

# Delaying grapes from ripening results in more flavorsome wine

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Researchers from the University of Adelaide have crunched the data on the best methods to delay grapes ripening on the vine, leading to better-quality wine.

"Our research focused on three common techniques used to delay ripening in grapes—the use of antitranspirants, late pruning and late source limitation," said lead author Pietro Previtoli, a Ph.D. graduate from the University of Adelaide's Department of Wine Science and Waite Research Institute and the Australian Research Council Training Centre for Innovative Wine Production.

"Antitranspirants are compounds applied to the leaves of plants to reduce transpiration.

"We found that applying antitranspirants when the grapes started to change color caused larger ripening delays, and the ripening delay was larger when there were early- and late-season applications.

"Late pruning is when pruning is postponed until after the apical buds have burst.

"We found there was a larger delay in ripening when the vines were pruned later in the season; however, the technique is less effective on high-yielding vines.

"Late source limitation, which removes a portion of the young leaf area that accumulates sugar during ripening, is likely to be more suitable in red [grape](#) varieties with higher [sugar levels](#), while white grape varieties may be harvested too early for this treatment to be effective.

"We also observed larger ripening delays were achieved on high-yielding vines where sugar accumulates slower."

Mr. Previtoli's Ph.D. supervisor, Associate Professor Chris Ford, from the University of Adelaide's Department of Wine Science and Waite Research Institute, said a number of factors can lead to higher sugar concentrations in grapes.

"Increased levels of carbon dioxide in the atmosphere, rising global temperatures and declining rainfalls can lead to grapes ripening faster than normal," Associate Professor Ford said.

"This results in higher levels of alcohol, throwing off the balance of the wine and diminishing the quality of the product, while growers may need to postpone harvest altogether.

"This research can hopefully help growers make decisions that will generate higher yields and quality [wine](#)."

The researchers examined the results of 43 studies using statistical modeling techniques traditionally used in medical and psychological research.

The research paper has been published in *Horticulture Research*.

In addition to Associate Professor Ford, co-authors on the publication are Professor Kerry Wilkinson (University of Adelaide), Filippo Giorgini (University of Milano-Bicocca, Italy), Randall Mullen (E and J Gallo Winery, California, US) and Nick Dookozlian (E and J Gallo Winery, California, US).

**More information:** Pietro Previtali et al, A systematic review and meta-analysis of vineyard techniques used to delay ripening, *Horticulture Research* (2022). [DOI: 10.1093/hr/uhac118](https://doi.org/10.1093/hr/uhac118)

Provided by University of Adelaide

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