

Protecting Wine Grapes From Sun Damage This Summer – 2009 / 2010

4 September 2009

SUNBURN is proving a significant problem for winegrape production in Australia - causing loss of production, potential fruit rejection, reduced wine quality and downgrading of fruit by wineries. Sunburn damage can also increase susceptibility to bunch rotting, including *Botrytis cinerea*.

Reported losses sustained in the 2008-09 vintage due to the January heatwave ranged from 10% to complete loss of crop. Exposed bunches on the western side of vines were most severely affected.

Adding to the risk of sunburn in cooler-climate regions are the canopy-management practices used to improve quality and to reduce fungal disease. Last summer, leaf removal and open trellis designs resulted in increased fruit exposure to the sun, and higher levels of sun damage.

Many trials have been conducted in Australian vineyards by independent Australian researchers - contracted by Crop Care Australasia - to determine the usefulness of applying sunscreen protection to grapevines.

In early trials (2007) in Victoria by Peracto, the liquid sunscreen Parasol® significantly reduced sun damage in Marsanne grapes, and showed no adverse impact on grape juice analysis.

New trials in the 2008/2009 winegrape crop confirmed the potential value of protecting winegrapes from sun damage - also that Parasol had no adverse impact on fermentation.

New Trial Data From Last Summer (2009 Vintage)



- In a trial conducted by R&D Solutions on a Mornington Peninsula vineyard in Victoria, the liquid sunscreen Parasol was applied to Chardonnay grapes – a variety very susceptible to sunburn damage. Three applications were made prior to the onset of high temperatures to maintain fruit coverage – on 20/12/2008, 4/1/2009, and 17/1/2009. Rate of application was 2.5L/100L water, at an application volume of 300L/ha.

Early in the trial, vines were leaf plucked by hand in the bunch zone to ensure bunch exposure to sunlight.

The season was unusually mild until mid January, when temperatures rose above 30°C; eight days of high-risk to sunburn injury were recorded, including three consecutive days in January with temperatures over 40° C. The result was a very high incidence of sunburn damage to berries on the western side of all grapevines in trial plots – exacerbated greatly by earlier leaf plucking around bunches.

In the untreated trial vines only 57% of bunches were marketable (less than 10% sunburn), compared with the Parasol-treated vines which yielded 71% marketable winegrapes.

Analysis of grape juice pre and post harvest showed no adverse effects on quality from the Parasol treatments.

- A trial conducted by Agrisearch, at Toolamba, Victoria applied Parasol at the rate of 3L/100L water at an application volume of 250L/ha.

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The mean number of bunches without sunburn was increased by the use of Parasol – from 8.7% in untreated vines to 20-23% in Parasol-treated vines. The degree of sunburn severity (on a 1-5 scale) was also significantly reduced with the application of Parasol.

This trial included an organic formulation of Parasol, which was equally effective as the current formulation – showing promise for future sunburn protection of high-value organic winegrapes.

- Sap flow studies at SARDI in South Australia showed that Parasol kept vines cooler, thus improving sap flow. Trial work will continue this season to further quantify the impact on vine water use.

All of the 2009 trials demonstrated to Crop Care and wine industry researchers the importance of applying the product early - to maximise its effectiveness in combating sunburn and solar stress.

- Fermentation studies. Samples of grapes from both Parasol-treated vines and untreated vines were sent to the Australian Wine Research Institute for fermentation studies after harvest early this year. The AWRI analysis showed no significant difference in fermentation results between Parasol-treated vs untreated Chardonnay grapes, which were processed with the skins on.

AWRI advises therefore that a similar result – no adverse effect on fermentation - could also be expected from Parasol use on red varieties.

This South Australian analysis of winegrapes in the 2008/09 vintage confirms results from previous trials in Australia and overseas - that the liquid sunscreen Parasol has not interfered with the fermentation process.

Recommendations For Winegrapes – 2009 / 2010 Summer



With the information gained from last season's trials, the Parasol label recommendations for grapevine protection have been updated.

- To protect berries from sunburn, apply the first application before temperatures exceed 30°C, or before berry size exceeds 10mm (early bunch closure). Direct spray to target berries only, so approximately 30% of the vine is treated.
- To protect the foliage and cool the canopy, apply a first spray over the whole canopy before temperatures reach 30°C.
- Recommended dilute rate for berry protection and for canopy protection is 2L/100L water. Reduce the spray volume to 2X or 3X concentration. For example, application of Parasol at 2X concentration will require 4L of Parasol per 100L of water.
- Reapply at 2 to 3 week intervals or as required to maintain a protective coverage of berries and foliage.
- A wetter (Vitiwet®) is recommended to assist coverage of berries, but not for canopy application.



For More Information:

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Muscat Godeau grapes and vines protected by Parasol from sun damage on a scorching 46°C day last January in South Australia.



Sunburnt Muscat Godeau grapes on unprotected vines in a South Australia vineyard in last January's heatwave.

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