Africa’s largest country, Sudan, valuable seeds and grain stores in settlements near the unfinished Jonglei Canal are regularly plundered by rats and other rodents, thus destroying the efforts by displaced peasant farmers to survive the rigours of climate and conflict. In Indonesia, Balinese rice cultivators protect their crops from rats with particular vigour: rice is seen as having both a sacred as well as a food value.

One single rat left free to roam a warehouse for one year will, it is estimated, eat about 27 pounds of food and deposit 25,000 droppings to spoil much more. But when rats have to compete fiercely among themselves for reduced food supplies, they thin their own ranks. Consequently, defence by rat-proofing, sanitation and public hygiene is our best form of attack.

One American writer describes a healthy rat as “untrusting, conservative and suspicious”. Researchers in animal behaviour also point to the rat’s “neophobia” or fear of the new; they are averse to anything unfamiliar in their environment. Such items would, of course, include poisoned bait. Moreover, our wily enemy has been known to have developed a resistance to certain types of poison. These factors reinforce the need to safeguard food supplies as a major and safe weapon in the fight against the rat.

This age-old battle with the rat and other rodents must go on; many national bodies and organizations approach their problems along the lines advanced by WHO and are speeding the day when the rat can no longer bring disease, famine and death to mankind.

Mr Thomas Gray is a biologist who has worked with UN agencies as an educational expert. Long-term readers of World Health may remember his contributions to the April 1967 issue. His address is: 2 Dunfield Road, Bellingham, London SE6, England.

Damage to food

Rodents, particularly rats and mice, are very destructive and cause tremendous damage to the food supply by consuming a considerable amount of food. Eliminating mice and rats with cyanide in Thailand.

Farmers attending a demonstration on rodent control in Pakistan.
quantity of our field crops, particularly rice, but also wheat, maize, sorghum, millet, palm oil, coconuts, groundnuts, cocoa, sugar cane and vegetables. Estimated losses of food crops due to damage by rodents vary from about 5% to 50%. Stored food products are also vulnerable, such as maize, rice, sorghum, millet, barley, oats, wheat, and cereal products like flour, maize meal and semolina. Oils and oilseed cakes as well as mustard and sunflower seeds, sesame, coconut and copra are also in danger. On a worldwide basis some 33 million tons of bread grains and rice in storage are reckoned to be lost owing to rodents each year. Occasionally, rats (Rattus norvegicus) may be found in slaughterhouses where they consume meat stored in cold chambers.

In addition, rats and mice foul a considerable amount of the food supplies with their faeces, urine, saliva and hair, rendering them unfit for human consumption. House mice, by nibbling and then discarding partially-eaten foods, destroy considerably more than they actually consume. Rodents also gnaw holes in food containers, e.g. jute bags, and the resulting economic loss is considerable.

Rodents also play an important role in the transmission of foodborne diseases to humans. They are carriers/reservoirs of food-and waterborne pathogens such as Salmonella and Lassa fever virus, and can contaminate food with these pathogens through their excreta. In addition, rats are hosts of such parasites as Trichinella spiralis and Angiostrongylus species. Pigs, by eating Trichinella-infected rats, acquire the infection; man is infected through eating raw or undercooked pork meat infested with larvae of trichinella. Similarly, larvae of Angiostrongylus excreted by rats are ingested by snails or aquatic animals such as crustaceans and fish. Man is subsequently infected after ingestion of raw or undercooked snails, crustaceans and fish, as well as raw vegetables contaminated with sludge.

Rats and mice breed rapidly, and the problems that they cause are worldwide. However, their damage to the food supply is more acute in the tropical and subtropical, developing countries, in many of which the people’s nutrition is already inadequate.

Adapted from Vector Control Series: Rodents – Training and Information guide, 1987 (WHO document WHO/VBC/87.949), obtainable from the Division of Control of Tropical Diseases, WHO, 1211 Geneva 27, and from information provided by the Food and Agriculture Organization of the United Nations, Rome.

WHO has published a kit containing a range of materials to support a do-it-yourself, community approach to the control of insects and rodent pests. Insect and rodent control through environmental management can be ordered from Distribution and Sales, WHO, 1211 Geneva 27, Switzerland; Price Sw.fr. 90 or US$ 81; in developing countries, Sw.fr. 63.

Note to the readers

Mr Frank Hartvelt, author of the article on the Children’s Vaccine Initiative (CVI) on page 4 of our March–April issue, wishes to point out that the editors omitted his description of the Task Forces dealing with strategic issues and the discussion of the symbiotic partnership between the private and public sector companies.

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