



Managing downy mildew

Viti-note Summary:

- Weather monitoring
- Cultural practices
- Chemical strategies
- Resistance Management

Other topics in this Viti-Notes series include:

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

The factors that play a part in disease risk include weather conditions, the timing of disease onset, cultural practices and past incidence of disease.

Weather monitoring

Monitoring the weather is important in determining the need for sprays. Downy mildew infection alerts based on Bureau of Meteorology warnings are issued in some regions. Post-infection sprays should be applied as close as possible before an infection event.

Checking whether conditions for a primary infection (10:10:24) has occurred can be undertaken with a simple rain gauge and maximum/minimum thermometer that is re-set every day. Apply an effective spray if 10:10:24 conditions have been experienced to prevent oilspots appearing.

Cultural practices

Practices which encourage air movement and sunlight and spray penetration into the canopy can reduce the incidence of infection and subsequent disease development.

- Row orientation can be used to take advantage of prevailing wind moving along rows so leaves dry out quicker.
- Planting densities, trellising and training systems which avoid crowding and encourage open canopies.
- Judicious use of nitrogen fertilisers and appropriate rootstock selection to avoid excessive vegetative growth.
- Canopy management techniques such as leaf plucking, shoot thinning, hedging and skirting open up the vine framework.

- Vineyard sanitation practices such as the removal of infected materials and avoiding the distribution of soil on machinery can limit the potential for downy infection.
- Draining soils in damp areas reduces relative humidity and favourable environment for survival of oospores.

Chemical strategies

Early season infection can cause severe crop losses. Particular care is required from the time when shoots are 15-20 cm, through flowering and until berries are pea-sized. If conditions favour the disease during this period, it is very important to apply sprays.

There are two strategies for chemical control of downy mildew based on whether sprays are applied pre- or post-infection.

The pre-infection strategy involves getting good coverage with a 'protectant' fungicide prior to weather conditions conducive to disease development. The chemical acts as a protective barrier to prevent spores penetrating the vine tissue. This approach is used by growers unwilling to conduct the level of monitoring required in the alternative strategy. In instances where tractor access is limited after rain, this strategy is the only available option. Post-infection products should be used if there is concern that pre-infection fungicide application was inadequate.

The post-infection strategy requires waiting until an infection event has occurred and then spraying immediately with an 'eradicant' fungicide. If the appropriate chemicals are applied within five days of the conditions that favoured infection and before oil spots appear, no further spraying should be necessary until infection conditions occur again.

Resistance Management

To minimise the chance of resistance developing, rotate chemical groups frequently. CropLife Australia recommends a fungicide resistance management strategy for downy mildew.
www.croplifeaustralia.org.au.

Acknowledgement

The Australian Wine Research Institute would like to acknowledge:

- Cooperative Research Centre for Viticulture (CRCV) and all involved in the VitiNotes series (1996 – 2006).
- Associate Professor Peter Dry (Viticulture consultant, The Australian Wine Research Institute) in the preparation of this document.

Further information

Innovator network factsheets

Managing Downy Mildew

<http://www.gwrdc.com.au/webdata/resources/files/DownyMildewFactShee.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 for more information.

Agrochemical information:

Agrochemicals registered for use in Australian Viticulture - updated annually.

Visit 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.

Product or service information is provided to inform the viticulture sector about available resources and should not be interpreted as an endorsement.



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