

Manipulating ripening with antitranspirants

Introduction

Increased temperatures and heatwave conditions are leading to compressed vintages.

The antitranspirant Di-1-*p*-menthene, acts like a physical barrier to maintain berry turgidity to reduce water loss from tissues¹.

Previous field studies tested high antitranspirant solution rates of 2-3%²⁻⁴.

Our study investigated a 1% solution rate at pre-flowering (PF), pre-veraison (PV) and at both times (PFPV) compared against a control. At each site the 4 treatments were replicated 5 times in a randomised block experimental design. The 9 sites across NSW covered a selection of 3 varieties and years (2017-2019).

Materials and methods

Twenty randomly selected bunches from either side of the treatment vines in each replicate were harvested to obtain bunch weight (g). Two 100-berry samples were also obtained to assess Baumé and other grape quality parameters.

Results and discussion

For most sites treatment increased bunch weight (Figure 1). The treatment response differed between years with Pinot Noir and between sites with Shiraz.

Treatment reduced Baumé (Figure 2) in Shiraz and Pinot Noir, although the response differed between site and year. The response of Baumé in Chardonnay differed depending on site.

A 1% antitranspirant solution rate successfully manipulated ripening and increased bunch weight across multiple sites and years.

References

¹Fahey D and Rogiers S (2018) Di-1-*p*-menthene reduces grape leaf and bunch transpiration. *Aust J Grape Wine Res*, 25 (1), 134-141.

²Gatti M, Galbignani M, Garavani A, Bernizzoni F, Tombesi S, Palliotti A and Poni S (2016) Manipulation of ripening via antitranspirants in cv. Barbera (*Vitis Vinifera* L.). *Aust J Grape Wine Res*, 22, 245-255.

³Palliotti A, Poni S, Berríos JG and Bernizzoni F (2010) Vine performance and grape composition as affected by early-season source limitation induced with antitranspirants in two red *Vitis vinifera* L. cultivars. *Aust J Grape Wine Res*, 16, 426-433.

⁴Palliotti A, Panara F, Famiani F, Sabatinini P, Howell GS, Silvestroni O and Poni S (2013) Post-veraison application of antitranspirant Di-1-*p*-menthene to control sugar accumulation in Sangiovese grapevines. *Am J Enol Vitic*, 64, 378-385.

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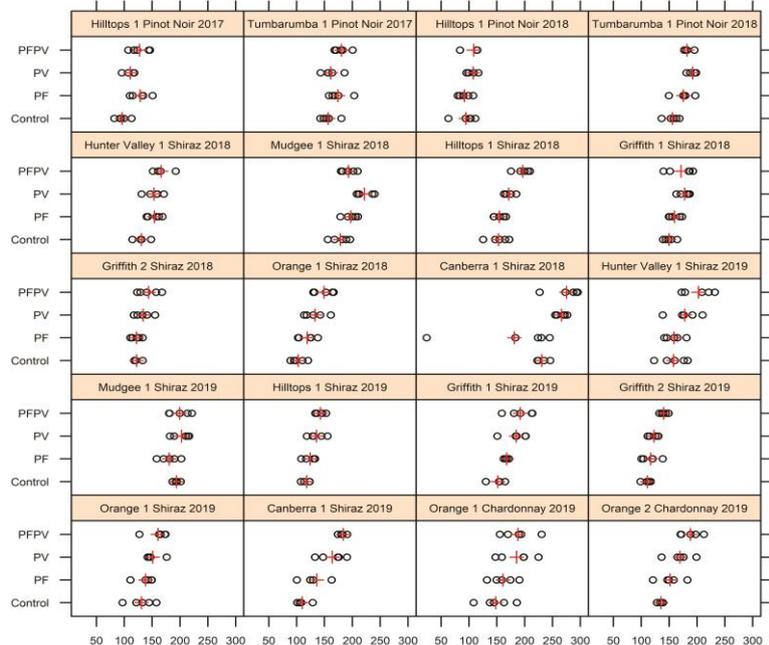


Figure 1. Bunch weight (g), raw data (o) and means (+).

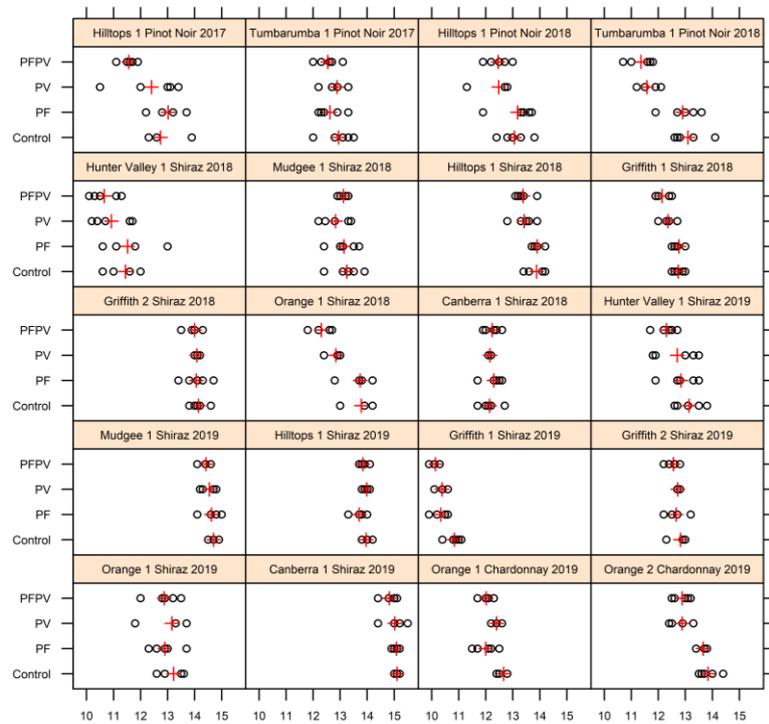


Figure 2. °Baumé, raw data (o) and means (+).