MISIN Midwest Invasive Species Information Network

# Khapra beetle

## *Trogoderma granarium*


### Description

Considered one of the world's most destructive pests of grain products and seeds.

### Identification

Adult males are 1.4-2.3 mm long, 0.75-1.1 mm wide; adult females are 2.1-3.4 mm long, 1.7-1.9 mm wide, ovate and densely hairy beetles. Head and pronotum are dark reddish-brown, elytra is reddish-brown, usually with indistinct lighter reddish-brown fasciae; venter of thorax and abdomen reddish-brown and legs are yellowish-brown. Antennae are yellowish-brown, 9, 10 or 11 segments, with a 3-5 segmented club.

### Habitat

Native to India and South Asia. Wheat (Triticum aestivum), Barley (Hordeum vulgare), Oat (Avena

*Source: MISIN. 2022. Midwest Invasive Species Information Network. Michigan State University - Applied Spatial Ecology and Technical Services Laboratory. Available online at https://www.misin.msu.edu/facts/detail.php?id=246.*

sativa), Rye, Maize(Zea mays), Rice (Oryza sativa), Flour, Malt, Noodles, Stored agricultural products, including spices, grains and packaged foods

**Reproduction**

Exhibit gonochorism (reproduction involving separate male and female individuals). Development rates and survival varies depending on the host, temperature, light, moisture, season, based on these factors there can be from 1 to 9 generations per year. Adult lifespan is between 12-25 days and females lay between 50-100 eggs. Larvael development usually takes 4-6 weeks. Larvae molt between 4-15 times. The pupal state lasts 2-5 days and quiescent adult stage lasts 1-2 days. Larval stage can last from a month to a year, if it enters diapause. They are capable of surviving without food for a period of several years.

**Impact**

No direct effects on the environment. Larvae typically attack the embryo point or a weak place in the

pericarp of grain or seed, but will attack other parts during heavy infestation. Young larvae feed on damaged seed, while older larvae are able to feed on whole grains. Large numbers of larval skins and setae may cause dermatitis and/or allergic reactions. Larvae wander in and out of sacked material, weakening the sacks, which may tear.

**Similar**

Carpet beetles (Attagenus spp.), Larder beetles (Dermestes spp.), and Skin beetles (Anthrenus spp.).

**Monitoring and Rapid Response**

Eradication can be difficult due to its habit of hiding in cracks and crevices, and its ability to enter diapause. In India, the use of deoiled neem (Azadirachta indica) seed powder mixed into wheat appeared to be effective and economical. Heat treatment has also been successful. Treatment involves a 30 minute exposure at 140oF which has given a 100% kill of all stages. The most effective chemical treatment has been methyl bromide fumigation.

**Credits**

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