

Sunscreen is helping keep the grapes cooler and the wines bright

Summary

The benefits of using sunscreen on grape vines as a climate change adaptation strategy (when necessary) over the past seven seasons are becoming apparent. Hunter Valley based viticultural consultant, Liz Riley, is working with growers who are increasingly adopting the use of sunscreen as a risk and crop management tool. As a result, they have been able to see differences between the treated and untreated parcels of their vineyard. The blocks using sunscreen are ripening earlier, with less sunburn and winemakers are seeing cleaner and brighter wines in the winery.

Name	Liz Riley
Business	Vitibit
Wine region	Hunter Valley and greater NSW

A run of warmer summers over the past decade have demonstrated the benefits of using sunscreen on grapevines as a climate change adaptation strategy. Viticultural consultant, Liz Riley, said that the practice has progressed from being used only on blocks with sparse or scrappy canopies, to being used more broadly to help maintain the canopy through heat periods.

Liz was one of the drivers of a trial project run over 2013–14 in the Hunter Valley assessing the use of sunscreen to lower the level of sunburn during extreme heat events. While attending a technical conference 10 years ago, Liz said she saw a poster about sunscreen that became a catalyst for the regional project. ‘There was nothing to lose and it was not difficult to do, so we adapted manufacturer recommended strategies and modified them to suit our region.’





Clay sunscreens reflect the heat, keeping vine temperatures cooler for longer during extreme heat events.

The trial was successful and demonstrated the value in applying sunscreen to vines before a heat event. Liz wrote a fact sheet about the trial for Wine Australia, which included a winemaker's assessment of the differences between treated and untreated grapes (which were kept separate during winemaking). 'Final comments from the winery indicated the use of sunscreen products was beneficial and the winery would continue to support growers applying sunscreens on a case-by-case basis as required.' (Riley 2014)

Over the past four to five seasons, there have been more extreme heat events with temperatures reaching more than 40°C. Higher temperatures are occurring quite early in the mornings (e.g. 35°C at 10am) rather than later in the day.

Liz explained that when the temperature is more than 35°C, vine photosynthesis is significantly decreased,

which means a substantial reduction in the rate of fruit ripening. 'That is a long period without a lot of activity. When sunscreen is used, because it is white and reflecting heat, vine temperatures are staying cooler for longer (still reaching 40°C but only at a later point in the day).'

Clarifying further, she said, 'if it is a prolonged heat event over a number of days, the benefit of the sustained ripening becomes very evident with sugar levels continuing to increase, as opposed to stalling in the untreated areas.'

'With the sunscreen on we have also noticed that the vines are still growing a little bit, with the fresh new growth being easy to identify as it does not have any sunscreen on it.' Liz also noted that while there is strong anecdotal evidence that generally more canopy growth is happening, scientific metrics were yet to be gathered.

As a result of using sunscreen, Liz said that grapes may be harvested at the expected date or earlier rather than being delayed by the high temperatures. Earlier harvests in regions that have a higher risk of high heat means that exposure to extreme events is minimised and additional disease pressure is avoided.

Since starting to use sunscreen on vines seven seasons ago, Liz said that she has seen her clients increasingly adopt the practice as a risk and crop management tool. 'Even if only used on one block (e.g. 30 per cent of acreage), this can help manage vintage compression¹ and intake. It can help spread the fruit ripening period, which while hard to quantify, is a significant benefit. And if you can get part of your harvest in a week early you could avoid the winery being gridlocked.'

Liz said that the visual aspect of the sunscreen has also contributed to its wider adoption. 'When you spray white clay over a vineyard it looks like snow. People notice and you can then articulate what is happening.'

Growers using the strategy have been able to see differences between the treated and untreated parcels of their vineyard. The blocks using sunscreen are ripening earlier, with less sunburn and winemakers are seeing cleaner and brighter wines² in the winery.

Liz also pointed out that an earlier harvest could translate to water savings that can be used for another block. 'This is very handy towards the back end of the vintage period when water supplies are often running low.'

¹ Vintage compression is when wine varieties, which historically ripen at different times, ripen at the same or similar times and put pressure on harvesting and processing resources.

² Winemaker comments comparing sunscreen treated grapes with untreated (Wine Australia Fact Sheet - link in resources) were 'that the fruit was riper analytically and flavour-wise and had a better pH and TA as well. Compared to sunburnt fruit, there was better colour and [the] juice required less fining...'

‘It’s not perfect,’ she said. ‘For example, hard and fast rain after [sunscreen] application means we have to re-apply but we know that slow and steady rain won’t wash it off. We also have to plan for stock supply. In 2018 we ran out because the heat came between Christmas and New Year, which meant resellers were closed and growers were without stock. So, we are encouraging growers to have supplies on hand.’

With implementation driven by seasonal circumstances, Liz commented that if she had a wet season and good growth, she probably wouldn’t use it.

Some initial resistance from winemakers has now largely disappeared as they are starting to see the benefits and Liz said that many are asking for growers to use sunscreen. She pointed out the commercial nature of the decision. ‘There is a cost for growers to put it on. Some wineries agree to pay more per tonne to gain a quality jump, for others it increases the value of the fruit and thus assists with a sale.’

‘There is increased strategic value for an integrated wine business [to use sunscreen], with potential benefits across the whole value chain in terms of better fruit and risk management’.

Liz said that her confidence in recommending strategies to manage vineyard health has grown, with sunscreen options and outcomes now a regular part of her conversations with clients who don’t have enough water for the season. Her three key pieces of advice for those thinking about using sunscreen are:

1. **Try a block, do a demo and have an untreated area to compare.** Harvest a commercial volume from treated and untreated vines and observe the sampling and winery differences.
2. **Don’t be cheap.** One product has a specific recommendation to do a double rate and then half which is necessary for layering. It is one of the secrets to success (two applications are much better than one).
3. **How it works depends on how you are using it.** The sunscreen has to be applied prior to a heat event (not after), and it must be applied below 28°C or it dries between leaving nozzle and hitting vines.

Sunscreen is also a very useful tool for assessing sprayer coverage during the growing season. Liz noted that it is much easier than using ultraviolet dye and can be used during the day. ‘This helps with spray calibration and pest and disease control. It’s hard to measure the value, but I know it’s making a difference to business decisions.’

Resources

Riley, L. (2014). *Sunscreen for winegrapes: demonstration trial*. [Fact Sheet] Wine Australia. Available at: <https://www.wineaustralia.com/getmedia/77df1eb2-63f8-491b-aaa5-783461ceb7a4/201411-Sunscreen-for-winegrapes.pdf>.

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