09	–	20	–	–	–	0.818	–	–
Barley straw	AF/AS	3.6	Highest	89	4.04	–	10	–	–	–	0.404	–	–
Pea vines	AL	3.32	Highest	100	3.32	–	20	–	–	–	0.664	–	–
Beet, sugar tops	AM/AV	0.54	Highest	23	2.35	–	10	–	–	–	0.235	–	–
Corn, field forage/silage	AF/AS	0.44	Highest	40	1.10	–	30	–	–	–	0.33	–	–
Vetch hay	AL	0.17	Highest	100	0.17	15	–	–	5	0.026	–	–	0.009
Barley grain	GC	0.02	STMR	88	0.02	50	–	–	70	0.011	–	–	0.016
Soybean seed	VD	0.02	STMR	89	0.02	5	–	–	15	0.001	–	–	0.003
Canola meal	SM	0.016	Median-P	88	0.02	5	–	–		0.001	–	–	
Rape meal	SM	0.016	Median-P	88	0.02		–	–	10		–	–	0.002
Soybean hulls	SM	0.015	Median-P	90	0.02	10	–	–	–	0.002	–	–	–
					Total	100	100	100	100	0.669	3.085	**6.333**	0.03
Estimated mean dietary burden													
Rape forage	AM/AV	0.5	Median	30	1.67	–	10	100	–	–	0.167	1.667	–
Pea vines	AL	1.38	Median	100	1.38	–	20	–	–	–	0.276	–	–
Beet, sugar tops	AM/AV	0.315	Median	23	1.37	–	10	–	–	–	0.137	–	–
Millet hay	AF/AS	0.785	Median	85	0.92	10	–	–	–	0.092353	–	–	–
Barley hay	AF/AS	0.785	Median	88	0.89	5	–	–	–	0.044602	–	–	–
Rye straw	AF/AS	0.785	Median	88	0.89	–	20	–	–	–	0.178	–	–
Barley straw	AF/AS	0.785	Median	89	0.88	–	10	–	–	–	0.088	–	–
Corn, field forage/silage	AF/AS	0.11	Median	40	0.28	–	30	–	–	–	0.083	–	–
Vetch hay	AL	0.09	Median	100	0.09	15	–	–	5	0.014	–	–	0.005
Barley grain	GC	0.02	STMR	88	0.02	50	–	–	70	0.011	–	–	0.016
Soybean seed	VD	0.02	STMR	89	0.02	5	–	–	15	0.001	–	–	0.003
Canola meal	SM	0.016	Med-P	88	0.02	5	–	–	–	0.001	–	–	–
Rape meal	SM	0.016	Med-P	88	0.02	–	–	–	10	–	–	–	0.002
Soybean hulls	SM	0.015	Med-P	90	0.02	10	–	–	–	0.002	–	–	–
					Total	100	100	100	100	0.1655	0.929	**1.667**	0.026

CYPROCONAZOLE (239) DAIRY CATTLE

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Estimated maximum dietary burden													
Rape forage	AM/AV	1.9	Highest	30	6.33	10	10	40	–	0.633	0.633	2.533	–
Millet hay	AF/AS	3.6	Highest	85	4.24	20		50	–	0.847	–	2.118	–
Rye straw	AF/AS	3.6	Highest	88	4.09	–	20	–	5	–	0.818	–	0.205
Sorghum, grain stover	AF/AS	3.6	Highest	88	4.09	–	–	10	–	–	–	0.409	–
Barley straw	AF/AS	3.6	Highest	89	4.04		10	–	–		0.404	–	–
Oat hay	AF/AS	3.6	Highest	90	4.00	10		–	–	0.400		–	–
Pea vines	AL	3.32	Highest	100	3.32	10	20	–	–	0.332	0.664	–	–
Beet. sugar tops	AM/AV	0.54	Highest	23	2.35	–	20	–	–	–	0.47	–	–
Soybean hay	AL	2.24	Highest	100	2.24	10		–		0.224	–	–	–
Corn, field forage/silage	AF/AS	0.44	Highest	40	1.10	40	20	–	45	0.440	0.22	–	0.495
Vetch hay	AL	0.17	Highest	100	0.17	–	–	–	25	–	–	–	0.043
Barley grain	GC	0.02	STMR	88	0.02	–	–	–	25	–	–	–	0.006
					Total	100	100	100	100	2.876	3.21	**5.06**	0.75
Estimated mean dietary burden													
Rape forage	AM/AV	0.5	Median	30	1.67	10	10	40	–	0.167	0.167	0.667	–
Pea vines	AL	1.38	Median	100	1.38	10	20	40	–	0.138	0.276	0.552	–
Beet, sugar tops	AM/AV	0.315	Median	23	1.37	0	20	–	–	0	0.274	–	–
Millet hay	AF/AS	0.785	Median	85	0.92	20		20	–	0.185		0.185	–
Rye straw	AF/AS	0.785	Median	88	0.89	0	20	–	–	0	0.178	–	–
Barley straw	AF/AS	0.785	Median	89	0.88	0	10	–	–	0	0.088	–	–
Oat hay	AF/AS	0.785	Median	90	0.87	10		–		0.087		–	–
Soybean hay	AL	0.78	Median	100	0.78	10		–		0.078		–	–
Corn, field forage/silage	AF/AS	0.11	Median	40	0.28	40	20	–	45	0.11	0.055	–	0.12
Vetch hay	AL	0.09	Median	100	0.09	0	–	–	25	0	–	–	0.023
Barley grain	GC	0.02	STMR	88	0.02	0	–	–	25	0	–	–	0.006
					Total	100	100	100	100	0.764	1.038	**1.40**	0.197

CYPROCONAZOLE (239) POULTRY BROILER

Commodity	**CC**	**Residue (mg/kg)**	**Basis**	**DM (%)**	**Residue dw (mg/kg)**	**Diet content (%)**				**Residue contribution (ppm)**			
						United States/Canada	**European Union**	**Australia**	**Japan**	**United States/Canada**	**European Union**	**Australia**	**Japan**
Estimated maximum dietary burden													
Barley grain	GC	0.02	STMR	88	0.02	75	70	15	10	0.017	0.016	0.003	0.002
Millet grain	GC	0.02	STMR	88	0.02	–	–	55	–	–	–	0.013	–
Rye grain	GC	0.02	STMR	88	0.02	–	–	30	–	–	–	0.007	–

CYPROCONAZOLE (239)		POULTRY BROILER											
Commodity	**CC**	**Residue (mg/kg)**	**Basis**	**DM (%)**	**Residue dw (mg/kg)**	**Diet content (%)**				**Residue contribution (ppm)**			
						United States/Canada	**European Union**	**Australia**	**Japan**	**United States/Canada**	**European Union**	**Australia**	**Japan**
Sorghum, grain	GC	0.02	STMR	86	0.02	–	–	–	55	–	–	–	0.013
Soybean seed	VD	0.02	STMR	89	0.02	20	20	–	–	0.004	0.004	–	–
Canola meal	SM	0.016	Med-P	88	0.02	5	10	–	–	0.001	0.002	–	–
Rape meal	SM	0.016	Med-P	88	0.02	–	–	–	5	–	–	–	9E-04
Soybean meal	SM	0.013	Med-P	92	0.01	–	–	–	30	–	–	–	0.004
					Total	100	100	100	100	0.022	0.022	**0.023**	0.02
Estimated mean dietary burden													
Barley grain	GC	0.02	STMR	88	0.02	75	70	15	10	0.02	0.016	0.003	0.002
Millet grain	GC	0.02	STMR	88	0.02	–	–	55	–	–	–	0.013	–
Rye grain	GC	0.02	STMR	88	0.02	–	–	30	–	–	–	0.007	–
Sorghum, grain	GC	0.02	STMR	86	0.02	–	–	–	55	–	–	–	0.013
Soybean seed	VD	0.02	STMR	89	0.02	20	20	–	–	0.00	0.004	–	–
Canola meal	SM	0.016	Med-P	88	0.02	5	10	–	–	0.00	0.002	–	–
Rape meal	SM	0.016	Med-P	88	0.02	–	–	–	5	–	–	–	9E-04
Soybean meal	SM	0.013	Med-P	92	0.01	–	–	–	30	–	–	–	0.004
					Total	100	100	100	100	0.0224	0.022	**0.023**	0.02

CYPROCONAZOLE (239)		POULTRY LAYER											
Commodity	**CC**	**Residue (mg/kg)**	**Basis**	**DM (%)**	**Residue dw (mg/kg)**	**Diet content (%)**				**Residue Contribution (ppm)**			
						United States/Canada	**European Union**	**Australia**	**Japan**	**United States/Canada**	**European Union**	**Australia**	**Japan**
Estimated maximum dietary burden													
Rape forage	AM/AV	1.9	Highest	30	6.33	–	10	–	–	–	0.633	–	–
Sorghum, grain stover	AF/AS	3.6	Highest	88	4.09	–	10	–	–	–	0.409	–	–
Pea vines	AL	3.32	Highest	100	3.32	–	10	–	–	–	0.332	–	–
Barley grain	GC	0.02	STMR	88	0.02	75	70	15		0.017	0.016	0.003	–
Millet grain	GC	0.02	STMR	88	0.02	–	–	45	–	–	–	0.01	–
Sorghum. grain	GC	0.02	STMR	86	0.02	–	–	40	55	–	–	0.009	0.013
Soybean seed	VD	0.02	STMR	89	0.02	20	–	–	–	0.004	–	–	–
Canola meal	SM	0.016	Med-P	88	0.02	5	–	–	–	0.001	–	–	–
Rape meal	SM	0.016	Med-P	88	0.02	–	–	–	15	–	–	–	0.00
Soybean meal	SM	0.013	Med-P	92	0.01	–	–	–	15	–	–	–	0.002
Corn, field grain	GC	0.01	STMR	88	0.01	–	–	–	15	–	–	–	0.002
					Total	100	100	100	100	0.022	**1.39**	0.023	0.019
Estimated mean dietary burden													
Rape forage	AM/AV	0.5	Median	30	1.67	–	10	–	–	–	0.167	–	–
Pea vines	AL	1.38	Median	100	1.38	–	10	–	–	–	0.138	–	–
Sorghum, grain stover	AF/AS	0.785	Median	88	0.89	–	10	–	–	–	0.089	–	–

CYPROCONAZOLE (239) **POULTRY LAYER**

Commodity	CC	Residue (mg/kg)	Basis	DM (%)	Residue dw (mg/kg)	Diet content (%)				Residue Contribution (ppm)			
						United States/Canada	European Union	Australia	Japan	United States/Canada	European Union	Australia	Japan
Barley grain	GC	0.02	STMR	88	0.02	75	70	–	–	0.0170	0.016	0.003	–
Millet grain	GC	0.02	STMR	88	0.02	–	–	45	–	–	–	0.01	–
Sorghum, grain	GC	0.02	STMR	86	0.02	–	–	40	55	–	–	0.009	0.013
Soybean seed	VD	0.02	STMR	89	0.02	20	–	–	–	0.004	–	–	–
Canola meal	SM	0.016	Med-P	88	0.02	5	–	–	–	0.00091	–	–	–
Rape meal	SM	0.016	Med-P	88	0.02	–	–	–	15	–	–	–	0.00
Soybean meal	SM	0.013	Med-P	92	0.01	–	–	–	15	–	–	–	0.002
Corn, field grain	GC	0.01	STMR	88	0.01	–	–		15	–	–	–	0.002
					Total	100	100	100	100	0.0224	**0.41**	0.023	0.019

Notes: See Annex 5 in the report.

The annual Joint Meeting of the Food and Agriculture Organization of the United Nations (FAO) Panel of Experts on Pesticide Residues in Food and the Environment and the World Health Organization (WHO) Core Assessment Group on Pesticide Residues (JMPR) was held at WHO, in Geneva, Switzerland from 20 to 22 January 2026. The WHO Group met in preparatory session from 16 to 25 September 2025 in Bangkok, Thailand. FAO Panel Members met in preparatory sessions from 24 November to 3 December 2025 in Rome, Italy.

The Meeting was held in pursuance of recommendations made by previous Meetings and accepted by the governing bodies of FAO and WHO that studies should be undertaken jointly by experts to evaluate possible hazards to humans arising from the occurrence of pesticide residues in foods. During the meeting the FAO Panel of Experts was responsible for reviewing pesticide use patterns (use of good agricultural practices), data on the chemistry and composition of the pesticides and methods of analysis for pesticide residues and for estimating the maximum residue levels that might occur as a result of the use of the pesticides according to good agricultural use practices. The WHO Core Assessment Group was responsible for reviewing toxicological and related data and for estimating, where possible and appropriate, acceptable daily intakes (ADIs) and acute reference doses (ARfDs) of the pesticides for humans. This report contains information on ADIs, ARfDs, maximum residue levels, and general principles for the evaluation of pesticides. The recommendations of the Joint Meeting, including further research and information, are proposed for use by Member governments of the respective agencies and other interested parties.

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