

# LIMITING SUN DAMAGE IN WINE GRAPES

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Sun damage can have a major impact on wine grape yield and quality.

Damage can range from the complete loss of bunches – with all berries shrivelled by the sun – to more subtle effects on the quality of grape juice and subsequent wine.

Sun damage in grapes in Australia is common between December and February, and grapes are most susceptible to this type of damage around veraison.

A new liquid sunscreen based on calcium carbonate is now available for use by Australian winegrowers. The product provides a thin film of fine particles that filter out damaging parts of the sunlight spectrum, while allowing normal levels of photosynthesis and fruit colouring.

The sunscreen Parasol can be applied to grapes throughout the season to provide a protective coating on berries and foliage.

Sun damage cannot be reversed, so the first application of sunscreen should be applied before the first period of hot weather, with the aim of maintaining a protective cover up until harvest.

A coating of Parasol on the crop foliage also has the potential to reduce overall temperature within the grape canopy.

This aspect of sunscreen use will be monitored in trials conducted in association with the South Australian Research and Development Institute during 2008/2009 – using equipment that will monitor sap-flow in both untreated vines and vines treated with Parasol.

The tests will study the effects of cooling the grape canopy on the watering requirements of the crop.

Similar testing of crops in America has already produced promising results, highlighting this potential secondary benefit from the application of a crop sunscreen.

Shaun Heidrich is the Australia and New Zealand regional manager for agricultural sunscreen products for Crop Care, in conjunction with the American manufacturer Purfresh: “Most crops suffer some form of solar stress, and growers are facing limited or reduced water allocations in many areas. Shielding plants from the heat of the sun during the key heat-stress months will help maintain grape yield and wine quality – and will potentially lower moisture requirements for the vine for growth and production of a useful crop.

“This season we will use an accurate moisture sensor inserted into the vine heartwood that will log the plants water-use throughout the day. This new ICT unit will be accompanied by a weather station to establish the effects of cloud and wind, for example, on water use.

“It is an Australian first for horticulture – to have moisture monitored inside the plant, rather than in the surrounding soil, as with previous technologies.

“The ICT sap-flow monitoring machine will help us to understand the physiology behind the interaction between the sunscreen and the crop’s watering requirement.”

Recent studies in South America at the University of Talca in Chile, tested Parasol sunscreen on a range of grape varieties including Cabernet Sauvignon, Merlot and Chardonnay.

Important findings from sunscreen-treated vines in the Chile research were:

- lower incidence of severely damaged fruit (normally left unpicked )
- greater cluster weight
- normal fermentation results after treatment through the season
- lower soluble solid ( Brix ) content than in untreated grapes.

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Results from this coming season's Australian trials with Parasol in wine grapes will be available in 2009.



Marsanne grapes protected by liquid sunscreen Parasol



Leaves of marsanne vines protected by Parasol sunshield.



Date logger set up last season in Victoria to monitor water use showed reduced water stress in marsanne vines treated with Parasol sunshield.



Unprotected sun-damaged bunches of cabernet sauvignon.



Cabernet sauvignon bunches protected by a reflective film of Parasol sun shield.

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