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FACT SHEET

BIOCONTROL OF COMMON GRAPEVINE INSECT PESTS: GRAPEVINE SCALE

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FINDING THE BALANCE... NATURALLY!

Healthy and diverse populations of predatory arthropods (insects and spiders) and parasitoids (wasps and flies) can help prevent grapevine pests from reaching economically damaging thresholds.

Growers can support healthy predator populations by providing a habitat that provides food, shelter and alternative prey/hosts and minimise the use of pesticides that are toxic to natural enemies.

Biocontrol options for common Australian grapevine pests are explored in this series of fact sheets.

FAMILY COCCIDAE

Parthenolecanium persicae, grapevine scale

DESCRIPTION: Grapevine scale is the most prevalent species of scale insect found in vineyards, and *Parthenolecanium pruinosum*, frosted scale, is also found on some sites. Their life cycles are very similar, and control methods are the same.

Indirect damage is caused by scale insects when the secreted honeydew is colonised by microorganisms and results in sooty mould. Scale insects are sap sucking bugs and can also transmit grapevine viruses. The presence of sooty mould can result in the downgrade of fruit quality. Ants feed on the honeydew and help protect the scale insects from attack by predatory arthropods.

DISTINCTIVE FEATURES: Grapevine scale is a small, oval-shaped, sucking insect up to 6 mm long that lives beneath a protective dark brown wax cover. Grapevine scale produces pink eggs (compared to frosted scale that produces cream-coloured eggs).

Figure 1. Examples of grapevine scale [Photos: Mary Retallack].

BREEDING CYCLE: There is one generation of soft scales per year.

WHEN TO MONITOR: Check underneath bark on spurs, canes and cordons during winter, and again during late spring and summer when mature scales deposit hundreds of eggs under their bodies and then die.

Scale insects are difficult to detect at low densities, but the presence of ants is often a good indicator that they are present. The presence of sooty mould also indicates the possible presence of scales and/or mealybugs.

SUGGESTED ACTION THRESHOLDS: Once an infestation is found, mark the area in case future action is required. If sooty mould has caused economic loss in the previous season, then intervention may be warranted the following season.

Biocontrol options

PARASITOID WASPS: *Metaphycus maculipennis* is a common parasitoid of grapevine scale *Parthenolecanium persicae* (Rakimov et al., 2015), as well as *Cheiloneurus* ssp. and *Coccophagus lymnia* (Thomson and Hoffman, 2006).

PREDATORY ARTHROPODS: Predators such as ladybird beetles (*Rhyzobius pulchellus, Rhyzobius forestrii, Cryptolaemus montrouzieri, Coccinella transversalis, Hippodamia varigata*), predatory moths (*Mataeomera dubia* and *Stathmopoda melanochra*), carabid beetles, soft-winged flower beetles, and lacewings all contribute to the control of grapevine scale (Rakimov et al., 2015).

The predatory mite *Anystis baccarum* is a predator of the eggs and crawlers of soft scales (Bernard et al., 2004; Winter et al., 2018). Green lacewings and ladybird beetles are available for release commercially.

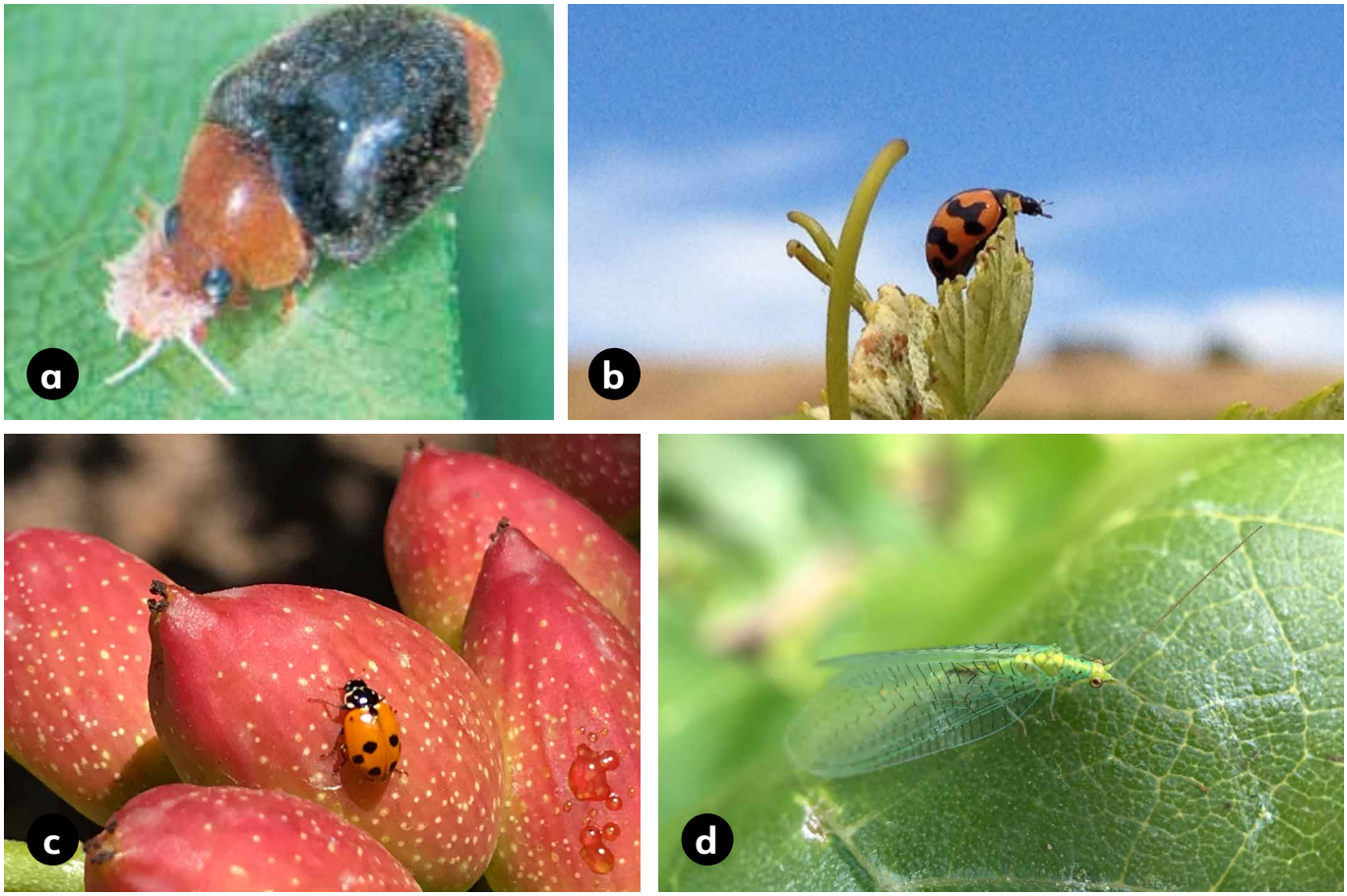

Figure 2. (a) Adult mealybug destroyer, *Cryptolaemus montrouzieri* [Photo: David Madge], (b) transverse ladybird beetle, *Coccinella transversalis*, (c) spotted amber ladybird beetle, *Hippodamia variegata*, (d) and green lacewing adult [Photos: Mary Retallack].

Further reading

For more information about scale insects found in vineyards see the Wine Australia website page on grapevine scale and sooty mould and AWRI website page on scale insects.

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