AWRI Australian Wine Research Institute

Fact Sheet
VITICULTURE

Applying nitrogen and sulfur foliar sprays to boost tropical flavours in white wine

Background

The flavour impacts of foliar sprays have been studied by AWRI researchers over several seasons, including trials conducted in commercial vineyards using the vineyards' own spray equipment. Foliar applications of urea and sulfur (combined) have been consistently shown to result in white wines with more tropical fruit flavours. This practice may be useful to boost the tropical fruit flavour across a block or applied to a portion of a vineyard to provide a blending option for use in the winery.

The purpose of this fact sheet is to provide advice on how to adopt the practice of foliar spraying to boost tropical fruit flavour in wine.

Spray application details

Active ingredients and spray application rates required are summarised below.

Product	Active ingredient	Rate of active	Rate of product
Wettable sulfur (80% elemental sulfur)	Elemental sulfur	5 kg/ha	6.3 kg/ha
Low biuret urea (~45% nitrogen)	Nitrogen	10 kg/ha	22 kg/ha

Two sprays (with the chemicals combined) need to be applied, each containing both sulfur and urea at the rates shown above. The first spray should be applied at the commencement of veraison and the second two to three weeks later.

Expected benefits

Expected benefits include increased concentrations of tropical thiol compounds 3-SH and 3-SHA in wine, as well as an increased concentration of organic nitrogen (YAN) in the grapes (which may reduce the need for DAP additions and help support healthy ferments).

Notes

- Sulfur is an insecticide and the use of high rates of sulfur in viticulture (> 4 kg/ha total) is likely to have a negative impact on the populations of some beneficial insects.
- Please consult your winemaker or grape purchaser before applying sulfur within 30 days of harvest (AWRI 'Dog book' 2022/23).
- Please check the concentration of the active ingredient of the product and adjust the rate of the product to achieve the recommended rate of active ingredient per hectare. For example, if you are using a foliar fertiliser containing 20% nitrogen, multiply the application rate by 2.25 (45 ÷ 20) to get the recommended rate of nitrogen per hectare.

Acknowledgement

This work is supported by Wine Australia, with levies from Australia's grapegrowers and winemakers and matching funds from the Australian Government. The AWRI is a member of the Wine Innovation Cluster in Adelaide.

Further reading

Hixson, J., Bilogrevic, E., Capone, D., Nandorfy, D.E., Francis, L., Petrie, P., Solomon, M., Krstic, M. 2020. Enhancing tropical fruit flavour in Chardonnay and Shiraz through foliar nutrient sprays. *Wine Vitic. J.* 35(3): 30-33.

Contact

For further information, please contact: AWRI helpdesk

Phone 08 8313 6600 **Email** helpdesk@awri.com.au

Website www.awri.com.au/industry_support/viticulture/vineyard-practices/foliar-sprays-to-boost-tropical-flavours-in-white-wine/

Address Wine Innovation Central Building, Corner of Hartley Grove & Paratoo Rd, Urrbrae (Adelaide), SA 5064