

Analysing spray diaries to understand powdery mildew control in Australian viticulture



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Background

- Powdery mildew (*Erysiphe necator*) is a major disease of grapevines.
- *Vitis vinifera* varieties vary in their susceptibility.
- Cloudy and mild conditions favour the development of this disease.
- Early-season control minimises the likelihood of 'hard to manage' disease outbreaks later in the season.

Aim

- Analyse electronic spray records to determine how growers' decisions are influenced by cultivar, environment, and management practices

Methods

- Spray records were analysed from a database that covered:
 - fifteen production regions
 - seven seasons
 - eight cultivars.
- Evapotranspiration data was sourced from weather stations in the growing regions.

Main results

- Cooler/wetter regions sprayed more for powdery mildew than hot/dry regions.
- Inland irrigated regions (characterised by big canopies) sprayed more than warm regions with smaller canopies.
- Chardonnay and Pinot Noir received more sprays than Cabernet Sauvignon or Sauvignon Blanc.
- Sprays were applied after berries were no longer susceptible to the disease (Figure 1).
- As evapotranspiration increased, fewer powdery sprays were applied (Figure 2).

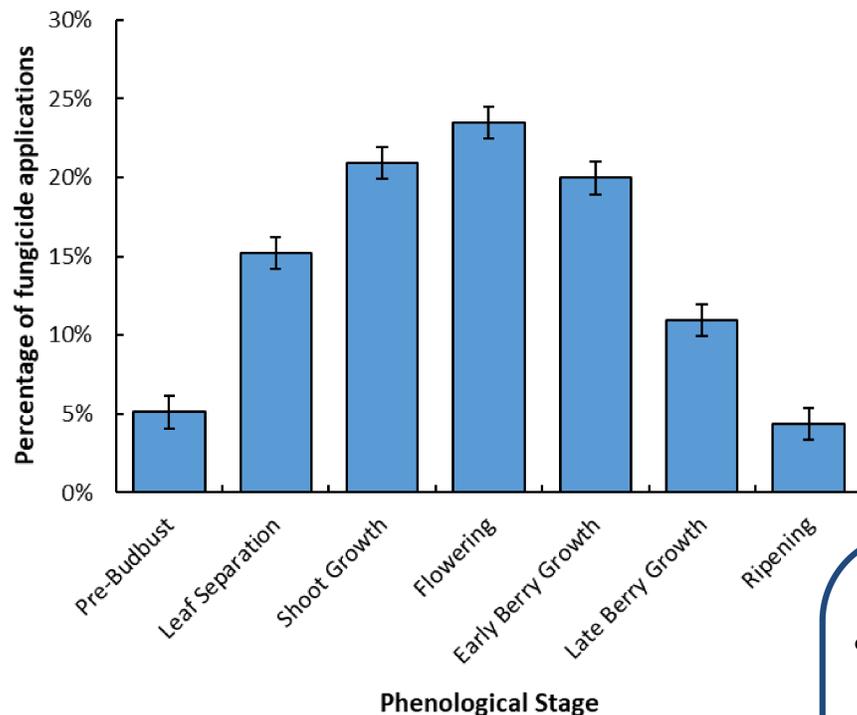


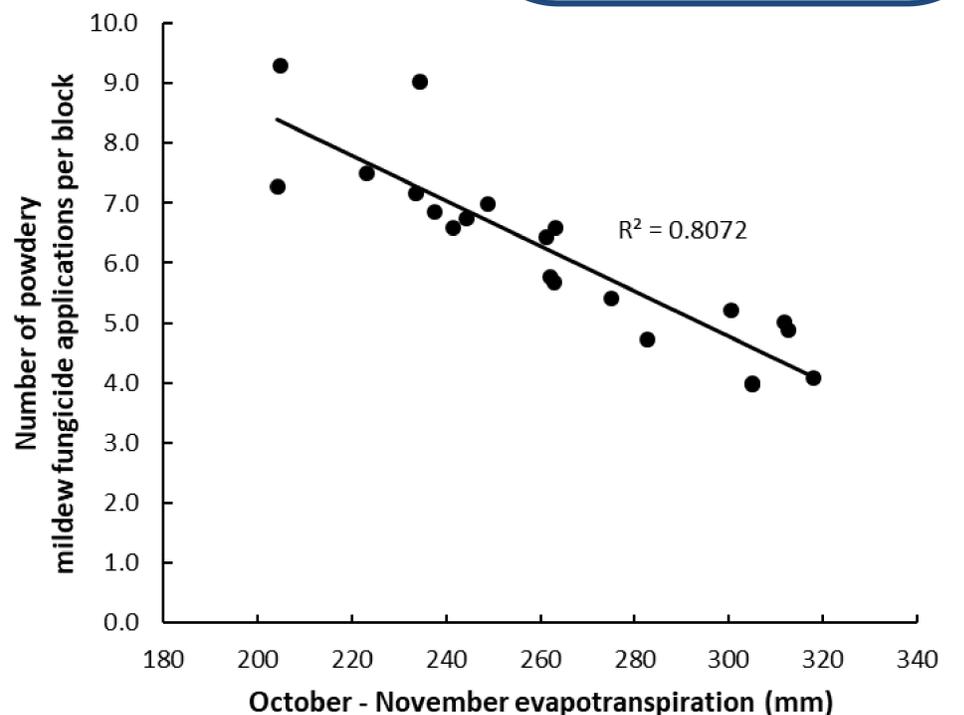
Figure 1. The phenological stage when fungicides targeting powdery mildew were applied across Australia for the seven seasons 2012-2018. Error bars are 5% Fischer's least significant difference (LSD).



Take-home messages

- Australian vineyards are being managed for powdery mildew according to weather conditions and varietal susceptibility.
- Management practices have an influence on powdery control requirements.
- There are opportunities to spray less later in the season if early control is achieved.

Figure 2. The relationship between the cumulative evapotranspiration during October and November and the number of fungicides applied targeting powdery mildew in the Barossa Valley, Langhorne Creek and Coonawarra for the seven seasons 2012-2018.



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