



Eucalyptus character in wine



Introduction

While native to Australia, *Eucalyptus* trees are now grown throughout the rest of the world. Most species of *Eucalyptus* trees contain essential oils in their leaves and, depending on the species, the main component of the oil is a volatile compound called 1,8-cineole, commonly known as eucalyptol. This compound is found above sensory detection thresholds in some red wines, where it is responsible for characters described as 'eucalypt', 'camphor', 'fresh', 'cool' and 'minty'. For some winemakers these characters are a selling point and their red wines are known for their 'eucalypt' sensory properties. For others, however, 'eucalypt' characters are something they prefer to avoid, or at the very least limit through effective management strategies. The AWRI's research on 'eucalypt' character in wine has focused on understanding the source of the character and providing options for winemakers to be able to modulate it.

What are the key outcomes from the AWRI's research into 'eucalypt' character?

- In a survey of commercially available Australian wines of various varieties (190 wines in total), 1,8-cineole was found above the sensory detection threshold in 40% of red wines.
- In an additional study, it was found that 1,8-cineole is both stable in a wine over time and that the compound is not significantly scalped by closures.



- Consumer response to eucalypt flavour in red wines was assessed. Results showed that even at very low levels, most consumers reacted to the flavour, and interestingly more consumers preferred wines with the 'minty' flavour than those who didn't like it.
- While 1,8-cineole has been found in wines made from grapes grown with no *Eucalyptus* trees nearby, the AWRI's research showed that only negligible levels are found in wine from grape-derived sources. *Eucalyptus* trees growing close to vineyards are the primary source of the flavour in wine. Grapes harvested from rows greater than 25 or 50 metres from *Eucalyptus* trees gave wines with very low levels of 1,8-cineole whilst those grown close to the trees contained significant amounts of 1,8-cineole. The research also found that the compound is at its highest levels in the skin of the berry, and is extracted during fermentation on skins.
- Further work showed that absorption of the compound by grape berries, while important, is much less a factor than the presence of *Eucalyptus* leaves or bark in harvested grapes. Machine harvesting of the rows closest to *Eucalyptus* trees will more than likely produce bins of grapes with numerous *Eucalyptus* leaves, and these have a very large effect on levels of 1,8-cineole in wine. Even hand harvesting of grapes can result in a surprising number of *Eucalyptus* leaves in the picking bins. Unexpectedly, grape leaves or grape stems were also a major source of the compound.
- No translocation of 1,8-cineole compound was observed from the soil to the grape berries or from the grape leaves to the berries.
- The main take-home message from the research is that avoiding material other than grapes (MOG) in picking bins, especially *Eucalyptus* leaves, will dramatically reduce the level of 'eucalypt' flavour in wine.

What are some options to manage the 'Eucalypt' character in wine?

- Harvested fruit grown closest to *Eucalyptus* trees could be fermented separately from the rest of the vineyard and blended with other wine as desired.



- Removing by hand any *Eucalyptus* leaves or woody material from the vines prior to harvest would minimise the quantity ending up in



a machine harvester bin. Hand harvesting with attention to removing *Eucalyptus* leaves in those rows close to trees might also be an alternative. A somewhat more expensive option would be the use of sorting tables to remove MOG from the harvest.

- Altering machine harvester settings for rows closest to trees should be a straightforward strategy so that less non-grape material is collected.

What's next?

The research results to date have identified the source of the 'minty'/'eucalypt' compound 1,8-cineole. The AWRI will continue to work with wine producers to assist them with management strategies to control this character in wine. A new project is currently assessing whether other local vegetation, including trees planted as windbreaks, can impart flavour to grapes and wine.

Acknowledgement

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Reference and further reading

Eucalyptol information pack - https://www.awri.com.au/information_services/information-packs/information-pack-eucalyptol/

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