Government of South Australia
Department of Primary Industries and Regions

SARDI
SOUTH AUSTRALIAN RESEARCH AND DEVELOPMENT INSTITUTE

VITICULTURE FACT SHEET

Resting Vineyards using Ethephon: A Cost-Saving Strategy when Grapes are in Oversupply

Background

The Australian wine industry is currently experiencing an oversupply of red wine grapes. Growers with uncontracted fruit may wish to consider resting their vineyard – that is, maintaining the vineyard asset under reduced management costs until market conditions improve.

One option to support vineyard resting is to remove the inflorescences or bunches from the vines so that they do not need to be harvested. Research trials completed during the 2023 to 2025 vintages by the South Australian Research and Development Institute (SARDI) on Shiraz in the Riverland confirmed that foliar applications of the plant growth regulator Ethephon at growth stages EL 25 to 27 can be highly effective at reducing the crop (Figure 1). The Ethephon application causes berry abscission allowing growers to reduce inputs and avoiding harvesting and fruit disposal costs.

Trial results

Two approaches to using Ethephon to reduce grape crops were included in the Riverland trial – a single Ethephon spray at EL 27 (setting) and two Ethephon applications (EL 25, 80% cap fall, and EL 27). Both treatments succeeded in reducing yield, often removing all the fruit (Table 1, Figure 1 left). The yield of grapes was also assessed in the return season following the application of the Ethephon to ensure there were no carryover effects on yield (Table 1). In these trials the applications were made with a hand spray unit at the rate of 1 g/L of the active ingredient, until the canopy was saturated. It is unlikely that two applications of Ethephon will be needed in most circumstances. Death of some of the shoot tips was noted when the Ethephon was applied in the 2023–24 growing season.

Table 1 The impact of Ethephon application (1g/L) on Shiraz yield in the current and return season.

	Control (t/ha)	Single Ethephon Application (t/ha)	Double Ethephon Application (t/ha)
Season Applied 2022/23	31.2	2.9	2.1
Return Season 2023/24	28.8	27.5	27.2
Season Applied 2023/24	28.8	0	0
Return Season 2024/25	33.2	31.7	34.5

Figure 1 Rachis with most of the berries abscised approximately 7 days after treatment (left) and bunch with most of the berries abscised approximately 14 days after treatment (right)

The impact of the ethephon concentration on crop removal was investigated in more detail when it was applied to Shiraz at EL 27 during the 2024-25 season. In this season a concentration of 800 mg/L was also effective for full crop removal (Figure 2). Please note that application rates below 288 mg/L and above 936 g/L are not allowed under the permit (see below).

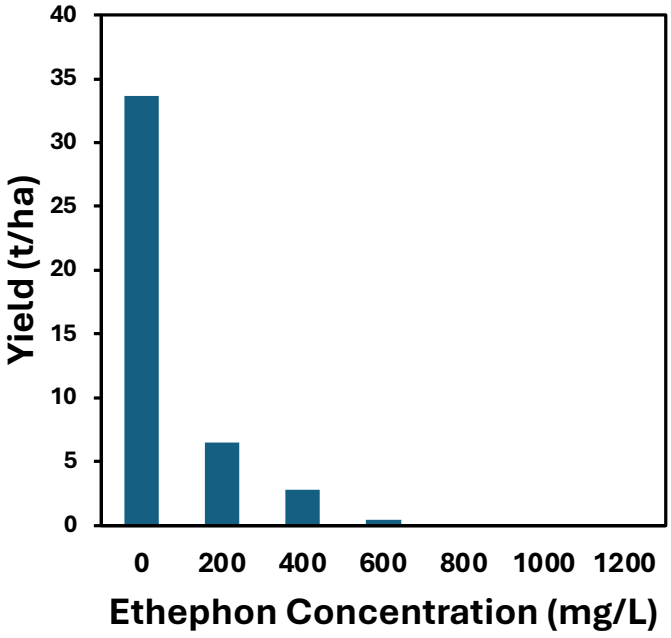
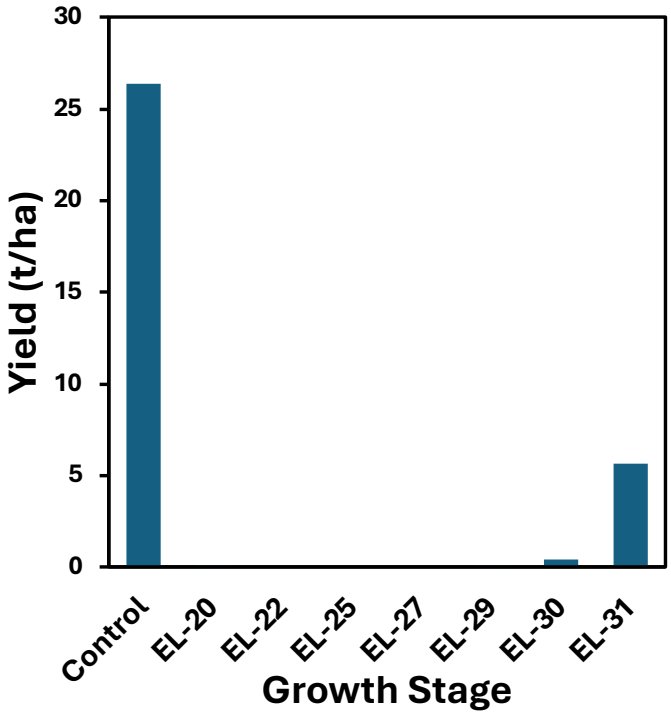


Figure 2 The impact of Ethephon concentration on Shiraz yield in the season when it was applied. Please note that application rates below 288 mg/L and above 936 g/L are not allowed under the AVPMA permit (see link below).



The timing of Ethephon application was also investigated in more detail by making applications (1 g/L) at twice weekly intervals from EL-20 (10% cap fall) to EL-31 (berries pea size). The Ethephon was quite effective between EL-20 and EL-29 (berries peppercorn sized). Please note that only application between EL-25 and EL-27 are allowed under the permit (see below).

Figure 3 The impact of the timing of Ethephon application (1 mg/L) on the yield of Shiraz in the season that it was applied. Please note that application at flowering EL 25, 80% caps off and no later than EL 27 is permitted under the AVPMA permit (see link below).

Tips for using Ethephon effectively

The conditions outlined in the Australian Pesticides and Veterinary Medicines Authority permit for Ethephon, outlined below, must be complied with.

Directions for use:

Crop	Purpose	Rate
Grape vines used for wine production	Bunch removal	900 g/L products: 32-104 mL/100 L 720 g/L products: 40-130 mL/100 L 480 g/L products: 63-190 mL/100 L

- The spray must be applied between growth stages EL 25 and EL 27, and it is recommended for most effective fruit removal that growers target the completion of flowering (EL 27) when fruit has just set.
- The spray should be applied using an air-blast sprayer with a non-ionic wetting agent added at the label rate. This improves coverage and efficacy.
- The spray should be applied to the point of run-off and coverage is very important, this means that concentrate spraying is unlikely to be effective.
- After Ethephon application, spray units should be thoroughly washed to ensure all residue is removed before use on non-target vines.
- All safety directions on the Ethephon label must be followed, as repeated minor exposure to Ethephon may have a cumulative poisoning effect on the user.

Other tips:

- In hand-pruned vineyards, with a defined bunch zone, you can target the spray application to saturate the clusters.
- Performance of the Ethephon is best in warm conditions, over 17°C.
- The effects of the Ethephon should become obvious within a few days of application (Figure 1).
- Do not apply if heavy rain or storms are forecasted within three days of application.
- Consult the product label regarding water quality requirements (pH).

How to maintain your vineyard after using Ethephon

The removal of bunches from a vine eliminates the need for bunch rot control, but powdery and downy mildew are diseases that still require management and may require spraying if conditions favour disease development. Irrigation requirements of vineyards that are not carrying fruit are likely to be reduced; growers should monitor canopy growth to ensure it is not being stimulated by water availability.

Disclaimer

Ethephon appears to be an effective chemical option to reduce crop yield. The results presented in this article are based on trials conducted on one cultivar (Shiraz) and at one site by SARDI. As such the long-term effects of these treatments at other sites are not known. While it was not observed at this trial site, it is possible that Ethephon used in accordance with the APVMA permit may lead to reduced crop yields in following seasons. This fact sheet is intended to provide information to growers and should not be interpreted as a recommendation to adopt this management option. All producers must consider their own circumstances before deciding to rest a vineyard and the method used to do so.

Acknowledgements

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Further information

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