

## Stored grain—identification of insect pests

### Why identify stored grain pests?

Most insect control methods for stored grain work against all species. So you don't need to identify the storage pests to make decisions about most control methods.

But if you intend spraying grain with insecticides you may need to know which species are present if:

- a previous application has failed and you want to know whether resistance was the reason - if more than one species survived, resistance is unlikely to be the cause
- you intend using a residual protectant to treat infested grain – Actellic, Fenitrothion and Reldan are ineffective against lesser grain borer, and Actellic and Fenitrothion are generally ineffective against sawtoothed grain beetle
- you intend using dichlorvos to treat infested grain - if lesser grain borer is present you need to apply the higher dose rate

Insecticide sprays are not registered for oilseeds and pulses, so identification of pests in those grains is not so important.

### Common species

#### Cereal grains

Cereal grains include wheat, barley, oats, triticale, sorghum and millets.



**Photo: Rice weevil (left) and Lesser grain borer (right).**

The most common insect pests of stored cereal grains in Australia are:

- weevils (the rice weevil is the common species in wheat)
- lesser grain borer
- flour beetles
- sawtoothed grain beetle
- flat grain beetles.



**Photo: Red rust flour beetle (left) and Sawtooth grain beetle (right).**

Another dozen beetles, moths and psocids (booklice) are sometimes present as pests in stored cereal grain.

### Oilseeds

Oilseeds include canola, linseed, safflower and sunflower. The most common pests in stored oilseeds are:

- flour beetles
- sawtoothed grain beetle
- moths

### Pulses



**Photo: Flat grain beetles (left), and Tropical warehouse moth (right).**

Pulses include: faba beans, chickpea, cowpea, field pea, mung bean, navy bean, soybean, pigeon pea. The most common insect pests of stored pulses are:

- bruchid beetles
- moths

### Identifying the common pests

The common pests can be separated fairly easily into three groups:

- moths - moth larvae or grubs leave silken webbing on the surface of the grain, and the moths can be seen flying above the grain, particularly at dusk.
- bruchid beetles - if beetles in your stored pulses are leaving perfectly round holes where they emerge from the grains, you have bruchids
- other beetles - most of the beetle pests of stored grain are about 3 mm long, brown in colour and difficult to distinguish if you haven't been shown how.



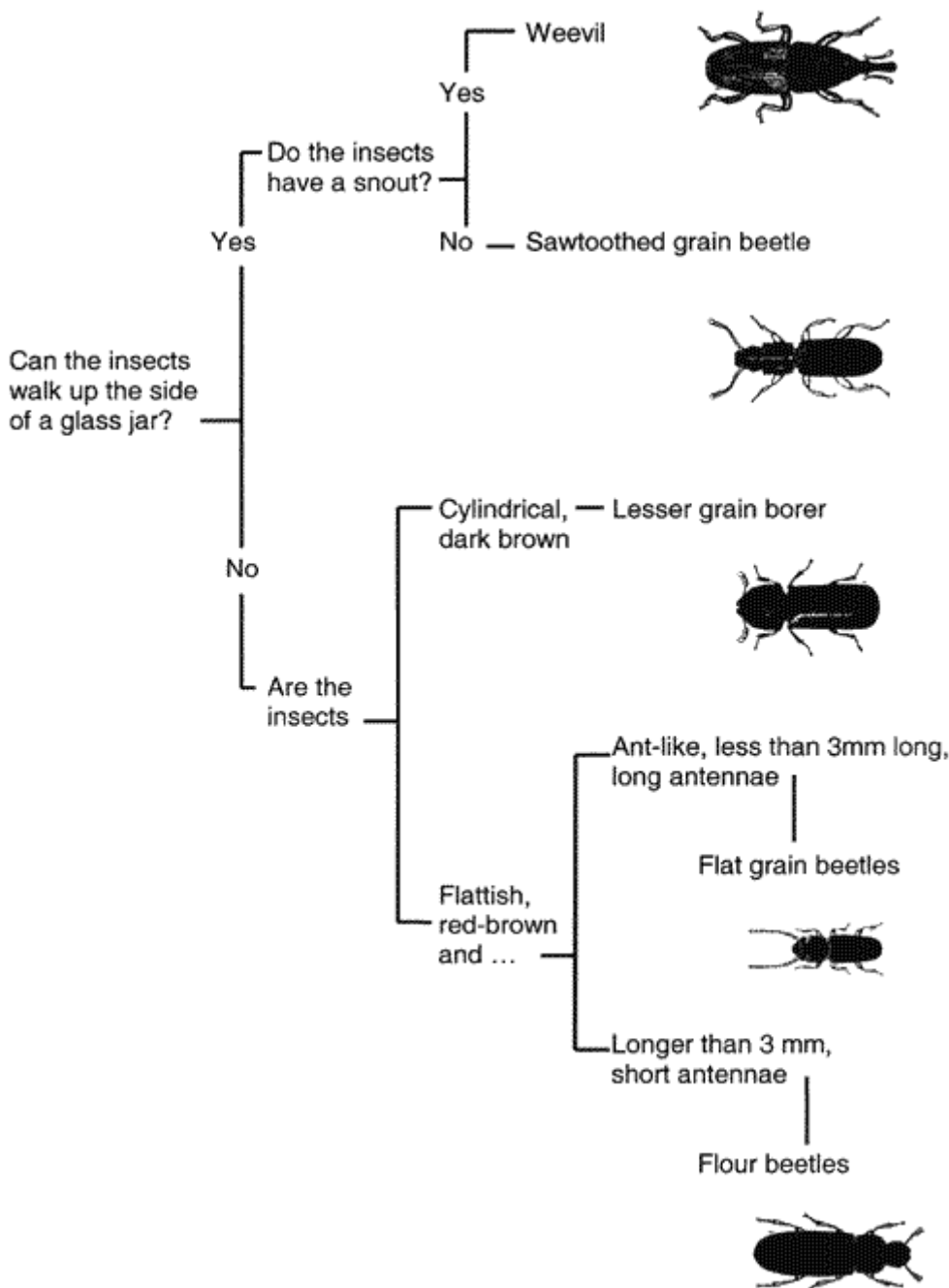
**Photo: Bruchids**

## Identifying beetles

You can use a clean glass container as a simple test for identifying grain beetles. Put the live grain insects into a warm glass container (above 20°C so they are active, but not over 40°C or they will die). Weevils and sawtoothed grain beetles can walk up the walls of the glass easily, but flour beetles and lesser grain borer cannot.

If you look closely at the insects walking up the glass, weevils have a curved snout at the front but sawtoothed grain beetles do not. Distinguishing between the species that can't walk up the glass is more difficult. Lesser grain borers are cylindrical, dark brown and usually have their head tucked under their body. Flour beetles and flat grain beetles are flatter, copper-brown, and their head usually protrudes in front of their body. Flat grain beetles are usually small, ant-like with long antennae. Flour beetles are larger with short antennae. Drawings of the common beetle pests and the steps in identifying them are shown below.

*Identification of common beetle pests of stored grain - follow the steps from left to right*



Most of the beetles other than the common species look something like the flour beetles, and should not be confused with the lesser grain borer if you know what the borer looks like.

### **Further information**

You can find colour pictures and some information on insect pests of stored grain in:

- *Insects of stored grain: a pocket reference* by David Rees. CSIRO Division of Entomology (1994). The book is available from The Librarian, Stored Grain Research Laboratory, GPO Box 1700, Canberra ACT 2601, Tel 02 6246 4201, Fax 02 6246 4202.
- *Insect pests of field crops in colour* Queensland Department of Primary Industries Q18 3006 (1983).
- The entomology section of the [AgWest web site](#)
- See [Insect control in stored grain](#) for information on control methods.