

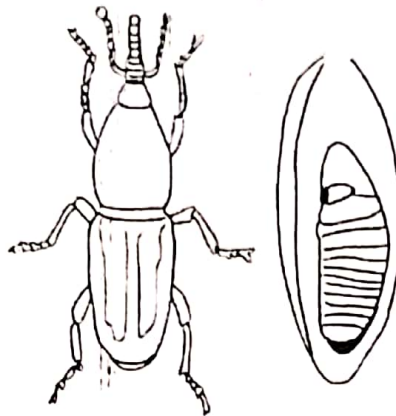
Chapter 5

INSECT PESTS OF STORED PRODUCTS

5.1 RICE WEEVIL

T.N: *Sitophilus oryzae*

(Curculionidae; Coleoptera)



**Identification:** Eggs are oval and grubs are dirty white with brown head. Adults are dark brown with four brownish spots on the fore wings. Head is modified into a snout like structure.

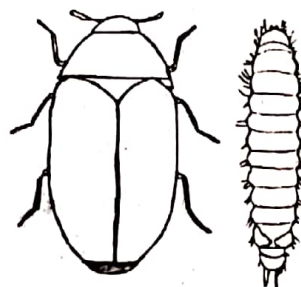
**Life history:** Eggs are laid in grooves of grain or in pits made by insect. Larvae on hatching enter grain and feed inside. Pupation takes place within the grains. There are 3-4 generations in a year.

**Damage:** is caused by both adult and larvae. They destroy more and eat less. Larva on hatching enters grain and feed inside by making a tunnel.

5.2 KHAPRA BEETLE

T.N: *Trogoderma granarium*

(Dermestidae; Coleoptera)



**Identification:** Eggs are translucent-reddish in colour. Grubs are yellowish white. Adults are

small dark brown beetles and covered with fine hairs. Wings present but don't fly.

**Life History:** Over winter as larva from November-February in cracks and crevices of walls and floor of granary. Active from March-October. Eggs are laid singly among the grains. Larva feeds on grain. Pupation takes place among the grains. There are 4-5 generations in a year.

**Damage:** of this pest is limited to upper 50 cm layer of grains in the heap. Larva feeds on grain and in case of severe attack it converts grains into frass.

### 5.3 DHORA BEETLE

**T.N:** *Callosobruchus chinensis*

(Bruchidae; Coleoptera)

**Identification:** Eggs are oval and yellowish in colour. Grubs are dirty white. Adult beetles are reddish brown and larger in size.

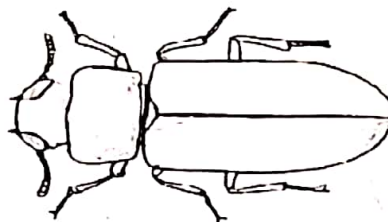
**Life history:** Eggs are glued on the seed on top layer of heap. Larvae remain inside seed. Pupa present near seed surface inside the seed. Adults come out of the grain by making a circular hole in the seed coat. There are 7-8 generations in a year.

**Damage:** Adult does not take any food, grubs cause damage by feeding within a single seed. They eat grain completely from inside leaving shell behind. Damaged grains converted into flour and produces smell which should not be consumed.

### 5.4 RED FLOUR BEETLE

**T.N:** *Tribolium castaneum*

(Tenebrionidae; Coleoptera)



**Identification:** Eggs are whitish and cylindrical. The young larva is yellowish white which later on turns reddish yellow and becomes hairy. Its head, appendages and the last abdominal segment are darker. The adult is reddish brown with club shaped antennae.

**Life cycle:** Its female lays eggs in the flour or in the frass material among the grains and other foodstuff. The surface of freshly laid eggs is sticky thus; flour or dust particles easily adhere to them. The larvae undergo 6-7 moultings and then pupate in the flour for one week. There are 4-5 generations in a year.

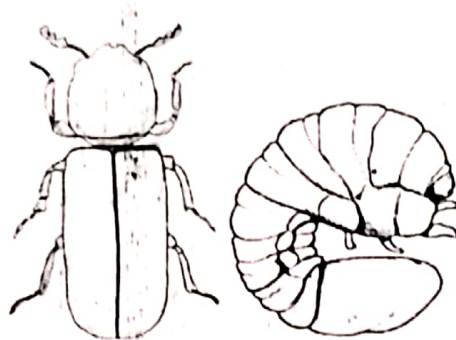
**Damage:** Both adults and larvae cause damage to flour. The damage is greatest during the hot and humid monsoon season. The larvae and adults mostly found concealed in the flour. In case of severe infestation, the flour turns greyish and mouldy, having pungent odour which makes it unfit for human consumption.

### 5.5 Lesser Grain Borer

T.N: *Rhyzopertha dominica*

(Bostrichidae; Coleoptera)

**Identification:** Eggs are cylindrical and whitish. The grub is dirty white with a light brown head. The adult is small cylindrical beetle having dark brown or black color.



**Life cycle:** The eggs are laid singly among the grains or frass. The larvae feed upon the flour. The larvae pupate within the grain or grain dust. After pupation adult emerge and remains inside the grain for some days and then comes out. There are 5-6 generations in a year.

**Damage:** Both larvae and adults attack on the grains and cause damage by feeding and making many irregular holes on them. In severe infestation, a considerable amount of frass is produced by adults and they spoil more than what they eat. On the flour young grubs are nourished.

#### Control of stored grain insect pests:

- Properly dry the stored products before storage.
- Store grains in the clean godowns or containers.

- Plug all cracks and crevices in the store.
- Disinfect the store by spraying 0.05 % malathion on the floor and ceiling, also disinfect the gunny bags by dipping them in 0.02 % fenvalerate 20 EC for 10 minutes and drying them in shade before filling with grains.
- Grain treatment with 0.05% malathion or fenvalerate in water.
- Fumigation of food grains and store with carbon tetrachloride/ aluminium phosphide should be done.