

Managing grapevines post hail damage

Authors: Mark Krstic¹, Marcel Essling¹ and Liz Singh²

¹The Australian Wine Research Institute, PO Box 197, Glen Osmond, SA 5064

²Murray Valley Winegrowers, PO Box 3232, Mildura VIC 3502

Introduction:

Winegrape growers in the Murray Darling wine region have lost approximately 20,000 tonnes of the 2015 harvest, estimated to be worth up to \$6 million, in a hail storm that hit the region on Saturday 22 November 2014. The worst affected properties appear to be in the Gol Gol North, Buronga, Mourquong, Curlwaa and Coomealla areas.



The purpose of this factsheet is to provide affected winegrape growers with guidance on how to assess and manage vines for the remainder of the 2014/15 growing season and beyond.

2. Assessing hail damage

It is important to inspect damaged vines as soon as possible after a hail event has occurred, as the level of damage may be obscured by any new growth. It is also important for winegrape growers with hail damage insurance to contact their insurer and arrange for formal damage assessment processes to be initiated as soon as possible. For those winegrape growers without hail damage insurance, it is still important to assess the crop loss and damage in a formal manner as the Murray Valley Winegrowers are working with State Government agencies to explore possible relief measures for growers. It is also wise to collect photographic evidence of damaged vines throughout each affected vineyard.

The hail storm on Saturday 22 November occurred when most vineyards were at a phenological stage in the post-fruit set phase somewhere between berries at peppercorn size (4 mm diameter) and pea-sized berries (7 mm diameter; E-L Stages 29-31). At this stage of grapevine growth and development the following symptoms can be observed in affected vineyards:

- Vines can be completely stripped of leaves and fruit;
- Leaves can be bruised, torn, tattered, holed or completely knocked off the plant;
- Shoots and trunks can be broken or bruised and scarred;
- Compound/lateral buds located on current seasons shoots, in the leaf axils can be damaged – affecting the development of fruiting buds for the following season;
- Developing berries can be bruised, holed, split or knocked to the ground.

Although the hail damage can appear to be extreme, vines have the ability to recover by reshowing from other buds on the vine. The degree of recovery depends on the severity of damage on each individual vine.



3. Determining an appropriate vineyard management strategy

The degree of damage experienced in individual vineyards will influence the choice of management strategies a grower may choose. These vineyard management choices will be primarily influenced by two key factors:

- The amount of salvageable fruit remaining on the vine without any visible damage to berries or to the bunch stem/rachis arising from the shoot. If a grower decides when making the hail damage assessment that a significant and economic amount of fruit may be salvageable, then the management strategy may be to simply leave that fruit there and wait for the canopy to reshow and grow. This strategy should also include ensuring that both fruit and canopy are protected from key pests and diseases, including powdery mildew (canopy and fruit), *Botrytis* (canopy and fruit) and trunk diseases (e.g. *Eutypa*).
- Significant physical damage of current season shoots (wounds/lesions). In these cases most of the fruit is also usually damaged and unsalvageable. It is critical to inspect the damage along shoots/canes and look at the amount of wounding and lesions. If the shoots/canes and compound/lateral buds (which provide the fruiting potential for the following season) are significantly damaged, the best vineyard management strategy may be to remove these shoots/canes down to the basal buds and allow new ones to reshow and develop from secondary buds. While this is a radical management decision, it would allow for secondary buds to burst and develop healthy canes for the following season. This strategy eliminates damaged shoots/canes, which can also be problematic to prune and manage for the following season. If not removed, excessive shoots can come out of damaged canes and these are very difficult to manage the following year as a lot of poor quality wood can be produced. It will be important to monitor cane development toward the end of the season to ensure new shoots/canes lignify properly. While this management strategy may appear severe, vines with little or no crop are able to regrow quickly. Do not expect the second crop that arises from this growth to ripen in the current growing season. Varieties such as Cabernet Sauvignon, Shiraz and Gordo have relatively fruitful secondary buds but varieties such as Sultana, Riesling and Chardonnay are typically less fruitful. The economics of undertaking this particular operation need to be carefully considered.

In young grapevines, hail can cause significant wounding on the shoot that is to become the future trunk of the vine. If the shoots extending up to the trellis wire are badly scarred, cutting it back and

retraining a new shoot should be considered. The scarring on a shoot that will eventually become the trunk can both interfere with sap flow and may also provide sites for the entry of trunk diseases in the future. If the damage is not extensive, the vine will often recover quickly.

If the weather remains dry, wounds on mature vines that are properly managed should heal quickly. Hail damage at this stage of grapevine growth and development (EL 29-31) has been shown to reduce fruitfulness and crop in the following season. Therefore winter pruning may need to be adjusted to select and position spurs in appropriate locations for future crops and to retain extra buds to compensate for the anticipated lower fruitfulness.

Growers with hail damage who have decided not to harvest fruit this season should continue a basic preventative spray program for powdery mildew and *botrytis* control. These growers do not have to follow the AWRI Dog book recommendations and can use the label withholding periods. If the crop will be harvested, growers should follow the Dog book recommendations. Where the trunk or cordon has been damaged, a spray aimed at reducing the risk of *Eutypa* or *Botryosphaeria* should be considered. The research of Mark Sosnowski has shown that the registered fungicides containing tebuconazole and pyraclostrobin should have the additional effect of protecting any damaged wood from both *Eutypa* and *Botryosphaeria* infection.

Botrytis is an opportunistic wound pathogen and protection of damaged tissue should be a priority. *botrytis* rot can infect any damaged tissue and if weather conditions are wet toward the end of the season the risk of infection is very high. Treatments to protect against *botrytis* infection should be applied immediately after hail damage and before any further wet weather.

4. Summary

Growers need to assess vine damage as soon as possible after the hail event and choose an appropriate vineyard management strategy that aligns with the visual symptoms observed in each specific vineyard. Growers should aim to regrow and retain a healthy canopy for driving good carbohydrate storages for the following season and maintain an appropriate pest and disease management strategy to protect against *botrytis*, powdery mildew and *Eutypa* trunk diseases.

For further information please contact Liz Singh at the Murray Valley Winegrowers on 5021 3911.

5. Further Reading

John Whiting (2012) <http://www.depi.vic.gov.au/agriculture-and-food/horticulture/wine-and-grapes/recovery-from-hail-damage-grapevines>

P. Dry (1986) The effects of hail damage may carry over to next season. *Australian Grapegrower & Winemaker*. 275:22, 24