



## Managing powdery mildew

### Viti-note Summary:

- Cultural practices
- Chemical control strategies
- Resistance Management

Powdery mildew is a disease of grapevines that is most likely to occur in previously infected areas, sheltered vineyard sites, and shaded or dense parts of vine canopies.

Essential components for strategic management of powdery mildew include understanding the characteristics of the fungus which causes the disease, monitoring at appropriate times and applying effective cultural and chemical controls.

Good management of powdery mildew lowers disease risk in subsequent seasons.

An understanding of the cycle of this disease, and its history in the vineyard, as well as monitoring for symptoms will enable an effective management program to be implemented if powdery mildew is identified.

### Cultural practices

Cultural practices should be utilised to minimise conditions favourable for infection and spread of powdery mildew and to improve spray deposits to foliage and bunches. These practices include:

- Orientating rows in the direction of prevailing winds to encourage flow-through of air, and using appropriate planting densities and trellises to help minimise crowded canopies;
- Using canopy management techniques to encourage air movement, the penetration of sunlight and spray penetration into the canopy;
- Careful use of water and fertiliser inputs, especially nitrogen, to minimise growth of large dense canopies.

### Other topics in this Viti-Notes series include:

- Characteristics of powdery mildew
- Symptoms of powdery mildew
- Monitoring for powdery mildew
- *Managing powdery mildew*



Figure 1. Flag shoot

### Chemical control strategies

CHEMICAL REGISTRATIONS VARY AMONG STATES, SO CHECK THE PRODUCT LABEL FOR USE IN YOUR VINEYARD, AND WINEGRAPE GROWERS SHOULD CONSULT WITH THEIR WINERY.

Product information is provided to inform producers of available agrochemical options, and should not be interpreted as an endorsement.

If there is a history of powdery mildew in the vineyard, then it is important to plan an early season spray program. Preventative spray programs reduce the risk of crop loss, but increase the number of sprays applied for disease control. To reduce disease spread from infected flag shoots, (Figure 1.) apply:

- protectant fungicides such as sulfur, quinoxyfen or spiroxamine.

The most important period for the control of powdery mildew is from just before flowering to fruit-set, depending on the region or the specific climatic conditions of the season. Disease onset can occur earlier in warmer regions or in particularly warm springs, especially when flag shoots are present. In inland areas this can mean that powdery mildew can be a problem within the first 40 days after budburst.

The conditions at flowering, or earlier in warmer areas, generally promote rapid disease development which can lead to a decrease of both grape yield and quality. To reduce existing infections on vine foliage and prevent disease development on inflorescences and developing berries at this time use:

- demethylation inhibitors (DMIs) or the strobilurin fungicides, (azoxystrobin, pyraclostrobin, trifloxystrobin).

Chemical application (spraying) is generally effective if applied before the disease becomes well established in the vineyard. Berries become resistant to further infections 3-5 weeks after flowering, although berry stems and bunch stalks remain susceptible to infection.

The need for spraying after berries are pea-sized can be based on the level of powdery mildew detected on leaf and berry stems by monitoring. The decision to spray at this period should be based on an estimate of how much powdery mildew is likely to impact on bunch/berry stems or be carried over to the next season on diseased leaves. If control is required:

- consecutive sprays of a suitable registered chemical should be applied 7 –10 days apart.

If there is an outbreak of powdery mildew late in the season, control can be very difficult, especially on large, dense canopies. Some of the options to improve the effectiveness of any chemicals applied include:

- Utilising canopy management practices that improve spray penetration into canopies and onto bunches;
- Increasing spray volumes (ensure the correct rates of chemical for the spray volume is used);
- Directing the chemical into bunch the zone.

Post-harvest sprays are usually only necessary for young non-bearing vines to prevent early defoliation, or in more mature vines where powdery mildew is present, and there is sufficient time for further disease development before leaf fall.

## Resistance Management

To minimise the chance of resistance developing, rotate chemical groups frequently. CropLife Australia details a fungicide resistance management strategy on [www.croplifeaustralia.org.au](http://www.croplifeaustralia.org.au).

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## Further information

### Innovator network factsheets

Managing Powdery Mildew

[http://www.gwrdc.com.au/webdata/resources/files/PowderyMildewFact\\_Sheet.pdf](http://www.gwrdc.com.au/webdata/resources/files/PowderyMildewFact_Sheet.pdf)

### Training

For regional specific training in pest and disease control, the AWRI is running Research to Practice: Integrated Pest Management for changing viticultural environments.

### Contact

Marcel Essling: [rtp@awri.com.au](mailto:rtp@awri.com.au) for more information.

## Agrochemical information

Agrochemicals registered for use in Australian Viticulture - updated annually.

Visit [www.awri.com.au](http://www.awri.com.au) for the latest version.

## Useful references

Nicholas, P., Magarey, P.A. and Wachtel, M. (Eds.) 1994 Diseases and pests, Grape Production Series 1, Hyde Park Press, Adelaide (a glove box edition of this book is also available).

For images of grapevine symptoms visit [www.winetitles.com/diagnosis/index.asp](http://www.winetitles.com/diagnosis/index.asp).

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