

Control Measures for Stored Product Pests

- ✓ Employ good sanitation practices. Insects will lay their eggs in food residues in crevices and populations increase rapidly as new food is introduced into the storage area.
- ✓ Store goods from direct contact with walls or flooring.
- ✓ Ensure that commodities are stored at 'safe' moisture content.
- ✓ Methyl bromide and phosphine are two fumigants which can be applied directly to durable food to control all stages of stored product pests without leaving residues.

Only insecticides with active ingredients approved by the Food Storage and Prevention of Infestation Division may be used in food and food-related areas to control stored product pests. These are to be used in approved methods/control practices.



**Ministry of Industry,
Investment and
Commerce**

**Food Storage and Prevention
of Infestation Division**
Ensuring Safety and Wholesomeness

FACTS ABOUT STORED PRODUCT PESTS

For further information please contact:

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Overview

- Insects, as well as some arachnids (e.g. mites), are frequent pests of stored commodities.
- Approximately 1,000,000 species of insects have been described, of which about 100 species damage stored foods. Just about 20 of these are serious pests and are distributed worldwide. These stored product pests mostly belong to the orders Coleoptera (beetles) and Lepidoptera (moths) and live and breed in stored food. They are grouped according to feeding habits.

Primary Stored Product Pests

These are capable of infesting whole grains and seeds and generally complete their life cycles within the grain e.g. *Sitophilus* spp. (rice & maize weevils). Emergence of adults and the presence of holes are often the first signs of infestation.



Acanthoscelides obtectus on beans

Secondary Stored Product Pests

These infest processed foods or often follow the infestation by primary stored product pests. *Tribolium* spp. (flour beetles) are important pests as they infest the widest range of processed commodities. These also produce benzoquinones (odour chemicals) which may cause persistent disagreeable odour in commodities.



Tribolium castaneum

Other important secondary stored product pests are *Oryzaephilus surinamensis* (saw-toothed grain beetle), *Cryptolestes* sp. (rust red grain beetle) and *Lasioderma serricorne* (cigarette beetle).



Cryptolestes sp. on cereal

Tertiary Stored Product Pests

These pests come in as a result of poor sanitary conditions (damp and mouldy goods) or after commodities are already heavily infested. These are scavengers, predators and/or fungus feeders e.g. *Alphitobius* sp. (black fungus beetle) and *Typhea* sp. These pests also feed on the food in storage.

Economic Importance and Health Concerns

- Stored product pests contaminate far more food than they consume.
- They cause loss in the mass and quality of food.
- Moth larvae produce webbing which can cause damage to machinery.
- The presence of large numbers of pests and/or visible damage resulting from their feeding activity will cause food to be rejected by consumers.
- Reduces viability of seeds for planting.
- The activity of stored product pests may lead to increase in moisture content and the growth of fungi which may be harmful to consumers.
- Some individuals may be allergic to chitin in insect exoskeleton.
- The larval cast skins and setae (hairs) of dermestid beetles (hide beetles) and mites can cause allergic reactions and respiratory illnesses.