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FACT SHEET

BIOCONTROL OF COMMON GRAPEVINE INSECT PESTS: BUD, BLISTER AND RUST MITE

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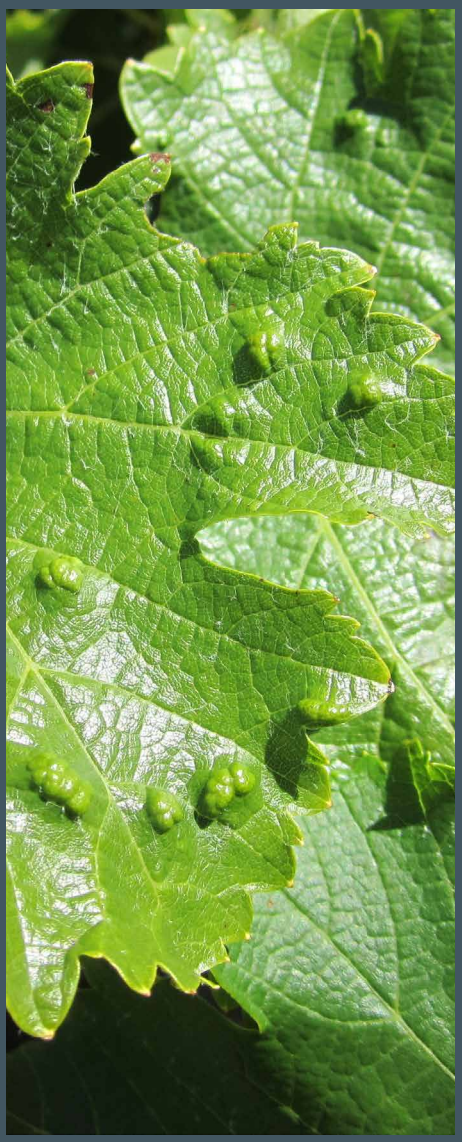

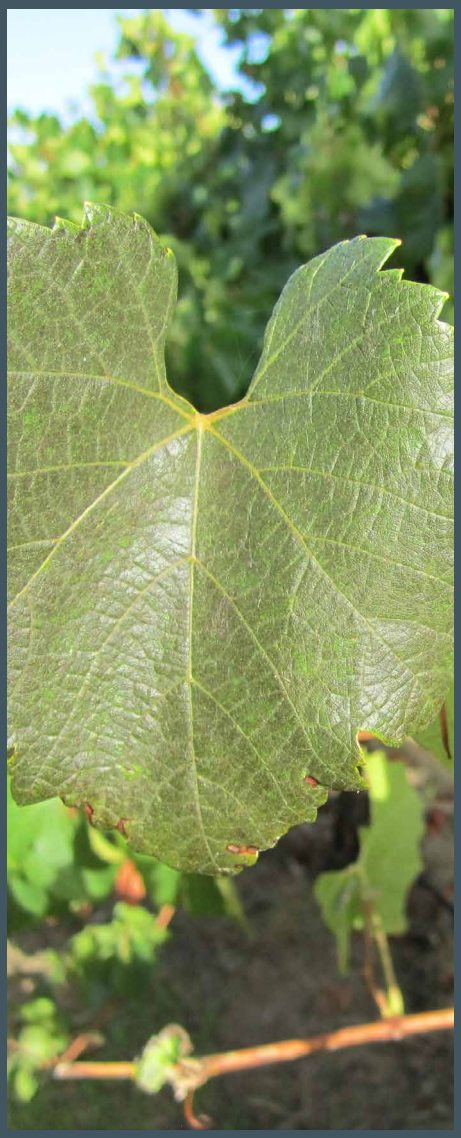

Wine Australia

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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. For a broader discussion about functional biodiversity please see the EcoVineyards best practice management guide on functional biodiversity in Australian vineyards and to read the other fact sheets in this series please visit the EcoVineyards knowledge hub.

FAMILY EPIOPHYIDAE

Colomerus vitis, bud and blister mite; *Calepitrimerus vitis*, rust mite

DESCRIPTION: Bud mite and blister mite are two strains of a mite species, *Colomerus vitis*, that only occur on grapevines. They are very similar except for the damage they cause by their feeding activities.

Bud mites feed on and damage young buds, and blister mites cause galling on leaves. *Calepitrimerus vitis*, rust mite, is found in most grape growing areas and causes damage to leaves and bunch stems.

Early spring symptoms of rust mite damage include leaf distortion or crinkling, shortening of growing shoots, and small yellowish or clear spots on crinkled leaves. In summer and early autumn, feeding damage on mature leaves appears as a 'bronzing' effect on leaf surfaces.

DISTINCTIVE FEATURES: Rust mites have a hexagonal-shaped head and are bronze in colour. Bud mites look more like a torpedo with a triangular head that is tapered at both ends. The larval stages of both mite species are very hard to distinguish between. The easiest way to distinguish between the species of mites present on grapevines is by the damage they cause. Microscopic magnification is necessary to identify different mite specimens.

Figure 1. Examples of (a) bud mite damage, (b) blister mite damage, and (c) rust mite damage (L), and a healthy leaf (R) [Photos: Mary Retallack].

BREEDING CYCLE: There are multiple generations of each mite species each year.

WHEN TO MONITOR: Monitor for bud mites in winter using a dissecting microscope (x20 to x40 magnification). Examine inside dormant buds for adult bud mites and monitor in early spring for shoot and leaf symptoms. Trapping for rust mite can be carried out prior to Chardonnay 'woolly bud', until mid-late October. Apply double-sided tape to one-year-old wood below the first node and assess the results using a dissecting microscope. In summer and early autumn, look for distinctive 'bronzing' on leaf blades caused by rust mite feeding damage.

SUGGESTED ACTION THRESHOLDS: If symptoms of bud mite damage were observed in the previous season, fungicide control measures are likely to be required early in the upcoming season though effectiveness is often limited. Rust mite severity depends on the amount of bronzing damage observed on leaves the previous season. If you observed heavy bronzing in autumn (i.e. > 50%) then fungicide application may be required before budburst in the upcoming season.

Biocontrol options

Minimise the use of sprays toxic to predatory mites to achieve a lasting prevention of all pest mite outbreaks, without the need to spray each year (Bernard et al., 2007). Predatory mites are particularly sensitive to chemical sprays, including active constituents emamectin benzoate, mancozeb (Bernard et al., 2004), spinosad, wettable sulfur (≥400 g/100 litre), and pyrimethanil (Bernard et al., 2010).

NB: the sulfur (≥ 400g/100 litres) rate assumes a concentration factor (CF) of 1 or dilute spraying volumes, which have historically been based on 4 kg sulfur per hectare at water application volume of 1,000 L/ha.

PREDATORY ARTHROPODS: Predatory mites contribute to the control of a range of vineyard mite pests. *Phytoseiulus persimilis* is a predatory mite commonly observed on grapevines that contributes to the control of a range of pest mites. *Euseius victoriensis* ('Victoria') and *Typhlodromus doreenae* ('Doreen') contribute to the control of *Colomerus vitis*, grape bud mite, *Colomerus vitis*, blister mite, *Calepitrimerus vitis,* rust mite, and *Brevipalpus lewisi*, bunch mite. *Haplothrips victoriensis* also feeds on rust mite (Bernard et al., 2006b).

Predatory mites can be purchased in Australia for release if needed to augment naturally occurring populations of predatory mites.

FURTHER READING

For more information on natural enemies, please see natural predators of vineyards insect pests booklet and associated articles and fact sheets on the EcoVineyards knowledge hub.

REFERENCES

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ACKNOWLEDGEMENT OF COUNTRY

EcoVineyards proudly acknowledge the Aboriginal and Torres Strait Islander Peoples, and their ongoing cutural and spirital connection to this ancient land on which we work and live.

As the Traditional custodians we recognise their wealth of ecological knowledge and the importance of caring for Country.

We pay our respect to elders past and present and extend this respect to all Aboriginal and Torres Strait Islander Peoples.


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