Apple weevil (*Otiorhynchus cribricollis*) - pest of viticulture

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Common names

- Apple weevil
- Curculio beetle

Origin

- Mediterranean region of Europe

Pest of...

- Young and mature grapevines
- Fruit and foliage of apple, summer fruit trees and olives
- Ornamentals

Pest of grapevines in...

- Western Australia (occasional)
- South Australia (occasional)

Description

- **Larvae** - are soil dwelling, legless and have a brown head with black jaws. The larva of apple weevil is similar to garden weevil, spotted vegetable weevil and sitona weevil. A microscope is required to identify the actual weevil type in the larval stage.
- **Adult** - medium sized about 8mm long and uniform brown weevil. It has a slightly bulbous abdomen. The adult weevils are flightless and all are females.

Habits

- Adult weevils feed at night. They are inactive during the day and shelter under bark, in the crotch of branches, between fruit and leaves, and burrow into soil around the base of trees.
- When disturbed they fall to the ground and quickly walk away.

Life cycle

- Eggs are laid in loose organic matter on the soil and hatch in 10 - 14 days.

- Young larvae are mobile; they immediately burrow into the soil to feed on plant roots.
- Larvae develop slowly during winter and more rapidly as soil temperature increases in spring. They pupate in October/November.
- The length of the pupal stage depends on weather conditions. It usually lasts three to four weeks.
- Adult weevils emerge from the soil mid November to early December and are most numerous in December.
- In the hot period during January and early February, apple weevil adults seem to leave trees and burrow into soil at the base of the tree. It seems that most egg laying occurs after this time.
- Many adults survive until April with some being present through winter.
- They have one generation each year, but their re-activation after the heat of summer may give the impression that there is a second generation.

'Looks like' – similar insects

- ***Garden weevil*** (*Phlyctinus callosus*) – medium sized about 7mm long grey-brown weevil. It has a bulbous abdomen and a prominent pale with V stripe on its lower abdomen. The adult weevils are flightless.
- ***Fuller's rose weevil*** (*Asynonychus cervinus*) – medium sized grey weevil with a yellow stripe running across the side on the first two body segments and a lateral yellow stripe on each side of the abdomen. This insect is a minor defoliating pest of grapevines.
- ***Whitefringed weevil*** (*Naupactus leucoloma*) - large sized grey weevil with white bands along each side of the abdomen. Hairy appearance. Has been reported as a foliage feeder on young trees. Not a pest in older, established orchards..
- ***Vegetable weevil*** (*Listroderes obliquus*) – medium sized grey weevil with tow angled bands on the rear of the wing cover. Unlike garden weevil, the weevil's abdomen is straight sided and not bulbous. This insect has not been reported as a pest in vineyards, but can occur in large numbers feeding on weeds, such as capeweed.

Damage and loss

- Adult apple weevils attack shoots and foliage. Ringbarking the stems of young shoots in spring by over-wintering adults has been the most common damage observed, in both new and established vines. Adults emerging from an area that was previously under pasture may also attack newly planted vines. Grapes are not usually damaged.
- Larvae probably feed on the roots of vines and inter-row plants. Damage to vines by larvae feeding on roots has not been reported.

Monitoring

- Monitoring for over-wintering adults in early spring if ringbarked stems are observed.
- Monitor for larvae and adults as described for garden weevil, except commence around 4 weeks later than for garden weevil.
- Monitor every seven days. The damage from apple weevil may be isolated thus inspection of a representative sample of vines is necessary.

Management options

- **Biological**
  - research has shown that birds are not as effective in controlling apple weevil as they are for garden weevil. Trials are planned on using nematodes to manage apple weevil in Australia. The nematode is *Heterorhabditis zealandica* - a native, first recorded from NSW.

- **Cultural**
  - like garden weevil, apple weevil appears to breed successfully in some weeds such as capeweed. Removal of such weeds will help reduce weevil survival and abundance.
- **Physical**
  - the repellent sticky bands used for garden weevil control are not effective in preventing apple weevil adults from accessing the tree canopy.
- **Chemical**
  - synthetic pyrethroid insecticides are the most active group in controlling apple weevil.
  - in non-bearing grapevines an alpha-cypermethrin product is registered as a foliar spray.

References

- Learmonth, S. (1988) Identifying soil insect pests – beetles, Farmnote No. 75/88, Agdex 611, Agriculture Western Australia, Perth.
- Nicholas, P., Magarey, P. and Watchel, M. (eds) (1994) Diseases and Pests – Grape Production Series Number 1, Winetitles, Adelaide.

This information has been written for Western Australian vineyards and some modifications may be required for other states.

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