



Monitoring for rust mite

Other topics in this Viti-Notes series include:

Characteristics of rust mite
Spring control of rust mite
Restricted Spring Growth

Did you see these symptoms in the vineyard last season?

In early spring:

- leaf distortion or crinkling
- shortening of growing shoots (this will have been most obvious soon after bud burst to the stage where 5-8 leaves have separated)
- small yellowish or clear spots (< 1 mm) on crinkled leaves.

Symptoms of rust mite damage seen in spring can be misdiagnosed as restricted spring growth syndrome (RSG), generally thought to be caused by a range of factors including winter chilling injury, waterlogging, overcropping of young vines or grapevine yellows.

If you observed the above symptoms, the damaged shoots and leaves will probably progressively have recovered, though you may still have seen some signs of damage in mature leaves and in young leaves at the tips of shoots throughout the growing season if you had a large population of rust mite in spring which remained uncontrolled.

Later in the summer and early autumn you may have observed a 'bronzing' effect on leaf surfaces. This results from the tiny necrotic spots caused by feeding damage on mature leaves drying out in the heat, particularly if conditions during that time were hot.

IF THESE SYMPTOMS OCCURRED LAST SEASON, CONTROL MEASURES FOR RUST MITE ARE LIKELY TO BE REQUIRED BEFORE BUDBURST IN THE UPCOMING SEASON

Timing management

If controls are required for management of rust mite, for chemicals to be effective, application must be timed to target mites when they are exposed on the vines. Recent research indicates that control of rust mite can only be achieved in a very narrow window in early spring when the mites are exposed during migration from their winter sheltering sites; before leaf expansion provides them with shelter from sprays and before they can lay their eggs.

In experiments conducted in cool climate vineyards in the southern Australia, mite migration on several vine varieties was seen to correlate with woolly bud stage in Chardonnay vines. This would indicate that the migration of rust mite populations is in response to environmental conditions rather than directly to a developmental stage of the vine itself.

RUST MITE ARE ONLY BRIEFLY EXPOSED IN SPRING

Where to monitor

If you aren't sure if you have a rust mite problem, you'll need to monitor to establish if a population is resident in the vineyard, or parts of the vineyard. Generally, rust mite damage appears to be more prevalent in coastal areas and cooler districts. 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:

- varieties which show symptoms clearly such as Cabernet Sauvignon
- areas of the vineyard where you suspect mites may have been a problem in previous seasons
- dusty areas, such as near roadways, which often show a higher incidence of rust mite damage



- vines where summer 'bronzing' was observed in previous seasons
- blocks where chemical controls have been applied for mites or other pests which may have impacted on predator populations.

When and how to monitor

If commencing a rust mite monitoring program for the first time this coming season, you will observe different symptoms at different stages of vine development.

Late winter/early spring migration

Monitoring for migration of the mites from their winter shelters can be undertaken in late winter/early spring depending on the region and characteristic of the season. This is best timed to correspond with the woolly bud stage of development in Chardonnay, for all vine varieties, as field experiments indicate that rust mites respond to the same temperature and other environmental conditions which initiate woolly bud in Chardonnay.

- Double-sided sticky tape can be wrapped around trunks, cordons and canes near the crown to act as 'traps' to catch mites as they move upward towards the unfurling buds. The traps can then be placed in a clear plastic display pocket such as is used in A4 loose-leaf binders and viewed under a dissecting microscope, or sent to a laboratory for positive identification (it is best to verify that this method of collection will be suitable with your chosen laboratory first).

From budburst onwards

If no controls have been applied, it may be possible to find rust mite during the growing season.

- Where leaf and shoots symptoms are evident, using a x10 hand lens and/or if possible a field dissecting microscope, look for adult and juvenile rust mites and eggs clustered along the main veins on both surfaces of leaves.

Late summer/autumn

Mites may have already migrated to their overwintering sites by late summer/autumn, but evidence of their activities during the season will be most obvious at this time.

- Examine canopies for 'bronzing' of leaves. Using a x10 hand lens examine leaves. Up close, this bronzing colouration can be seen to be caused by masses of tiny spots on the leaf surfaces. These result from mites feeding and damaging surface cells which then dry out and turn brown in the heat. Bronzing may be more pronounced in very hot seasons.

In the first month after budburst

If sprays have been applied for early season eradication of rust mite:

- Monitor for leaf and shoot symptoms and presence of mites to assess the level of control. This will need to be done before shoots have 6-10 separated leaves, while symptoms are still clearly visible.

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 - THIS MAY HAVE BEEN DEEMED AT THE TIME TO BE CAUSED BY RSG. RUST MITE BRONZING COULD ALSO HAVE BEEN SEEN IN SUMMER AND/OR AUTUMN, PARTICULARLY IF THE SEASON WAS HOT.

Managing rust mite

Chemical application for control in the upcoming season is indicated if leaf bronzing was observed across at least half of the canopy in a block in the previous summer/autumn

- Apply control measures before budburst the following spring.

Correspondingly, an absence of leaf bronzing in hot summers may indicate little rust mite activity and therefore a reduced need to apply sprays in the following spring.

Further information

A useful reference is:

Bernard, M, Horne, PA and Hoffmann, AA (2001) Preventing restricted spring growth, *The Australian Grapegrower and Winemaker* issues: 452, pp16-7 and 19-22, 453 p26

Also available at www.grapeandwine.com.au/sept01/010907.htm

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- Enquiries to Peter Mansfield on (08) 8222 9255 or visit www.crcv.com.au for more information.

Numerous articles about rust mite have been published in various issues of *The Australian and New Zealand Grapegrower and Winemaker*. Visit www.grapeandwine.com.au/ for details.

Visit the web site at www.crcv.com.au/viticare/vitinotes/ for updates and more Vitinote titles.

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