

## BUD MITE

Bud mite (and blister mite) are two strains of a mite species which only occurs on grapevines. They are essentially identical except for the damage they cause by their feeding activities - bud mite feed on and damage young buds, and blister mite cause galling on leaves.

Bud mites live, breed and feed within buds for the vast majority of their life. They burrow deep into developing buds during the previous season, damaging those cells which will develop in the following season into leaves and flower clusters and the cells which form the primary growing tip of the shoot.

This damage results in the typical shoot symptoms seen at budburst which are associated with bud mite activity. Adult bud mites survive over winter inside the dormant buds, and in greatest numbers in the last 2-3 buds closest to the base of the shoot, though they can be found in the first 10 or so basal buds. They most often live in the primary bud of the compound bud.

Many species of mites can be spread by wind, carried on insects and birds, on vine trimmings moved about the vineyard, and inside buds on vine cuttings used for propagation. Bud mites are often preferred prey of predatory mites when they are exposed, and are prone to dehydration. They do not migrate along canes or move out to feed on the leaves like the related rust mite. Bud mite move from overwintering buds directly into the protective shelter of newly forming buds within a month of budburst, and are 'carried upward' by the growing shoot, living under the scales at the base of each leaf stem.



### SYMPTOMS AND DAMAGE

Typical early season symptoms of bud mite damage can include:

- dead buds and shoot tips
- cut leaf margins
- 'zig-zag' veins on basal leaves
- shortened internodes
- crooked shoot growth or flattened lower portions of shoots
- increased development of lateral shoots ('witches broom').

These are all the result of feeding damage in the developing buds and are usually concentrated on the lower leaves and nodes of shoots.



### DISTRIBUTION AND MONITORING

Bud mite damage has been recorded in most grape varieties including Cabernet Sauvignon, Chardonnay, Sauvignon Blanc, Shiraz, and Tokay.

## MONITOR

If you're not sure if you have a bud mite problem, you'll need to monitor to establish if a population is resident in the vineyard - or parts of the vineyard. Generally, bud mite infestations are not uniform, either within a single vine or across a vineyard. Because of their relatively restricted movement, selection of monitoring sites should include:

- areas of the vineyard where you suspect mites may have been a problem in previous seasons,
- blocks where chemical controls have been applied for mites or other pests which may have impacted on predator populations.

If sprays have been applied for early season eradication of bud mite, monitoring for subsequent damage to assess the level of control needs to be done while symptoms will still be clearly visible, before shoots have 6-10 separated leaves.



## MANAGING BUD MITE

In the previous season if mites were active in the vineyard, damage on leaves and shoots will have been most apparent in the first month after budburst. If symptoms occurred, control measures for bud mite are likely to be required early in the upcoming season. Vines pruned to leave only the basal two buds over winter can be severely affected by bud mite, as the canes which grow from these basal buds will harbour a large number of mites.

## CONTROL

Naturally occurring beneficial insects and other predatory mite species often keep pest mite species under control with no need for chemical intervention. However, if controls are required there are a couple of options available with various forms of sulphur registered for use against bud mites in grapevines as well as canola oil. It should be noted that spray control may not necessarily prevent damage and symptoms in that same year, but will reduce populations and bud infestation levels for the following year.

## TIMING

- Bud mites are only exposed for a very brief period in late winter, i.e. **prior to and during the woolly bud stage.**
- Chardonnay is the indicator variety for timing of spraying in each region.
- For maximum control, ensure sprays are applied **prior to mid-woolly bud** stage for all varieties.
- Even with extremely well timed applications, the level of control may be very low if other factors such as water rates, rain and temperature are not ideal.



Bud swell



Woolly bud

## CHEMICALS

- Good control of bud mites can be achieved by applying:
- **Wettable sulphur** at the label rate for mites (incl. non-ionic wetter at label rate if not adding oil) or
- **Canola oil** at the label rate (1-2lt/100lt) for mites or,
- A **mixture** of wettable sulphur and canola oil.
- ✓ Ideally, sulphur should be applied in dry conditions when temperatures are **15°C or higher** to maximise sulphur activity.

**NB:** mixtures of wettable sulphur and canola oil can damage new leaves and shoots so should **NOT BE APPLIED** from budburst onwards.

### **WATER RATES**

- To effectively control bud mites, sprays must saturate the bark of the cordons and crowns to kill migrating mites before they lay their eggs.
- Water rates between 600 and 900 L/ha have been found to achieve best levels of control.
- Do not use less than 500 L/ha. Increased water rate should be used if worried about coverage.

### **NATURAL PREDATOR POPULATIONS**

- While the control of bud mites can be achieved by chemical applications, this needs to be balanced against the impact on naturally occurring populations of mite predators in vineyards.
- If predators are suppressed, then severe bud mite outbreaks can arise.
- High rates of wettable sulphur are toxic to mite predators so reducing subsequent rates of wettable sulphur for the control of powdery mildew assists in the conservation of predator populations.
- Canola oil has been found to be less toxic to predators than wettable sulphur but it is a more expensive option.

For more information, contact your Winery, Grower Liaison Officer, or Nicki Robins, BGWA Viticultural Development Officer on 08 8563 0650 or [nicki@barossa.com](mailto:nicki@barossa.com). You can also access more information at the following links:

<http://www.crcv.com.au/viticare/vitinotes/>

<http://djsgrowers.blogspot.com.au/2010/08/rust-mite-sprays.html>