AWRI | Wine Australia

# Agrochemicals registered for use in Australian viticulture


# 2025/26

## AN ESSENTIAL REFERENCE WHEN GROWING GRAPES FOR **EXPORT** WINE

Compiled by Suzanne McLoughlin

1 June 2025

## Disclaimer

The Australian Wine Research Institute (AWRI) has used all reasonable care and skill in compiling this information, but does not warrant the accuracy or completeness of the information contained in this publication. Except to the extent that the AWRI is prevented by law from limiting its liability for such loss, the AWRI will not be liable for any loss suffered by any person using (either directly or indirectly) this publication, whether that loss arises from the AWRI's negligence or otherwise. Any person using this publication should independently verify that information before relying on it.

Notwithstanding that this publication mentions a particular product, the AWRI does not endorse that product or give any warranty in relation to it.

The information in this publication is current as at 1 June 2025. The AWRI is not responsible for ensuring that you receive any further updates of this publication.


## Acknowledgements

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. Assistance from the member companies of CropLife Australia in the publication of this document is gratefully acknowledged.





The Australian Wine Research Institute Ltd
PO Box 46 Glenside SA 5065 Australia
ABN 83 007 558 296





Further copies of this document can be requested via the AWRI website (www.awri.com.au/industry_support/viticulture/agrochemicals/awri-dog-book-signup-form/).

A PDF version can be downloaded from the AWRI website (www.awri.com.au/industry_support/viticulture/agrochemicals/agrochemical_booklet/).

ISBN 978 0 6485648 7 4

ISSN 1320 3703

# Contents

## SECTION ONE



## SECTION TWO



## SECTION THREE

## Growing grapes for export wine?... choose the right chemical

Governments around the world set limits for the amount of residue of a fungicide, insecticide or herbicide that is legally allowed in a food, such as grapes or wine. These limits for agrochemicals are commonly referred to as MRLs (maximum residue limits), and for Australia they are listed in the Australia New Zealand Food Standards Code.

In the twelve months to 31 March 2025, Australian wineries exported wine worth $2.64 billion (Wine Australia Export Report Infographic March 2025), mostly to countries that have MRLs vastly different to, and sometimes lower than, those set by the Australian Government. In fact, some chemicals commonly used by Australian grapegrowers do not have MRLs in certain major export markets. Often this is because grapes are not grown commercially in these countries, and therefore, there is no need to register products for use on grapes. As a result, no MRL is set. This means that the importing country will either not allow any detectable residue of the agrochemical in wine, or only permit 'safe' amounts of it.

To ensure that wine meets the requirements of export markets, it is necessary to restrict the application of certain chemicals or to avoid their use altogether. Since 1991, some wineries have provided their grapegrowers with a list of recommended fungicides and insecticides and the associated 'export harvest interval' (the minimum number of days between the last application and harvest). The export harvest interval is sometimes much longer than the withholding period stated on the chemical label, and has been calculated to minimise the likelihood of residues having negative effects on fermentation or on wine sales, and to reduce the exposure of the public to agrochemicals.

**The following Table 1 'Recommendations for export wine' lists the preferred agrochemicals for use in the production of grapes for export wine, and any restrictions on their use, for the 2025/2026 season.** Some biological control agents are also listed.

The recommendations have been developed to satisfy the lowest MRL for any of Australia's major wine markets, after considering available data on the persistence of the chemical, both on grapes and through winemaking.

For supporting information on MRLs and to search the online AWRI Agrochemical & MRL Search database, refer to the AWRI website (www.awri.com.au/industry_support/viticulture/agrochemicals/mrls/) or contact the AWRI helpdesk on +61 8 8313 6600 or email helpdesk@awri.com.au.

## Important points

- Table 1 Recommendations for export wine have been developed as a general guide and assume that wine will be sent to a range of overseas markets. **IF YOU ONLY SELL WINE IN AUSTRALIA, OR TO ONLY A FEW COUNTRIES, CONTACT THE AWRI (08 8313 6600 or helpdesk@awri.com.au) TO DISCUSS HOW THE RECOMMENDATIONS MIGHT DIFFER.** The AWRI can provide advice regarding the persistence of a chemical on grapes or through winemaking, and MRLs for most major export destinations.
- Ask your winery/grape purchaser if they have specific chemical recommendations. These might differ from the advice in Table 1 on pages 4 - 12. If you are unable to keep to these recommendations, contact your winery/grape purchaser or the AWRI for advice.
- Some wineries do not approve of the use of certain products or active constituents. These are underlined in Table 2 Agrochemicals registered for use in Australian viticulture on pages 20 - 26. Contact your winery/grape purchaser prior to the application of such products or active constituents.
- Keep a record of agrochemical applications. Many wineries will not accept delivery of grapes without receipt of a signed spray diary from the producer. An industry-accepted spray diary template can be downloaded from the AWRI website (www.awri.com.au/industry_support/viticulture/agrochemicals/spray_diary/).
- Avoid spraying some types of foliar fertiliser closer than 60 days before harvest, as wine quality might be affected.
- Label permitting, a 30-day export harvest interval for all herbicide active constituents is recommended. If weed control is required within 30 days of harvest, contact your winery/grape purchaser prior to spraying.
- Grapevine growth stage can be variable across a block. When assessing grapevine phenology for the purpose of applying agrochemicals, base the assessment on the **most advanced** vines in the block to minimise the possibility of residues at harvest.
- To accurately identify the grapevine growth stage, use the chart on page 13. The chart can also be downloaded from the AWRI website (www.awri.com.au/wp-content/uploads/grapegrowth.pdf). For more information, consult Coombe, B. 1995. Adoption of a system for identifying grapevine growth stages. *Aust. J. Grape and Wine Res.* 1: 104-110.
- Some agrochemicals have label restraints that detail situations where the chemical MUST NOT be used (e.g. in certain states). Read all labels carefully and pay attention to all statements starting with DO NOT. These conditions must be adhered to.
- The chemical label provides important information that must be followed including the personal protective equipment to be used when mixing chemicals or entering a vineyard after chemical use. Refer to page 27 for more information about re-entry periods.
- When spraying, ensure that the amount of chemical applied does not exceed the rate (including concentration factor) specified on the manufacturer's label.
- Grazing restrictions may apply to vineyards where agrochemicals have been used. Consult product labels for details.

## Key changes to this edition

Outlined below are the key changes to this edition. For more detail, visit the AWRI website and view the June 2025 Agrochemical Update eBulletin. Notifications of significant changes during the season will be issued via eBulletins as they occur. The most current version of this publication can be found on the AWRI website (www.awri.com.au/wp-content/uploads/agrochemical_booklet.pdf).

### New active constituents

- afidopyropen (insecticide)

### Export harvest interval changes

- Miravis (pydiflumetofen) fungicide for powdery mildew has changed from E-L 19 to E-L 25
- Belanty (mefentrifluconazole) fungicide for powdery mildew has changed from E-L 31 to 'Use no later than 35 days before harvest'

### Australian Pesticides and Veterinary Medicines Authority (APVMA) active constituent reviews

- Chlorpyrifos has been cancelled. Last possible use date for chlorpyrifos-containing products on winegrapes is 30 September 2025.
- Diazinon has been cancelled. Last possible use date is 10 September 2025.
- Malathion has been cancelled. Last possible use date is 1 May 2026.

### New guidance information

- National fungicide resistance testing – refer to page 18
- Herbicides and managing resistance – refer to page 28
- Cancelled products and last use date – refer to page 29

### Updated guidance information

- CropLife resistance management strategies – refer to pages 15-17
- Old alphabetical classification for herbicide activity groups has been removed
- Biosecurity tips – refer to page 30

## Recommendations for export wine

### How to use Table 1.

Table 1 on pages 4 - 12 presents recommended agrochemicals for use against the main fungal and insect pests in the production of grapes for export wine. Products with the same first name have been consolidated, with name variances shown in brackets. For example, Copper Hydroxide 350 WG, Copper Hydroxide 400 WG and Copper Hydroxide 500, are shown as Copper Hydroxide (350 WG, 400 WG, 500).

| Active constituent | Activity group | Some registered products | Export harvest interval |
|---|---|---|---|
| Grouped alphabetically within each restriction on use for every target | Australian agrochemical codes | List of some chemical products available | The recommended withholding period for export grapes |

# TABLE 1: Recommendations for export wine

| Active constituent | Activity group | Some registered products | Export harvest interval |
|---|---|---|---|
| **BLACK SPOT** | | | |
| mancozeb Ω | M3 | Dithane Rainshield Neo Tec, Fortuna Globe 750WG, Greenshield 750WG, Kencozeb (750DF, Endure) Manco 750 WG, Mancozeb (750 DF, 750 WG, WG), Manic WG, Manzate (750 WG, DF), Manzeb, Penncozeb 750DF, Sinozeb 750 WG | Use no later than E-L 25 (80% capfall). |
| metiram Ω | M3 | Fruitcote, Polyram DF | |
| thiram Ω | M3 | Thiram (800 WG, DG) | |
| ziram Ω | M3 | Ziram WG | |
| chlorothalonil § | M5 | Barrack Betterstick, Barrow (900 WG, Stick 720SC), Bravo Weather Stik, Castor 900 WG, Cavalry (Dry, Weatherguard), Cheers 720 (Holdfast, Weathershield), Chlornil 720 SC, Chloro (720, 900 WG), Chloronil Pro, Chlorostar 900 WG, Chlorostick 720 SC, Chlorothalonil (720, 720SC, 900 WG), Chlortan 720, Clash (Dry 900 WG, Storm Guard 720SC), Conan Sticks 720 SC, Echo (720, 900 WDG), Mueso (720, 900 WG, Stick 720), Whack (720, 900 WG) | Use no later than E-L 29, berries pepper-corn size (not > 4 mm diameter). |
| copper oxychloride | M1 | Oxydul DF | Use no later than 30 days before harvest. |
| dithianon | M9 | Delan 700 WG, Dialon 700WG, Dinon 700 WG, Dithianon 700 WG, Dragon 700 WG, Dungeon 700 WG, Wrath 700WG | |
| **BOTRYTIS BUNCH ROT - Review resistance management strategy on page 16** | | | |
| fluopyram + tebuconazole | 7 + 3 | Luna Experience | Use no later than E-L 17, 12 leaves separated. |
| fenhexamid | 17 | Altivo 500SC, Jigsaw 800WG, Teldor 500 SC | Use no later than E-L 25 (80% capfall). |
| pyrimethanil # | 9 | Pyper 600 SC, Pyrimethanil 600 SC, Scala 600 SC | |
| azoxystrobin | 11 | Accolade 250 SC, Affix 250 SC, Agristar 250SC, Amistar 250 SC, A-star 250 SC, Avior (250 SC, 800 WG), Azoxy 250, AzoxyGuard 250 SC, Azoxys 250 SC, Azoxystrobin (250, 250 SC, 500 WG), Connect 800 WG, Mirador (250 SC, 625), Spartacus (250, 250 SC, 500WG), Stellar | Use no later than E-L 29, berries pepper-corn size (not > 4 mm diameter). |
| chlorothalonil § | M5 | Barrack Betterstick, Barrow (900 WG, Stick 720SC), Bravo Weather Stik, Castor 900 WG, Cavalry (Dry, Weatherguard), Cheers 720 (Holdfast, Weathershield), Chlornil 720 SC, Chloro (720, 900 WG) Chloronil Pro, Chlorostar 900 WG, Chlorostick 720 SC, Chlorothalonil (720, 720 SC, 900WG), Chlortan 720, Clash (Dry 900 WG, Storm Guard 720 SC), Conan Sticks 720SC, Echo (500SC, 720, 900 WDG), Mueso (720, 900 WG, Stick 720), Whack (720, 900 WG) | |
| fenpyrazamine € | 17 | Prolectus | |
| ipflufenoquin ≈ | 52 | Migiwa | |
| tebuconazole + azoxystrobin | 3 + 11 | Azlan, Custodia (Forte) | |

Ω Do not apply more than three sprays per season of Group M3 fungicides including in combination with Group 4.
§ Do not apply more than three sprays per season of a product containing chlorothalonil.
# Do not apply more than 800 g active per hectare (maximum 1.33 L of 600SC formulations).
€ Do not apply more than one spray per season of a product containing fenpyrazamine.
≈ Do not apply more than one spray per season of a product containing iplufenoquin.

| Active constituent | Activity group | Some registered products | Export harvest interval |
|---|---|---|---|
| **BOTRYTIS BUNCH ROT *(CONT.)* - Review resistance management strategy on page 16** | | | |
| cyprodinil ¥ | 9 | Solaris 300 EC | Use no later than E-L 29 **AND** do not use within 60 days of harvest. |
| cyprodinil + fludioxonil ¥ | 9 + 12 | Crossover WG, Cyprofludox WG, Missile, Rot-nil, Snatch WG, Swap WG, Switch | |
| florylpicoxamid ⊀ | 21 | Verpixo | Use no later than E-L 31, berries pea-size (not > 7 mm diameter). |
| polyoxin D zinc salt | 19 | Intervene | Use no later than E-L 34 (before commencement of veraison) **AND** not within 44 days of harvest. |
| eugenol, geraniol, thimol | BM01 | Novellus | Use no later than 14 days before harvest. |
| potassium salts of fatty acids | U1 | Ecoprotector, (suppression only) Hitman | |
| BLAD | BM01 | ProBlad, ProBlad Verde | Use no later than 7 days before harvest. |
| hydrogen peroxide + peroxyacetic acid | M + M | (suppression only) Peracetic Acid, PeraCrop Max, Peratec PLUS, Peroxy Treat | |
| *Aureobasidium pullulans* | BM02 | Botector | May be used until harvest. |
| *Bacillus amyloliquefaciens* | BM02 | Serenade Opti, Serifel | |
| **DOWNY MILDEW - Review resistance management strategy on page 15** | | | |
| ametoctradin + dimethomorph £ | 45 + 40 | Zampro | Use no later than E-L 25 (80% capfall). |
| copper sulfate tribasic + mancozeb Ω | M1 + M3 | Copman DF | |
| dimethomorph | 40 | Acrobat SC, MetaMorph 500SC, Sphinx | |
| mancozeb Ω | M3 | Dithane Rainshield Neo Tec, Fortuna Globe 750WG, Greenshield 750WG, Kencozeb (750DF, Endure), Manco 750 WG, Mancozeb (750 DF, 750 WG, 800 WP, WG), Manic WG, Manzate (750 WG, DF), Manzeb, Penncozeb 750DF, Sinozeb 750 WG, Unizeb 420 SC | |
| metalaxyl - M + mancozeb Ω | 4 + M3 | Axiom MZ WG, Ridomil Gold MZ WG | |
| metalaxyl + mancozeb Ω | 4 + M3 | Axiom MZ 720, Maxyl, Metal-Man MZ 720, Metman 720 WG, Zeemil (720WG, MZB 720 WP) | |
| metiram Ω | M3 | Fruitcote, Polyram DF | |
| oxadixyl + propineb Ω | 4 + M3 | Rebound WP | |
| mandipropamid | 40 | Bremex 250SC, Mandipropamid 250 SC, Mandiva 250SC, Revus | Use no later than E-L 26 (capfall complete). |

¥ Do not apply more than one spray per season of a product containing cyprodinil.

⊀ Do not apply more than two sprays per season of a product containing florylpicoxamid.

£ If only one spray of Zampro is applied per season, it may be used up to E-L 31 as long as a product containing dimethomorph as the single active ingredient has not also been applied in the same season.

Ω Do not apply more than three sprays per season of Group M3 fungicides including in combination with Group 4.

| Active constituent | Activity group | Some registered products | Export harvest interval |
|---|---|---|---|
| **DOWNY MILDEW *(CONT.)* - Review resistance management strategy on page 15** | | | |
| azoxystrobin | 11 | Accolade 250 SC, Affix 250SC, Agristar 250SC, Amistar 250SC, A-star 250SC, Avior (250 SC, 800 WG), Azoxy 250, AzoxyGuard 250 SC, Azoxys 250 SC, Azoxystrobin (250, 250 SC, 500 WG), Connect 800 WG, Mirador (250 SC, 625), Spartacus (250, 250 SC, 500WG), Stellar | Use no later than E-L 29, berries pepper-corn size (not > 4 mm diameter). |
| chlorothalonil § | M5 | Barrack Betterstick, Barrow (900 WG, Stick 720SC), Bravo Weather Stik, Castor 900 WG, Cavalry (Dry, Weatherguard), Cheers 720 (Holdfast, Weathershield), Chlornil 720 SC, Chloro (720, 900WG), Chloronil Pro, Chlorostar 900 WG, Chlorostick 720 SC, Chlorothalonil (720, 720 SC, 900 WG), Chlortan 720, Clash (Dry 900 WG, Storm Guard 720 SC), Conan Sticks 720SC, Echo (500SC, 720, 900 WDG), Mueso (720, 900 WG, Stick 720), Whack (720, 900 WG) | |
| tebuconazole + azoxystrobin | 3 + 11 | Azlan, Custodia (Forte) | |
| amisulbrom | 21 | Amishield | Use no later than E-L 31, berries pea-size (not > 7 mm diameter). |
| fluoxapiprolin | 49 | Xivana Prime 20 SC | |
| trifloxystrobin | 11 | (suppression only) Flint 500 WG, Invictus 500 WG | |
| pyraclostrobin | 11 | Cabretta 250EC, Cabrio, Pavo 250 EC, Pyraclostrobin 250 EC, Roadster 500 EC, Symbio 250 EC, Vipyr 250 EC | E-L 31 as above, **AND** do not use within 63 days of harvest. |
| **copper formulations** | | | Use no later than 30 days before harvest. |
| ammonium complex | M1 | Copperguard | |
| cuprous oxide | M1 | Copp 750 WG, Nordox 750 WG | |
| hydroxide | M1 | Blue Shield DF, Champ DP, Copper Hydroxide (350 WG, 400 WG, 500), Flowcop 500WG, Hydrocop WG, Kocide (Blue Xtra, Opti), Vitra 400 WG | |
| octanoate | M1 | Tricop | |
| oxychloride | M1 | Copper (Oxychloride, Oxychloride WP), Coppox (WG, WP), Cupro 375WG, EcoCopper 375WG, Isacop 500WP, Neoram 375 WG, Oxydul DF | |
| oxychloride + hydroxide | M1 + M1 | Airone WG | |
| sulfate tribasic | M1 | Bordeaux WG, Cuprofix Disperss, Tri-Base Blue, Tribasic (Copper Flowable, Flowable, Liquid) | |
| dithianon | M9 | Delan 700 WG, Dialon 700WG, Dinon 700 WG, Dithianon 700 WG, Dragon 700 WG, Dungeon 700 WG, Wrath 700WG | |
| metalaxyl-M | 4 | Axiom Flexi | |
| metalaxyl - M + copper hydroxide | 4 + M1 | Ridomil Gold Plus | |
| metalaxyl + copper oxychloride | 4 + M1 | Axiom Plus, Copper Plus, Metalaxyl + Copper Oxychloride WP, Zeemil Plus | |

§ Do not apply more than three sprays per season of a product containing chlorothalonil.

| Active constituent | Activity group | Some registered products | Export harvest interval |
|---|---|---|---|
| **DOWNY MILDEW *(CONT.)* - Review resistance management strategy on page 15** | | | |
| hydrogen peroxide + peroxyacetic acid | M + M | (suppression only) PeraCrop Max, Peratec PLUS | Use no later than 7 days before harvest. |
| potassium bicarbonate + silicate | M2 | (suppression only) EcoCarb Plus | |
| **EUTYPA DIEBACK** | | | |
| cyproconazole + iodocarb | 3 + 28 | Garrison Rapid Pruning Wound Dressing | Dormancy application. |
| fluazinam | 29 | Emblem, Fluaza-Stick 500 SC, Fluazinam 500SC, Gem, Peridot 500SC, Zinam 500 SC | |
| tebuconazole | 3 | Greenseal, Sprayseal, Vistaseal | |
| *Trichoderma harzianum* | n/a | Vinevax (Bio-Implants, Wound Dressing) | |
| **PHOMOPSIS CANE AND LEAF SPOT** | | | |
| fluazinam | 29 | Emblem, Fluaza-Stick 500 SC, Fluazinam 500SC, Gem, Peridot 500SC, Zinam 500 SC | Dormancy spray. |
| mancozeb Ω | M3 | Dithane Rainshield NeoTec, Fortuna Globe 750WG, Greenshield 750WG, Kencozeb (750DF, Endure), Mancozeb (750 DF, 750 WG, WG), Manic WG, Manzate (750 WG, DF), Manzeb, Penncozeb 750DF, Unizeb 420 SC | Use no later than E-L 25 (80% capfall). |
| metiram Ω | M3 | Fruitcote, Polyram DF | |
| dithianon | M9 | Delan 700 WG, Dialon 700WG, Dinon 700 WG, Dithianon 700 WG, Dragon 700 WG, Wrath 700WG | Use no later than 30 days before harvest. |
| **POWDERY MILDEW - Review resistance management strategy on page 17** | | | |
| fluopyram + tebuconazole | 7 + 3 | Luna Experience | Use no later than E-L 17, 12 leaves separated. |
| fenpropidin + difenconzole | 5 + 3 | Seeker Duo | Use no later than E-L 18, 14 leaves separated. |
| metrafenone | 50 (U8) | Vivando | Use no later than E-L 25 (80% capfall). |
| pydiflumetofen | 7 | Miravis | |
| spiroxamine | 5 | Anaconda 500 EC, Prosper 500 EC, Spire 500 EC | |
| sulfur, elemental or crystalline sulfur | M2 | Dusting Sulphur, Dusting Sulphur (900) | Use no later than 12 weeks before harvest. |
| azoxystrobin | 11 | Accolade 250 SC, Affix 250SC, Agristar 250SC, Amistar 250SC, A-star 250 SC, Avior (250SC, 800 WG), Azoxy 250, AzoxyGuard 250 SC, Azoxys 250 SC, Azoxystrobin (250, 250 SC, 500 WG), Connect 800 WG, Mirador (250 SC, 625), Spartacus (250, 250 SC, 500WG), Stellar | Use no later than E-L 29, berries pepper-corn size (not > 4 mm diameter). |
| difenoconazole | 3 | Digger EW | |
| tebuconazole | 3 | Laguna Xtreme 800WG, Orius 430 SC, Tebucon 430 SC, Tebuconazole 430 (SC), Tebugran 750 WG | |

Ω Do not apply more than three sprays per season of Group M3 fungicides including in combination with Group 4.

| Active constituent | Activity group | Some registered products | Export harvest interval |
|---|---|---|---|
| **POWDERY MILDEW *(CONT.)* - Review resistance management strategy on page 17** | | | |
| tebuconazole + azoxystrobin | 3 + 11 | Azlan, Custodia (Forte) | Use no later than E-L 29, berries pepper-corn size (not > 4 mm diameter). |
| cyflufenamid | U6 | Flute 50 EW | Use no later than E-L 31, berries pea-size (not > 7 mm diameter). |
| florylpicoxamid ⁎ | 21 | Verpixo | |
| paraffinic oil | n/a | BioPest, CropCover, isoCLEAR HPO | |
| petroleum oil | n/a | JMS Stylet-Oil, Trump Spray Oil | |
| pyriofenone | 50 | Kusabi 300 SC | |
| trifloxystrobin | 11 | Flint 500 WG, Invictus 500 WG | |
| pyraclostrobin | 11 | Cabretta 250EC, Cabrio, Pavo 250 EC, Pyraclostrobin 250 EC, Roadster 500 EC, Symbio 250 EC, Vipyr 250 EC | E-L 31 as above, **AND** not within 63 days of harvest. |
| penconazole | 3 | Azotic, Delos, Pearl, Topas 100 EC | E-L 31 as above, **AND** not within 60 days of harvest. |
| tetraconazole | 3 | Domark 40ME, Mettle 40ME | |
| polyoxin D zinc salt | 19 | Intervene | Use no later than E-L 34 (before commencement of veraison) **AND** not within 44 days of harvest. |
| quinoxyfen | 13 | Legend, Quinfen 250 SC, Vitae | Use no later than E-L 34 (before commencement of veraison) **AND** not within 42 days of harvest. |
| mefentrifluconazole | 3 | Belanty | Use no later than 35 days before harvest. |
| triadimefon | 3 | Triadimefon 125 | |
| triadimenol | 3 | Allitron, Cougar 250 EC, Tridim 250 EC | |
| copper ammonium complex | M1 | Copperguard | Use no later than 30 days before harvest. |
| myclobutanil | 3 | Myclonil WG, Mycloss Xtra | |
| proquinazid | 13 | Talendo | |
| sulfur, present as elemental or crystalline sulfur | M2 | Cosamil, EcoSulfur 800WG, InnoSulph 800 WG, Kumulus DF, Microsul WG Elite, Microthiol Disperss, Nimbus WG, Sulfur (800 WG), Thiopron, Thiovit Jet, Top Wettable Sulphur 800 WG, Yellowstone 800WG | |
| hydrogen peroxide + peroxyacetic acid | M + M | (suppression only) PeraCrop Max, Peratec PLUS | Use no later than 7 days before harvest. |
| potassium bicarbonate | M2 | EcoCarb | |

⁎ Do not apply more than two sprays per season of a product containing florylpicoxamid.

| Active constituent | Activity group | Some registered products | Export harvest interval |
|---|---|---|---|
| **POWDERY MILDEW *(CONT.)* - Review resistance management strategy on page 17** | | | |
| potassium bicarbonate + silicate | M2 | EcoCarb Plus | Use no later than 7 days before harvest. |
| **AUSTRALIAN PLAGUE LOCUST** | | | |
| *Metarhizium anisopliae* var. *acridum* | n/a | Green Guard SC Premium | Use no later than 7 days before harvest. |
| **GARDEN WEEVIL** | | | |
| abamectin + chlorantraniliprole | 6 + 28 | (suppression only) Voliam Targo | Use no later than E-L 29, berries pepper-corn size (not > 4 mm diameter). |
| indoxacarb | 22A | Avatar eVo, Incarnate 300 WG, Indostar 300 WG, Indoxacarb 300 WG, Lepta 300 WG, Spymaster 300 WG | Use no later than E-L 31, berries pea-size (not > 7 mm diameter) **AND** not within 56 days of harvest. |
| **GRAPEVINE MOTH** | | | |
| chlorantraniliprole | 28 | Altacor (Hort, X-Force), Chlorantraniliprole 350 WG, Shenzi, Solace Hort 700WG | Use no later than E-L 25 (80% capfall). |
| abamectin + chlorantraniliprole | 6 + 28 | Voliam Targo | Use no later than E-L 29, berries pepper-corn size (not > 4 mm diameter). |
| spinetoram | 5 | Delegate | Use no later than E-L 31, berries pea-size (not > 7 mm diameter). |
| spinosad | 5 | Entrust Organic, Kobus 480SC, Preserve 120 SC, SpinoSec 240 SC | |
| emamectin | 6 | Clama 50SC, Energise, Exclaim 44 SG, Oracle EC, Proclaim Opti | E-L 31 as above, **AND** not within 56 days of harvest. |
| indoxacarb | 22A | Avatar eVo, Indostar 300 WG, Indoxacarb 300 WG, Lepta 300 WG, Spymaster 300 WG | |
| *Bacillus thuringiensis* subspecies *aizawai* | 11 | Bacchus WG | May be used until harvest. |
| *Bacillus thuringiensis* subspecies *kurstaki* | 11 | Delfin WG, DiPel DF | |
| *Trichogrammanza carverae* | n/a | Trichogramma parasitic wasp | |
| **GRAPEVINE SCALE †** | | | |
| paraffinic oil | n/a | BioPest, CropCover, D-C-Maxx nC24, isoCLEAR HPO, Trump Spray Oil | Dormancy spray. |
| petroleum oil | n/a | All Seasons White Oil, Summer Spray Oil, Stifle, Vicol (Summer Oil, Winter Oil) | |
| spirotetramat | 23 | suppression only) Engaze 240 SC, Kersel 850 VeripHy WG, Movento 240 SC, SpiroSec 240 SC, Spirosure 240SC, Spirotetramat 240 SC, Viento 240 SC | Use no later than E-L 18, 14 leaves separated. |

† Some group 1B insecticides are registered for grapevine scale. Contact your winery or grape purchaser prior to any 1B insecticide application.

| Active constituent | Activity group | Some registered products | Export harvest interval |
|---|---|---|---|
| **GRAPEVINE SCALE *(CONT.)*** † | | | |
| acetamiprid + pyriproxyfen ◊ | 4A + 7C | Trivor | Use no later than E-L 19, beginning of flowering when caps start loosening. |
| buprofezin | 16 | (suppression only) Uptown | Use no later than E-L 25 (80% capfall). |
| **LIGHT BROWN APPLE MOTH** | | | |
| acetamiprid + pyriproxyfen ◊ | 4A + 7C | Trivor | Use no later than E-L 19, beginning of flowering when caps start loosening. |
| chlorantraniliprole | 28 | Altacor (Hort, X-Force), Chlorantraniliprole 350 WG, Shenzi, Solace Hort 700WG | Use no later than E-L 25 (80% capfall). |
| methoxyfenozide | 18 | Enigma 240 SC, Peregrine, Prodigy, Slate 240, Venturi Max | |
| tebufenozide | 18 | Ecdypro 700 WP | |
| abamectin + chlorantraniliprole | 6 + 28 | Voliam Targo | Use no later than E-L 29, berries peppercorn size (not > 4 mm diameter). |
| spinetoram | 5 | Delegate | Use no later than E-L 31, berries pea-size (not > 7 mm diameter). |
| spinosad | 5 | Entrust Organic, Kobus 480SC, Preserve 120 SC, SpinoSec 240 SC | |
| emamectin | 6 | Clama 50SC, Energise, Exclaim 44 SG, Oracle EC, Proclaim Opti | E-L 31 as above, **AND** not within 56 days of harvest. |
| indoxacarb | 22A | Avatar eVo, Indostar 300 WG, Indoxacarb 300 WG, Lepta 300 WG, Spymaster 300 WG | |
| *Bacillus thuringiensis* subspecies *aizawai* | 11 | Bacchus WG | May be used until harvest. |
| *Bacillus thuringiensis* subspecies *kurstaki* | 11 | Delfin, DiPel DF | |
| tetradecenyl acetate + tetradecadienyl acetate | n/a | Isomate LBAM Plus Pheromone | |
| *Trichogrammanza carverae* | n/a | Trichogramma parasitic wasp | |
| **MEALYBUG** ‡ | | | |
| paraffinic oil | n/a | BioPest, CropCover, isoCLEAR HPO, Trump Spray Oil | Dormancy spray. |
| spirotetramat | 23 | Engaze 240 SC, Movento 240 SC, SpiroSec 240 SC, Spirosure 240SC, Spirotetramat 240 SC, Viento 240 SC | Use no later than E-L 18, 14 leaves separated. |

† Some group 1B insecticides are registered for grapevine scale. Contact your winery or grape purchaser prior to any 1B insecticide application.

◊ Do not apply more than one spray per season of a product containing acetamiprid + pyriproxyfen.

‡ Consult product label, registration may apply to specific mealybug species.

| Active constituent | Activity group | Some registered products | Export harvest interval |
|---|---|---|---|
| **MEALYBUG *(CONT.)*** ‡ | | | |
| acetamiprid + pyriproxyfen ◊ | 4A + 7C | Trivor | Use no later than E-L 19, beginning of flowering when caps start loosening. |
| buprofezin | 16 | Applaud, Buprofezin 440, Scale & Bug, Uptown | Use no later than E-L 25 (80% capfall). |
| afidopyropen ~ | 9D | Versys (suppression only) | Use no later than E-L 31, berries pea-size (not > 7 mm diameter). |
| **MEDITERRANEAN/QUEENSLAND FRUIT FLY** | | | |
| A baiting program that does not target fruit or foliage is recommended. Control options for fruit fly are subject to APVMA permit conditions. Refer to www.awri.com.au/industry_support/viticulture/agrochemicals/ for detail on off-label grapevine permits. Contact your winery/grape purchaser prior to use of any 1A, 1B, 2B or 3A insecticide. | | | |
| **MITES** | | | |
| sulfur: as polysulfide | M2 | Lime Sulphur | Apply as near as possible to budburst. |
| sulfur: as elemental or crystalline sulfur | M2 | Cosamil, EcoSulfur 800WG, InnoSulph 800 WG, Microsul WG Elite, Nimbus WG, Sulfur 800 WG, Thiovit Jet, Top Wettable Sulphur 800 WG | Use no later than 30 days before harvest. |
| **- BUD MITE (as for MITES and the following)** | | | |
| sulfur: as elemental or crystalline sulfur | M2 | Kumulus DF, Microthiol Disperss, Yellowstone 800 WG | Use no later than 30 days before harvest. |
| **- BUNCH MITE (as for MITES and the following)** | | | |
| sulfur: as elemental or crystalline sulfur | M2 | Yellowstone 800 WG | Use no later than 30 days before harvest. |
| **- GRAPE LEAF BLISTER MITE (as for MITES and the following)** | | | |
| petroleum oil | n/a | Stifle, Vicol Winter Oil | Dormancy spray. |
| sulfur: as elemental or crystalline sulfur | M2 | Kumulus DF, Microthiol Disperss, Sulfur, Yellowstone 800WG | Use no later than 30 days before harvest. |
| **- GRAPE LEAF RUST MITE (as for MITES and the following)** | | | |
| abamectin + chlorantraniliprole | 6 + 28 | Voliam Targo | Use no later than E-L 29, berries peppercorn size (not > 4 mm diameter). |
| sulfur: as elemental or crystalline sulfur | M2 | Kumulus DF, Microthiol Disperss, Sulfur, Yellowstone 800WG | Use no later than 30 days before harvest. |
| **- TWO SPOTTED MITE (as for MITES and the following)** | | | |
| petroleum oil | n/a | Stifle, Vicol Winter Oil | Dormancy spray. |
| abamectin + chlorantraniliprole | 6 + 28 | Voliam Targo | Use no later than E-L 29, berries peppercorn size (not > 4 mm diameter). |

‡ Consult product label, registration may apply to specific mealybug species.

◊ Do not apply more than one spray per season of a product containing acetamiprid + pyriproxyfen.

~ Do not apply more than three sprays per season of a product containing afidopyropen.

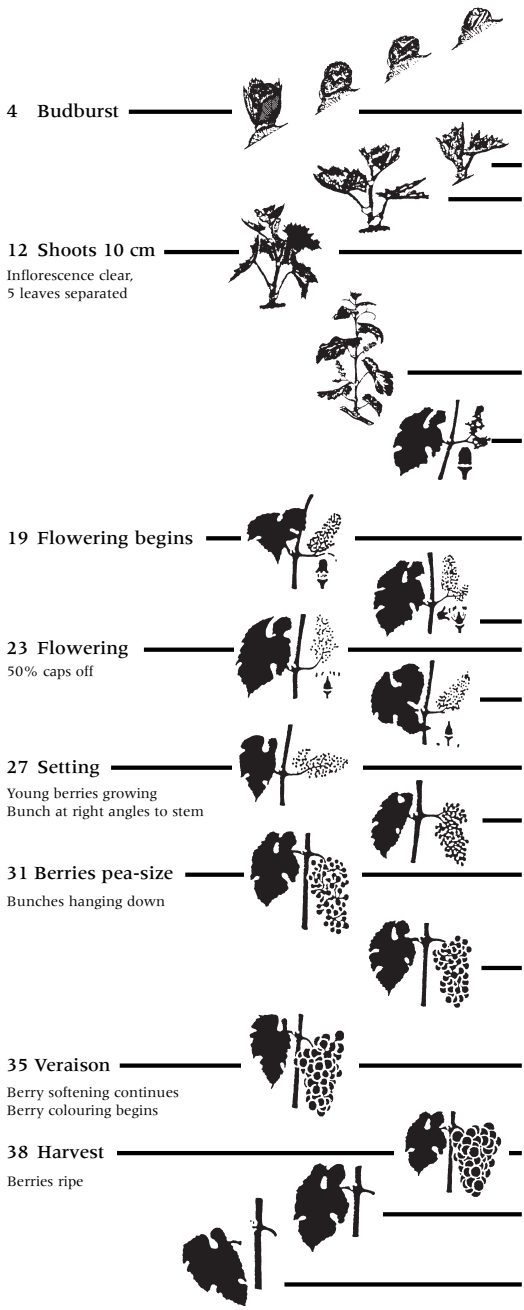
| Active constituent | Activity group | Some registered products | Export harvest interval |
|---|---|---|---|
| **- TWO SPOTTED MITE (as for MITES and the following) *(CONT.)*** | | | |
| etoxazole | 10B | ParaMite | Use no later than 21 days before harvest. |
| **SNAILS** | | | |
| copper complex | n/a | Escar-go, Socusil | Dormancy spray. |
| metaldehyde | n/a | Axcela Slug and Snail, Metakill, Metaldehyde Snail and Slug, Metarex Inov Snail and Slug, Pestmaster Snail and Slug, Slug Out, Snailex, Snail Trail | Ground application. Use no later than 7 days before harvest. |
| iron EDTA complex | n/a | Eradicate Snail and Slug Killer, Iron Chelate, Multiguard Snail and Slug Killer | Ground application. May be used until harvest. |
| iron phosphate anhydrous | n/a | Ironmax Pro | |
| iron powder | n/a | Eradicate Eco Snail and Slug Bait, Eco-Shield | |
| **WINGLESS GRASSHOPPER** | | | |
| indoxacarb | 22A | Avatar eVo, Indoxacarb 300 WG, Lepta 300 WG, Persona 300WG, Spymaster 300 WG | Use no later than E-L 31, berries pea-size (not > 7 mm diameter) **AND** not within 56 days of harvest. |
| *Metarhizium anisopliae* var. *acridum* | n/a | Green Guard SC Premium | Use no later than 7 days before harvest. |
| **WEEDS** | | | |
| Refer to Table 2, pages 23-24 for herbicides registered for use on vineyards. Some products listed are underlined indicating that not all wineries permit the use of these products — this includes the use of glyphosate products in the growing season that contain greater than 360g of active per L. Contact your winery/grape purchaser *prior* to the use of underlined products and prior to applying any herbicide within 30 days of harvest. Some herbicides have label restraints that detail situations where the chemical MUST NOT be used. Read all labels carefully and pay attention to all statements starting with DO NOT — these conditions must be adhered to. Refer to page 28 for information on herbicides and managing resistance. | | | |

## Growth stage description

GROWTH STAGE ASSESSMENT IS **NOT** AN AVERAGE ACROSS THE VINEYARD.
BASE GROWTH STAGE ASSESSMENTS ON THE **MOST ADVANCED VINES** IN THE BLOCK.

**Budburst:** E-L stage 4; first green tips are visible.
**E-L 17:** 12 leaves separated; inflorescence well developed, single flowers separated.
**E-L 18:** 14 leaves separated; flower caps still in place, but cap colour fading from green.
**E-L 19:** About 16 leaves separated; beginning of flowering (first flower caps loosening).
**80% capfall:** E-L stage 25; 80% of caps have just lifted, largest berries not >2 mm diameter.
**E-L 26:** Cap-fall complete.
**E-L 29:** Just after berry set, berries pepper-corn size (not > 4 mm diameter); bunches tending downwards.
**Pre-bunch closure:** E-L stage 31; berries have reached pea-size (not > 7 mm diameter); bunches hanging down.
**E-L 34:** Berries begin to soften and enlarge, and sugar starts increasing.
**Veraison:** E-L stage 35; when 50% of berries begin to soften and sugar starts increasing.

# Grapevine growth stage table




*Viticulture 1 - Resources*. 2nd edition 2004. Dry, P. R., Coombe, B.G. (eds) Adelaide: Winetitles: p.153

# Chemical resistance management strategies

## What is 'chemical resistance'?

Chemical resistance is the inherited ability of an organism, be it a disease, weed or insect, to survive doses of an agrochemical that would normally control it. Resistance may develop after frequent use of one chemical or chemicals from the same activity group. Incorrect chemical use, such as under- or over-dosing or application at the wrong time in the life cycle of the target, can also promote resistance.

## How does resistance develop?

Any population might contain a very small number of individuals that are naturally able to survive the application of a particular chemical. If the same chemical or chemicals from the same activity group are used repeatedly and exclusively, the susceptible individuals continue to be removed, and those with natural resistance survive and multiply to essentially dominate the population. The chemistry then 'fails' in the field.
It has been observed in vineyards that despite several herbicides being used over a season, they are often applied at the same time each season. As such, the weed species present at the time are treated with the same herbicide each year, therefore promoting resistance.

## Resistance countering measures

Manage unwanted pathogens, weeds and insects using non-chemical means when possible.
When using chemicals, get the most out of them by:

- timing them to when the target is most susceptible
- using the correct dose
- adding suitable adjuvants
- applying when the conditions are right.

Minimise chemical selection pressure by not overusing chemicals from the same activity group. CropLife Australia maintains resistance management strategies for fungicides, insecticides and herbicides. These are available at www.croplife.org.au.

## Fungicide resistance status

Resistance to fungicides is a serious problem worldwide and Australia has not been spared. Resistance to many of the commonly used fungicides now exists.
CropLife Australia incorporates two initiatives in fungicide resistance management which ensure the best control with least risk of developing resistance. These are:
1. All fungicides have been classified by activity group, which appears as a number or letter and number code on the fungicide product label.
2. Strategies have been developed for the use of fungicides in crops where resistance by a particular organism is already evident or considered a risk.

## Downy mildew resistance management strategy

**Resistance management strategy for:**

| | | | |
|---|---|---|---|
| **Group 4** | Phenylamides (PA) | **Group 45+40** | Quinone outside inhibitor, stigmatellin binding type (QoSI) + CAA |
| **Group 11** | Quinone outside inhibitor (QoI) | | |
| **Group 11+3** | QoI + Demethylation inhibitors (DMI) | **Group 49** | Oxysterol binding protein homologue inhibitors (OSBPI) |
| **Group 21** | Quinone inside inhibitor (QiI) | | |
| **Group 40** | Carboxylic acid amide (CAA) | | |

1. Start preventative disease control sprays using **non-Group 4** protectant fungicides, typically when shoots are 10-20cm long. Continue spraying at intervals of 7-21 days depending on disease pressure, label directions and rate of vine growth.
2. **Group 4** fungicides should be applied as soon as possible after an infection period, and before the first sign of oil spots. Limit the use of **Group 4** fungicides to periods when conditions favour disease development. Always apply **Group 4** fungicides in mixtures.
3. **Group 49** fungicides should be applied prior to infection and only in mixtures with effective fungicides applied at an effective rate from a different cross resistance group. The mixing partner should give effective control of downy mildew at the rate and interval selected. A **Group 49** application must be followed by at least two applications of a different group(s) before being reapplied.
4. Fungicide mixtures are defined as co-formulations or tank mixes at label rate of an alternative mode of action.
5. Apply a maximum of two consecutive applications of **Group 4, 21, 40, or 45+40** containing fungicides.
6. **Do not** apply **Group 11** (including mixture formulations) consecutively.
7. Apply a maximum of two sprays per season of **Group 11** (including mixtures), **Group 45+40** and **Group 49**.
8. **Do not** apply a spray containing **Group 40** as the last spray of the season. Only apply a spray containing **Group 40** a maximum of 50% of the total number of downy mildew sprays.
9. Apply a maximum of three **Group 21** containing sprays per season.

| | **Group** | | | | | |
|---|---|---|---|---|---|---|
| | **4** | **11 (incl. 11+3)** | **21** | **40** | **45 + 40** | **49** |
| **Max. number of consecutive sprays** | 2 | none | 2 | 2 | 2 | none |
| **Max. number of solo sprays** | none | 2 | 3 | 2 (50%) | none | none |
| **Max. number of sprays per season** | 4-mix | 2 | 3 | 4-mix (50%*) | 2 | 2-mix |
| **Areas of higher agronomic risk** | mix | mix | n/a | mix | n/a | mix |

** Refer to point 8*
*Note: Consecutive sprays include mixture formulations*

### CropLife disclaimer

These strategies are valid as at 1 June 2025. Current versions are available from the CropLife Australia website (www.croplife.org.au). The information given in these strategies is provided in good faith and without any liability for loss or damage suffered as a result of their application and use. While all effort has been taken with the information supplied, no responsibility, actual or implied, is taken for the day to day accuracy of activity group specific information. These strategies are a guide only and do not endorse particular activity groups. Always follow the product label for specific use instructions. Check with the APVMA product database (https://portal.apvma.gov.au/pubcris) for current information on products and actives.

# Grey mould (*Botrytis* bunch rot) resistance management strategy

**Resistance management strategy for:**

| | | | |
|---|---|---|---|
| **Group 2** | Dicarboximides | **Group 11+3** | QoI + DMI |
| **Group 7** | Succinate dehydrogenase inhibitors (SDHI) | **Group 12** | PP |
| | | **Group 17** | Keto reductase inhibitors (KRI) |
| **Group 7+3** | SDHI + Demethylation inhibitors (DMI) | **Group 19** | Chitin synthase inhibitor |
| **Group 7+12** | SDHI + phenylpyrroles (PP) | **Group 21** | Quinone inside inhibitor (QiI) |
| **Group 9** | Anilinopyrimidine (AP) | **Group 52** | DHODHI-fungicides (dihydroorotate dehydrogenase inhibitor) |
| **Group 9+12** | AP + PP | | |
| **Group 11** | Quinone outside inhibitor (QoI) | | |

1. Always use an integrated disease management (IDM) approach to grey mould management in vines. Manipulate the bunch zone microclimate to reduce humidity and enable rapid drying of wet bunches. Always aim to reduce spore load, flower and fruit infection and limit regrowth of latent infections and disease spread by timely fungicide application in an IDM approach. Use fungicides registered to control *Botrytis* at label rates from as many different mode of action groups as possible when needed.
2. Apply all these fungicides as protectants before the first sign of disease.
3. Consecutive applications include from the end of one season to the start of the next, for products applied either standalone or in mixtures.
4. Varying the number of fungicides applied targeting *Botrytis* changes the relative resistance risk to any one fungicide group. When three or fewer sprays are applied, it is recommended that three different groups of fungicides are used (see table below). When four sprays are applied, try to use three or four different groups of fungicide.

| | | **Maximum recommended number of sprays which can contain Group:** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **2** | **7 (incl. 7+3)** | **7 + 12** | **9** | **11 (incl. 11+3)** | **12 (incl. 9+12)** | **17** | **19** | **21** | **52** |
| **Total number of Botrytis targeting sprays** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 |
| | 3 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 |
| | 4 | 2 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 1 | 2 |
| | 5 | 2 | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 1 | 2 |
| | 6+ | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 3 | 2-3 | 2 |

5. If a **Group 11** or **7** fungicide is used solo, it should only be used in strict alternation with fungicides from a different mode of action group.
6. **Do not** apply more than two consecutive sprays from the same fungicide group, for any **Group 2, 7, 9** (including combinations with **Group 12**), **11+3**, **17, 19** or **21** fungicide, including from the end of one season to the start of the following season.
7. If two consecutive applications of **Group 11+3** fungicides are used, then they must be followed by at least the same number of applications of fungicide(s) from a different group(s) before a **Group 11** (including combinations with **Group 3**) fungicide is used again, either in the current or following season.
8. **Do not** apply more than three **Group 21** containing products per crop, or a maximum of 33% of total applications (whichever is lower). Continue alternation of fungicides between successive seasons.
9. **Do not** apply **Group 52** as consecutive applications, or more than 2 times per season.
10. If resistance to a fungicide group has been detected within a region, only use that fungicide group in mixtures or in strict alternation with fungicides from a different cross-resistance group. A fungicide group that has been applied as the final application of the season should not be the first fungicide in the following season.

## Powdery mildew resistance management strategy

**Resistance management strategy for:**

| | | | |
|---|---|---|---|
| **Group 3** | Demethylation inhibitors (DMI) | **Group 11** | Quinone outside inhibitors (QoI) |
| **Group 5** | Amines (morpholines) | **Group 11+3** | QoI + DMI |
| **Group 5+3** | Amines + DMI | **Group 13** | Aza-naphthalenes |
| **Group 7** | Succinate dehydrogenase inhibitors (SDHI) | **Group 19** | Chitin synthase inhibitor |
| | | **Group 21** | Quinone inside inhibitor (QiI) |
| **Group 7+3** | SDHI + DMI | **Group 50 (U8)** | Actin disruptors (aryl-phenyl-ketone) |
| **Group 7+12** | SDHI + phenylpyrroles (PP) | **Group U6** | Phenyl-acetamide |

1. Apply all these fungicides preventatively.
2. Consecutive applications include from the end of one season to the start of the next. Medium to high risk fungicides (**Group 7** and **11**) if used consecutively should be applied in a mixture or co-formulation with a registered, alternative mode of action for which resistance is not known — where these fungicides have been routinely used for many seasons, field research indicates there is an increased risk of powdery mildew resistance. To ensure effective powdery mildew control in these circumstances, either use alternative modes of action or apply in mixtures.
3. Do not apply more than one application of a **Group 5+3, or 7+12** containing product per crop.
4. **Do not** apply more than two consecutive sprays of **Group 3, 5, 13, 19, 21, 50 (U8)** and **U6** (including mixture formulations).
5. **Do not** apply more than three **Group 21** containing products per crop, or a maximum of 33% of total applications (whichever is lower). Continue alternation of fungicides between successive seasons.

| | | **Maximum recommended number of sprays which can contain Group:** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **3** | **5** | **5+3, 7+12** | **7 (incl. 7+3)** | **11 (incl. 11+3)** | **13** | **19** | **21** | **50 (U8)** | **U6** |
| **Total number of powdery mildew targeting sprays** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | 2 | 2 | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 1 |
| | 3 | 2 | 2 | 1 | 1 | 2 | 2 | 2 | 1 | 1 | 1 |
| | 4 | 2 | 2 | 1 | 1 | 2 | 2 | 2 | 1 | 2 | 2 |
| | 5 | 2 | 2 | 1 | 1 | 2 | 2 | 2 | 1 | 2 | 2 |
| | 6 | 3 | 3 | 1 | 2 | 2 | 3 | 3 | 2 | 2 | 2 |
| | 7 | 3 | 3 | 1 | 2 | 2 | 3 | 3 | 2 | 2 | 2 |
| | 8 | 3 | 3 | 1 | 2 | 2 | 3 | 3 | 2 | 2 | 2 |
| | 9+ | 3 | 3 | 1 | 2 | 2 | 3 | 3 | 3 | 2 | 2 |

*Note: Consecutive sprays include mixture formulations*

## National fungicide resistance testing

Resistance to powdery mildew, downy mildew and botrytis fungicides is occurring in winegrapes in Australia.

Sampling from vineyards with disease control issues has determined the following resistance status across a range of active ingredients:

| Target disease | Active ingredient | Activity group | Resistance status |
|---|---|---|---|
| Powdery mildew | difenoconazole | 3 | Not detected |
| | penconazole | 3 | Detected |
| | tetraconazole | 3 | Not detected |
| | spiroxamine | 5 | Not detected |
| | boscalid | 7 | Not detected |
| | pydiflumetofen | 7 | Not detected |
| | azoxystrobin | 11 | Detected |
| | pyraclostrobin | 11 | Detected |
| | proquinazid | 13 | Detected |
| | quinoxyfen | 13 | Detected |
| | pyriofenone | 50 | Not detected |
| Downy mildew | metalaxyl | 4 | Detected |
| | pyraclostrobin | 11 | Detected |
| | dimethomorph | 40 | Not detected |
| | mandipropamid | 40 | Not detected |
| Botrytis | pyrimethanil | 9 | Detected |
| | fludioxonil | 12 | Detected |
| | fenhexamid | 17 | Detected |

A **free** national resistance testing service is available for the three target diseases until June 2027.

Samples can be submitted to the SARDI Horticulture Pathology Laboratory by contacting ismail.ismail@sa.gov.au. Biosecurity considerations apply.

This testing service is part of a research project led by South Australian Research and Development Institute (SARDI) in collaboration with Curtin University and the AWRI, and funded by SARDI, Wine Australia and the Cooperative Research Centre for Solving Antimicrobial Resistance in Agribusiness, Food, and Environments (SAAFE CRC).

The prevalence of fungicide resistance in winegrapes highlights the importance of adhering to Croplife Australia's resistance management strategies on pages 15 - 17.

# Agrochemicals registered for use in Australian viticulture

Many products registered by the APVMA for use in winegrape production in Australia are presented overleaf in Table 2 'Agrochemicals registered for use in Australian viticulture'. Always read the label on the chemical container, as some products listed might not be registered for use in your state.

- Some products listed in Table 2 are underlined indicating that not all wineries permit the use of these products. Contact your winery/grape purchaser *prior* to the use of these products.
- The use of glyphosate products containing greater than 360g of active per L in the growing season is not permitted by some wineries/grape purchasers.
- The **re-entry period** is the minimum amount of time that must pass between when an agrochemical is applied to an area and when that area can be entered without protective clothing and equipment. For further information including the re-entry period key, refer to page 27.
- The **activity group** is commonly displayed on a product label as a number, or letter and number, that reflects the 'mode of action' of the active ingredient. It is necessary to know how the product works to avoid the development of chemical resistance. Some activity groups are associated with a resistance management strategy to minimise the development of chemical resistance. For fungicides, refer to pages 15-18 and for herbicides, refer to page 28.
- Label permitting, a 30-day export harvest interval for all herbicide active constituents is recommended. If weed control is required within 30 days of harvest, contact your winery/grape purchaser prior to spraying.
- The export harvest interval for many of the insecticides listed on pages 25-26 has not been provided in Table 1. Due to international pressures, the use of agrochemicals belonging to chemical groups such as the organophosphates and carbamates is discouraged. The recommended export harvest interval for all 1A, 1B, 2B, 4A and 4C insecticides listed in Table 2 is 'Use no later than E-L 25 (80% capfall)' where the label does not indicate an earlier withholding period. It is also recommended that any 3A insecticides without a label restriction to only use during dormancy, should not be used later than 80% capfall. It is essential that you contact your winery/grape purchaser prior to the application of any 1A, 1B, 2B, 3A, 4A or 4C insecticide.
- Each year, some agrochemical products are voluntarily cancelled by registrants. The use pattern for others can be changed as a result of an APVMA regulatory review. For a list of such products relevant to winegrapes, refer to page 29.

### How to use Table 2.

| Active constituent(s) | Some registered products | Re-entry period range | Activity group |
|---|---|---|---|
| Grouped alphabetically for each chemical type | List of some chemical products available | Code for label mandated safe re-entry periods. Refer page 27 for details. | Australian agrochemical codes |

## TABLE 2: Agrochemicals registered for use in Australian viticulture

| Active constituent(s) | Some registered products | Re-entry period | Activity group |
|---|---|---|---|
| **FUNGICIDE** | | | |
| ametoctradin + dimethomorph* | Zampro | a | 45 + 40 |
| amisulbrom | Amishield | j | 21 |
| *Aureobasidium pullulans* | Botector | a | BM02 |
| azoxystrobin* | Accolade 250 SC, Affix 250SC, Agristar 250SC, Amistar 250 SC, A-Star 250 SC, Avior (250SC, 800 WG) , Azoxy 250, AzoxyGuard 250 SC, Azoxys 250 SC, Azoxystrobin (250, 250 SC, 500 WG), Connect 800 WG, Mirador (250 SC, 625), Spartacus (250, 250 SC, 500WG), Stellar | a, q | 11 |
| *Bacillus amyloliquefaciens* | Serenade Opti, Serifel | | 44 |
| BLAD* | ProBlad, ProBlad Verde | a | BM01 |
| boscalid** | Boscalid 500 WG, Certify 800 WG, Filan, Rascasse 500 WG, Rinkals | a | 7 |
| captan** | Captan (800 WG, 900 WG, WG), Lectern 800 VeripHy WG | a, m | M4 |
| chlorothalonil | Barrack Betterstick, Barrow (900 WG, Stick 720SC), Bravo Weather Stik, Castor 900WG, Cavalry (Dry, Weatherguard), Cheers 720 (Holdfast, Weathershield), Chlornil 720 SC, Chloro (720, 900 WG), Chloronil Pro, Chlorostar 900 WG, Chlorostick 720 SC, Chlorothalonil (720, 720SC, 900 WG), Chlortan 720, Clash (Dry 900 WG, Storm Guard 720 SC), Conan Sticks 720SC, Echo (500SC, 720, 900 WDG), Mueso (720, 900WG, Stick 720), Whack (720, 900 WG) | a | M5 |
| **copper formulations** | | | |
| ammonium complex | Copperguard | a | M1 |
| cuprous oxide | Copp 750 WG, Nordox 750 WG | a | M1 |
| hydroxide | Blue Shield DF, Champ DP, Copper Hydroxide (350 WG, 400 WG, 500), Flowcop 500WG, Hydrocop WG, Kocide (Blue Xtra, Opti), Vitra 400 WG | a | M1 |
| octanoate | Tricop | a | M1 |
| oxychloride | Copper Oxychloride (WP), Coppox (WG, WP), Cupro 375WG, EcoCopper 375WG, Isacop 500WP, Neoram 375 WG, Oxydul DF | a | M1 |
| oxychloride + hydroxide | Airone WG | l | M1 + M1 |
| sulfate tribasic | Bordeaux WG, Tri-Base Blue, Tribasic (Copper Flowable, Flowable, Liquid) | a | M1 |
| copper sulfate tribasic + mancozeb | Copman DF | a, c | M1 + M3 |
| cyflufenamid | Flute 50 EW | a | U6 |
| cyproconazole + iodocarb | Garrison Rapid Pruning Wound Dressing | a | 3 + 28 |
| cyprodinil | Solaris 300 EC | a | 9 |
| cyprodinil + fludioxonil | Crossover WG, Cyprofludox WG, Missile, Rotnil, Snatch WG, Swap WG, Switch | a | 9 + 12 |

* Restricted for use by some wineries. Contact your winery or grape purchaser prior to use.
** Prohibited from use by some wineries. Contact your winery or grape purchaser prior to use.

| Active constituent(s) | Some registered products | Re-entry period | Activity group |
|---|---|---|---|
| **FUNGICIDE *(CONT.)*** | | | |
| difenoconazole | Digger EW | a | 3 |
| dimethomorph* | Acrobat SC, MetaMorph 500 SC, Sphinx | a, n | 40 |
| dithianon | Delan 700 WG, Dialon 700WG, Dinon 700 WG, Dithianon 700 WG, Dragon 700 WG, Dungeon 700 WG, Wrath 700WG | a | M9 |
| eugenol, geraniol, thymol | Novellus | a | 46 |
| fenhexamid | Altivo 500SC, Jigsaw 800 WG, Teldor 500 SC | a | 17 |
| fenpropidin + difenconazole | Seeker Duo | a | 5 + 3 |
| fenpyrazamine | Prolectus | a | 17 |
| florylpicoxamid | Verpixo | a | 21 |
| fluazinam | Emblem, Fluaza-Stick 500 SC, Fluazinam 500SC, Gem, Peridot 500 SC, Zinam 500 SC | a, s | 29 |
| fluopyram + tebuconazole | Luna Experience | a | 7 + 3 |
| fluoxapiprolin | Xivana Prime 20 SC | a | 49 |
| hydrogen peroxide + peroxyacetic acid* | Peracetic Acid, PeraCrop Max, Peratec PLUS, Peroxy Treat | a | M + M |
| ipflufenoquin | Migiwa | a | 52 |
| iprodione** | Aquaflow 500 SC, Chief (Aquaflo, Topflo), Drover Guard 500 SC, Ipral 250, Iprine (250, 500), Iprodex 250, Iprodione (250, 500, 500 SC, Aquaflow 500), Lavor 250, Rovral (Aquaflo, Liquid), Transact | a | 2 |
| mancozeb | Dithane Rainshield Neo Tec, Fortuna Globe 750WG, Greenshield 750WG, Kencozeb (750DF, Endure), Manco 750 WG, Mancozeb (750 DF, 750 WG, 800 WP, WG), Manic WG, Manzate (750 WG, DF), Manzeb, Penncozeb 750DF, Sinozeb 750 WG, Unizeb 420 SC | a | M3 |
| mandipropamid | Bremex 250SC, Mandipropamid 250 SC, Mandiva 250SC, Revus | a | 40 |
| mefentrifluconazole | Belanty | a | 3 |
| metalaxyl - M | Axiom Flexi | a | 4 |
| metalaxyl - M + copper hydroxide | Ridomil Gold Plus | a | 4 + M1 |
| metalaxyl - M + mancozeb | Axiom MZ WG, Ridomil Gold MZ WG | a | 4 + M3 |
| metalaxyl + copper oxychloride | Axiom Plus, Copper Plus, Metalaxyl + Copper Oxychloride WP, Zeemil Plus | a | 4 + M1 |
| metalaxyl + mancozeb | Axiom MZ 720, Maxyl, Metal-man MZ 720, Metman 720 WG, Zeemil 720 WG | a, r | 4 + M3 |
| metiram | Fruitcote, Polyram DF | a | M3 |
| metrafenone | Vivando | a | 50 (U8) |
| myclobutanil | Myclonil WG, Mycloss Xtra | h | 3 |
| oxadixyl + propineb | Rebound WP | a | 4 + M3 |
| paraffinic oil | BioPest, CropCover, isoCLEAR HPO | a | unspecified |
| penconazole | Azotic, Delos, Pearl, Topas 100 EC | a | 3 |
| petroleum oil | JMS Stylet-Oil, Trump Spray Oil | a | unspecified |

* Restricted for use by some wineries. Contact your winery or grape purchaser prior to use.
** Prohibited from use by some wineries. Contact your winery or grape purchaser prior to use.

| Active constituent(s) | Some registered products | Re-entry period | Activity group |
|---|---|---|---|
| **FUNGICIDE *(CONT.)*** | | | |
| phosphorous acid** | Agri-Fos 600, Crop Doc 600, Dominator 600, Fungi-Fos (400, 400 pH 7.2), Ken-Fos 600, Phos Phyt 400, Phospot (400 pH 7.2, 600), Sprayphos (400, 600, 620), Throw Down | a | 33 |
| polyoxin D zinc salt | Intervene | a | 19 |
| potassium:<br>bicarbonate<br>bicarbonate + silicate | <br>EcoCarb<br>EcoCarb Plus | a | M2 |
| potassium salts of fatty acids | Ecoprotector, Hitman | a | U1 |
| procymidone** | Kondone 500 SC, Metapris 500 SC, Nosclex 800 WG, Procymidone (500, 500SL), Proflex 500, Sporex, Sumisclex 500 | p | 2 |
| proquinazid | Talendo | a | 13 |
| pydiflumetofen* | Miravis | a | 7 |
| pydiflumetofen + fludioxonil** | Miravis Prime | a | 7 + 12 |
| pyraclostrobin | Cabretta 250EC, Cabrio, Pavo 250 EC, Pyraclostrobin 250 EC, Roadster 500 EC, Symbio 250 EC, Vipyr 250 EC | a | 11 |
| pyrimethanil* | Pyper 600 SC, Pyrimethanil 600 SC, Scala 600 SC | a | 9 |
| pyriofenone | Kusabi 300 SC | a | 50 |
| quinoxyfen | Legend, Quinfen 250 SC, Vitae | a | 13 |
| spiroxamine* | Anaconda 500 EC, Prosper 500 EC, Spire 500 EC | e, f | 5 |
| sulfur, present as elemental or crystalline sulfur | Cosamil, Dusting Sulphur (900), EcoSulfur 800 WG, InnoSulph 800 WG, Kumulus DF, Microsul WG Elite, Microthiol Disperss, Nimbus WG, Sulfur (800 WG), Thiopron, Thiovit Jet, Top Wettable Sulphur 800 WG, Yellowstone 800WG | a | M2 |
| tebuconazole | Greenseal, Laguna Xtreme 800 WG, Orius 430 SC, Sprayseal, Tebucon 430 SC, Tebuconazole 430 (SC), Tebugran 750 WG, Vistaseal | a, j | 3 |
| tebuconazole + azoxystrobin* | Azlan, Custodia (Forte) | a | 3 + 11 |
| tetraconazole | Domark 40ME, Mettle 40ME | a | 3 |
| thiram | Thiram (DG, 800 WG) | a | M3 |
| triadimefon | Triadimefon 125 | a | 3 |
| triadimenol | Allitron, Cougar 250 EC, Tridim 250 EC | a | 3 |
| *Trichoderma harzianum* | Vinevax (Bio-Implants, Wound Dressing) | a | unspecified |
| trifloxystrobin | Flint 500 WG, Invictus 500 WG | a | 11 |
| ziram | Ziram WG | a | M3 |

* Restricted for use by some wineries. Contact your winery or grape purchaser prior to use.
** Prohibited from use by some wineries. Contact your winery or grape purchaser prior to use.

| Active constituent(s) | Some registered products | Re-entry period | Activity group |
|---|---|---|---|
| **HERBICIDE [PRE = PRE-EMERGENT, POST = POST-EMERGENT] - Refer to page 28.** | | | |
| 2,2-DPA-sodium (dalapon-sodium) POST | Dalapon 740 | a | 0 |
| amitrole + ammonium thiocyanate* POST | Amitat, Amitrole (250, 250 SL, 47T, T 250), Kenrole 250, Weedwarden | a | 34 |
| amitrole + paraquat* POST | Guerrilla | a | 34+22 |
| bromoxynil + diflufenican POST | Colt, Kelpie DFF + Brom MX, Jagged, Lobak, Meerkat, Ruger | a | 6+12 |
| carfentrazone-ethyl POST | Carfentrazone (240 EC, 400 EC), Carfentrazone-ethyl 240 EC, Elevate (400 EC), Hammer 400 EC, Knocker 240 EC, Nail 600EC, Rage 400 EC, Spike, Spotlight Plus, Squatter 400 EC | a | 14 |
| dichlobenil PRE | Sierraron 4G | a | 29 |
| diquat POST | Desiquat, Dia-Kill 200, Diquat (200, 200 SL), Reglone, Sanction 200 | a | 22 |
| diquat + paraquat POST | Blowout, Brown Out 250, Combik 250, Di-Par 250, EOS, Paradat, Paraquat + Diquat 250, Scorcher 250, Speedy 250, Spray Seed 250, Squadron 250 | a | 22+22 |
| flazasulfuron** PRE/POST | Katana 250 WG | a | 2 |
| fluazifop-P POST | Cannonade 212 EC, Fluazaway 212, Fluazifop (212), Fusilade Forte, Fuzilier, Rootout 212 | a | 1 |
| flumioxazin** PRE | Chateau, Spektrum 500 WG | a | 14 |
| glufosinate-ammonium POST | Basta, Beast 200, Biffo, Cease, Commando 200, Exonerate (200 SL), Fascinate (280SL, Dry), Faster-TG 200, Fiestar, Fosinate 200 SL, Gamma, Glufonium 200 SL, Glufos, Glufosinate (200, 400, 800 SG), Glufosinate-Ammonium 200, G-FOS 200, Muster | a | 10 |
| glufosinate-ammonium + carfentrazone-ethyl POST | Hellcat | a | 10+14 |
| glyphosate acid POST | Moonshine | a | 9 |
| glyphosate-ipa* POST | AllOut 450, Cropmaster 450, Eraze (360, Bi-aquatic, 510 Bi-aquatic), Glister (360, 450), Gly 360, Glypho 450, Glyphosate (360, 450, 450 CT, 450 SL, 510), Kelpie Chisel 450, Ken-Up (450 CT, 500 Flexi, Aquatic 360), Knockout 450, Musta 450, Panzer 450, Pestmaster (Aqua-Tech 360, Glyphosate CT), Raze, Rico 450 GLY, Roundup (Biactive), SixGun (360, 510), SquareDown 360, Weedpro (540 Bio, BioAqua 360), Wipe-Out (450, Bio) | a | 9 |
| glyphosate-ipa + mas* POST | Weedmaster Duo | a | 9 |
| glyphosate-mas* POST | Bazooka Dry 800 SG, Glister 680 SG, Dry GLY (680, 680 WG, 700), GLY 680 Dry, Glyphosate (700, 700 SG, 875), Ken-Up Dry 680 WG, Knockout Dry 700 SG, Roundup Ready Plantshield | a | 9 |
| glyphosate-mea* POST | Glyphosate 450 SL, Wipe-Out Pro | a | 9 |

* Restricted for use by some wineries. Contact your winery or grape purchaser prior to use.
** Prohibited from use by some wineries. Contact your winery or grape purchaser prior to use.

| Active constituent(s) | Some registered products | Re-entry period | Activity group |
|---|---|---|---|
| **HERBICIDE *(CONT.)* [PRE = PRE-EMERGENT, POST = POST-EMERGENT] - Refer to page 28.** | | | |
| glyphosate-potassium salt* POST | Cropmaster Ultra 540, Firebolt, Glyphosate (540, 540 K, 570) GLY 540 SL, Gold TX 540 GLY, Ken-Up Dry Super K, Knockout Extreme, Max Out 540, Rico HPS 540 GLY, Roundup (Ready PL, Ultra MAX), Titanium 570, Warlord 540 Hi-Load | a | 9 |
| glyphosate-potassium salt + ipa* POST | Weedmaster Argo | a | 9 |
| glyphosate-potassium salt + mas* POST | Weedmaster DST | a | 9 |
| glyphosate-potassium salt + mea* POST | Glyphosate 550 Twin Salt, Knockout 550, Max Out 600 Duo, Promix 550 GLY | a | 9 |
| glyphosate-potassium, mea + mas* POST | Crucial, Glyphosate 450 SL | a | 9 |
| haloxyfop-R methyl ester POST | Dictum 520EC, Feathertop 520, Firepower (900), Hallotop 520EC, Halox-F 520, Haloxyfop (520, 520 EC, 900EC), Haloxyken 520, Hermes 520, Jasper 520, Recon 520 | a | 1 |
| indaziflam* PRE | Alion 500 SC | a | 29 |
| isoxaben PRE | Gallery 750 DF | a | 29 |
| napropamide PRE | Devrinol-C 500WG | a | 0 |
| nonanoic acid POST | Basher, Beloukha, Brut, Neo, Slasher, Slayer Organic, Weed Terminator N (FireHawk) | a | 0 |
| norflurazon PRE | Zoliar (800 DF, DF) | a | 12 |
| oryzalin PRE | Oryzalin 500, Prolan 500 | a | 3 |
| oxyfluorfen PRE/POST | Cavalier (500SC), Encore 240, Gowel 240 EC, Ory-Ken 500 SC, Ox 240, Oxen 240EC, Oxy-F 240, Oxyfan 240 EC, Oxyfluorfen 240 EC, Point, Striker | a | 14 |
| paraquat POST | Explode (250, 300Plus, 360), Gramoxone 360 Pro, P-Quat (250 SL, 300 SL), Par-Q 250, Para-Ken (250, 334), Paradox 250, Paraquat (250, 250 SL, 300, 360, 360 SL), Parashot (250, Plus 360), Powerquat 300 SL, Shirquat 250, Sinmosa 250, Sprayquat 250, Spraytop (250SL, 330) | a | 22 |
| pendimethalin PRE | Charger 330 EC, Cronos 440EC, Cyclone 330 EC, Panda 435, Panida Grande, Pendimethalin (330, 330EC, 440, 440 EC), Pendi-M 330 | a, c | 3 |
| pine oil POST | BioWeed | a | 0 |
| quizalofop-P-ethyl POST | Atomic Selective, Elantra Xtreme, Leopard 200, Quiz, Quizalofop 200EC, Quizalofop-P-ethyl (200, 200 EC), Sextant, Tiger Gold 250 | a, n | 1 |
| simazine PRE | Simanex 900 WG, Simaquest 900 WG, Simazine (500 Flowable, 900 DF, 900 WDG, 900 WG), Simplex 500 SC, S-Zine (600 SC, 900) | a | 5 |
| trifluralin PRE | Trampoline 480, Treflan (480, 480 Selective, 600), Tricon Flexi 480, Tri-F 480, TriflurX, Trifluralin (480, 480 EC, Max 480), Trifluralinx (480, 580), Triflurasip 480, Tri-Max 480 EC | a | 3 |

* Restricted for use by some wineries. Contact your winery or grape purchaser prior to use.
** Prohibited from use by some wineries. Contact your winery or grape purchaser prior to use.

| Active constituent(s) | Some registered products | Re-entry period | Activity group |
|---|---|---|---|
| **INSECTICIDE** | | | |
| abamectin + chlorantraniliprole* | Voliam Targo | a | 6 + 28 |
| acetamiprid + pyriproxyfen* | Trivor | a | 4A + 7C |
| afidopyropen | Versys | a | 9D |
| alpha-cypermethrin** | AlphaCy 100, Alpha Cyper 300 SC, Alpha Cypermethrin 250 SC, Alpha-Cypermethrin (100 EC, 250 SC, 300SC), Alpha Duo 100, Alpha Forte 250 SC, Alphanex 100EC, Alpha-Scud (300 SC), Buzzard, Chieftain Duo 100EC, Ellias Plus 400 EC, Ken-Tac 100 | a, c | 3A |
| *Bacillus thuringiensis* subspecies: | *aizawai*: Bacchus WG<br>*kurstaki*: Delfin WG, DiPel DF | a | 11 |
| bifenthrin** | Arrow 100 EC, Astral 250 EC, Bifenthrin (100, 100 EC, 250 EC, 300 EC, Ultra 300 EC), Bifentin 100EC, Bi-Thrin 100EC, Cropro Zeus, Tal-Ken 100, Talstar 250 EC, Venom 240SC | a, o | 3A |
| buprofezin* | Applaud, Buprofezin 440, Scale & Bug Insecticide, Uptown | a | 16 |
| carbaryl** | Bugmaster Flowable, Carbaryl (500 SC, WG) | d | 1A |
| chlorantraniliprole | Altacor X-Force, Chlorantraniliprole 350 WG, Shenzi, Solace Hort 700WG | a | 28 |
| clothianidin** | Samurai (bare soil application only) | a | 4A |
| copper complex | Escar-Go, Socusil | a | unspecified |
| cyflumetofen** | Danisaraba | a | 25A |
| emamectin | Clama 50SC, Energise, Exclaim 44 SG, Oracle EC, Proclaim Opti | b | 6 |
| esfenvalerate** | Sumi-Alpha Flex | a | 3A |
| etoxazole | ParaMite | a | 10B |
| etoxazole + piperonyl butoxide* | Motto RMR | a | 10B |
| fenitrothion** | Fenitrothion 1000 EC, Sumithion (1000 EC, ULV) | a | 1B |
| fipronil** | Albatross (200SC, 800), Cannonball 200SC, Fipronil (200, 200 SC, 800 WG), Fiptron 200, Regal 800 WG, Region 200 SC, Seeker 200 SC, Vista 200SC | a | 2B |
| indoxacarb* | Avatar eVo, Indostar 300WG, Indoxacarb 300 WG, Spymaster 300 WG | a | 22A |
| iron EDTA complex | Eradicate Snail and Slug Killer, Iron Chelate, Multiguard Snail and Slug Killer | a | unspecified |
| iron phosphate anhydrous | Ironmax Pro | a | unspecified |
| iron powder | Eradicate Eco Snail and Slug Bait, Eco-Shield | a | unspecified |
| malathion** (1) | Fyfanon 440 EW | a | 1B |
| metaldehyde | Axcela Slug and Snail, Metakill, Metaldehyde Snail and Slug, Metarex Inov Snail + Slug, Snail + Slug, Pestmaster Snail + Slug, Slug Out, Snailex, Snail Trail | | unspecified |
| metaldehyde + fipronil** | Transcend | | 2B |

* Restricted for use by some wineries. Contact your winery or grape purchaser prior to use.
** Prohibited from use by some wineries. Contact your winery or grape purchaser prior to use.
(1) Malathion has been cancelled by the APVMA. Last possible use date is 1 May 2026.

| Active constituent(s) | Some registered products | Re-entry period | Activity group |
|---|---|---|---|
| **INSECTICIDE *(CONT.)*** | | | |
| *Metarhizium anisopliae* var. *acridum** | Green Guard SC Premium | d | unspecified |
| methiocarb** | MethioSHIELD | | 1A |
| methomyl** | Activist 900 VeripHy SP, Electra 225, KDpc Metho, Landrin 225, Lannate L, Lannomyl 225, Lymo 225, Methomyl (225, 225 SL), Pirate, Seneca (Ultra 400SP), Sinmas 225 | a, d | 1A |
| methoxyfenozide | Enigma 240 SC, Peregrine, Prodigy, Slate 240, Venturi Max | a | 18 |
| paraffinic oil | BioPest Paraffinic Oil, D-C-Maxx nC24, isoCLEAR HPO, Trump Spray Oil | a | unspecified |
| petroleum oil | All Seasons White Oil, JMS Stylet-Oil, Summer Insecticidal Spray Oil, Stifle Dormant Spray Oil, Vicol (Summer Oil, Winter Oil) | a | unspecified |
| pyrethrins** | PyGanic | a | 3A |
| pyrethrins + piperonyl butoxide** | Py-Bo Natural Pyrethrum | a | 3A |
| pyriproxyfen | Distance Plus | a | 7C |
| spinetoram | Delegate | a | 5 |
| spinosad | Entrust Organic, Kobus 480SC, Naturalure, Preserve 120 SC | a | 5 |
| spirotetramat | Engaze 240 SC, Kersel 850 VeripHy WG, Movento 240 SC, SpiroSec 240 SC, Spirosure 240SC, Spirotetramat 240 SC, Viento 240 SC | a | 23 |
| sulfoxaflor** | Transform | a | 4C |
| sulfur, present as elemental or crystalline sulfur | Cosamil, EcoSulfur 800WG, InnoSulph 800 WG, Kumulus DF, Microsul WG Elite, Microthiol Disperss, Nimbus WG, Sulfur (800 WG), Thiovit Jet, Top Wettable Sulphur, Yellowstone 800 WG | a | M2 |
| sulfur: as polysulfide | Lime Sulphur | a | M2 |
| tebufenozide | Ecdypro 700 WP | a | 18 |
| tetradecenyl acetate + tetradecadienyl acetate | Isomate LBAM Plus Pheromone | | unspecified |
| trichlorfon** | Lepidex 500, Trepidex 500, Tyranex (500 SL, 500 VeripHy SL) | a | 1B |
| *Trichogrammanza carverae* | Trichogramma parasitic wasp | | unspecified |
| **PLANT GROWTH REGULATORS** | | | |
| chlormequat** | CC-77 | a | unspecified |
| cyanamide* | Cyan, Dormex, Duomax HC520 | a | unspecified |
| ethephon** | Ethephon (720, 720 SL, 900), Ethon 720, K-Ethephon, Promote (Opti, Plus 900) | g | unspecified |
| gibberellic acid** | Gibberellic Acid 100 SL, Gibberelllic Acid Growth Regulant, ProGibb SG, Windfall 800 SG | a | unspecified |
| methyl esters of fatty acids* | Waiken | c | unspecified |

* Restricted for use by some wineries. Contact your winery or grape purchaser prior to use.
** Prohibited from use by some wineries. Contact your winery or grape purchaser prior to use.

## Re-entry period

The re-entry period is the minimum amount of time that must pass between when an agrochemical is applied and when the treated area can be entered without protective clothing and equipment.

Re-entry periods are set to protect people from exposure to agrochemicals that can occur by inhalation or skin contact if they enter an area without proper protective equipment.

The agrochemical label provides information about the re-entry period and any protective clothing or equipment that must be used if the re-entry period is not met. **Different products from the same activity group may have different re-entry requirements.** The advice provided in Table 2 lists the various re-entry periods for the active constituent.

Where the re-entry period specifies a range of days, the shorter period relates to low exposure activities and the longer period to higher exposure activities.

This advice is intended as a guide only.

**Consult each product label for re-entry period details and directions.**

| | |
|---|---|
| a | Do not enter treated area until the spray has dried |
| b | 8 hours |
| c | 12 hours |
| d | 1 day |
| e | 1 to 16 days depending on vineyard activity being performed |
| f | 1 to 34 days depending on vineyard activity being performed |
| g | 2 days |
| h | 4 days depending on vineyard activity being performed |
| i | 4 to 23 days depending on vineyard activity being performed |
| j | 5 days |
| k | 5 to 23 days depending on vineyard activity being performed |
| l | 6 days depending on vineyard activity being performed |
| m | 7 days |
| n | 8 days |
| o | 12 days depending on vineyard activity being performed |
| p | 9 to 24 days depending on vineyard activity being performed |
| q | 9 to 27 days depending on vineyard activity being performed |
| r | 15 to 33 days depending on vineyard activity being performed |
| s | 12 to 32 days depending on the vineyard activity being performed |

## Herbicides and managing resistance

There are two primary categories of herbicides — pre-emergents, and post-emergents. Herbicides registered for use in Australian viticulture on pages 23-24 have been marked as either 'PRE' or 'POST' to assist in identifying their purpose.

- **Pre-emergent herbicides** are those applied to the soil to prevent weeds from germinating. Factors such as soil type, soil pH and soil organic matter, as well as environmental conditions at the time of application, play an important role in the availability and persistence of pre-emergent herbicides.
- **Post-emergent herbicides** are used to kill weeds that have already emerged from the soil.

### Managing herbicide resistance

Herbicide resistance decribes the natural ability of some weeds to survive a herbicide treatment that would normally effectively control them. Herbicide resistance is most commonly due to repeated and often uninterrupted use of herbicides with the same mode of action (activity group). Selection of resistant strains can occur in as little as 3-4 years if no attention is paid to resistance management. Four key contributing factors to herbicide resistance include:

1. The more often a herbicide is applied, the higher the risk of resistance developing to that herbicide.
2. Failure to control weeds adequately — this will lead to increases in weed populations and put pressure on all herbicides used.
3. Weed seed production and seed bank life — weed species that produce large numbers of seed and have a short seed bank life in the soil will evolve resistance faster than weed species with long seed bank lives.
4. The frequency of resistance present in unsprayed weed populations — if this is relatively high, resistance will occur quickly.

Pay attention to the herbicide activity group and read product labels carefully. Identify the weeds you have in your vineyard and ensure you apply products with these weed species listed on the product label.

For further information on herbicides and resistance management, refer to the CropLife Australia website (www.croplife.org.au/resources/programs/resistance-management/).

For further information on general weed management refer to the AWRI website (www.awri.com.au/industry_support/viticulture/weed-management/).

## Cancelled products and last use date

The below table identifies product names that have either been voluntarily cancelled, or for which use patterns for vineyards have changed as a result of recent APVMA regulatory reviews.

Take note of the status of each listed product and act accordingly. Any products not applied by the 'last use date' must be responsibly disposed of.

The ChemClear program managed by AgSafe facilitates safe disposal of unused and obsolete agricultural chemicals. To access this program, register your chemicals for disposal at a collection in your area by completing the registration form at www.agsafe.org.au/chemclear-registration-form or call 02 6206 6888 for further information.

| Product name (active ingredient) | Status | Last use date |
|---|---|---|
| Barmac Diazinon (diazinon) | Use quickly | 9 Sep 2025 |
| Conquest Chlorpyrifos 500 (chlorpyrifos) | Use quickly | 29 Sep 2025 |
| Eurochem Chlorpyrifos 750 WG (chlorpyrifos) | Use quickly | 29 Sep 2025 |
| Imtrade Chlorpyrifos 500 (chlorpyrifos) | Use quickly | 29 Sep 2025 |
| Outplay 700 VeripHy EC (chlorpyrifos) | Use quickly | 29 Sep 2025 |
| Sabakem Chlorpyrifos 500EC (chlorpyrifos) | Use quickly | 29 Sep 2025 |
| Sinon Chlorpyrifos 500 EC (chlorpyrifos) | Use quickly | 29 Sep 2025 |
| Strike-Out 500 EC (chlorpyrifos) | Use quickly | 29 Sep 2025 |
| Strike-Out 500 WP (chlorpyrifos) | Use quickly | 29 Sep 2025 |
| suSCon Green (chlorpyrifos) | Use quickly | 29 Sep 2025 |
| Titan AG Chlorpyrifos 500 (chlorpyrifos) | Use quickly | 29 Sep 2025 |
| Uniquat 250 (paraquat) | Use quickly | 22 Oct 2025 |
| Unispray 250 (paraquat + diquat) | Use quickly | 22 Oct 2025 |
| Uni-Spray 250 (paraquat + diquat) | Use quickly | 22 Oct 2025 |
| F.S.A Trifluralin 480 Herbicide (trifluralin) | Use quickly | 22 Oct 2025 |
| **Hy-mal (malathion)** | **DO NOT USE** | **29 Jan 2025** |
| **Alliance (amitrole + paraquat)** | **DO NOT USE** | **12 May 2025** |
| **Revolver (diquat + paraquat)** | **DO NOT USE** | **12 May 2025** |
| **Ruby 100 EC (penconazole)** | **DO NOT USE** | **13 Jun 2025** |
| **Thrash 240EC (carfentrazone-ethyl)** | **DO NOT USE** | **13 Jun 2025** |

A product cancellations list relevant to winegrapes is maintained on the AWRI website (www.awri.com.au/industry_support/viticulture/agrochemicals/cancelled-agrochemical-products/). This list also includes products with a "Stopped" status according to the APVMA's PubCRIS database. The 'last use date' for such products is 12 months from the "Stopped" date.

## Biosecurity tips

Australia's vineyards are protected from the world's most severe pests and diseases by our national and state biosecurity organisations which act to prepare for, prevent, respond to, and help industries recover from incursions. Industry plays a vital role alongside government in these actions. Play your role and protect your property from biosecurity threats, by following these steps:

### 1. Be aware of biosecurity threats

Familiarise yourself and your staff with the high priority exotic, and regulated endemic pest threats of grapevines, and how each is spread.

### 2. Use pest-free propagation material

Purchase planting material from trusted sources and verify the health status of your planting material with your supplier.

### 3. Know who is coming onto your vineyard and the risk they pose

Communicate your biosecurity expectations of your visitors before they arrive at your vineyard, during their visit and before they leave your vineyard.

### 4. Keep it clean

Practise effective cleaning and where legally required, disinfestation, to help prevent pest movement onto and off your vineyard. Limit entry points, ensure sign-in upon arrival and actively check the cleanliness of machinery, equipment, footwear and clothing before granting access to your vineyard. Provide effective washdown facilities to ensure machinery and equipment can leave clean from your vineyard.

### 5. Know and abide by the law

Be aware of and comply with quarantine movement regulations between and within states. Contact your state biosecurity department for assistance.

### 6. Check your vineyard and report anything unusual

Visually inspect your grapevines frequently. Know the 'usual' appearance of your vineyard so you can recognise new or unusual growth patterns, pests or diseases. Keep written and photographic records of all unusual observations. Seek help to identify what the problem is. Report suspect exotic or regulated endemic pests to the Exotic Plant Pest Hotline on **1800 084 881**. Constant vigilance is vital for early detection of any exotic or regulated endemic plant pest.

For more biosecurity information, refer to the Farm Biosecurity website (www.farmbiosecurity.com.au/industry/viticulture/) or to Vinehealth Australia (www.vinehealth.com.au).

## Frequently asked questions

### Are there any exceptions to the recommendations in Table 1 on pages 4 - 12?

Yes. Products may be used closer to harvest in consultation with your winery/ grape purchaser. A winery may choose to ignore the recommendations if the wine made from the grapes will be sold in Australia alone, or to an export market that permits residues of the agrochemical. In this case, the label withholding period is the minimum interval that should be observed between spraying the grapes and harvest.

### Can I use a product that is not listed?

Yes. An unlisted product can be used, provided it has current registration with the APVMA (refer to page 29 for product cancellations), and is used in consultation with your winery/grape purchaser.

### Are MRLs for grapes or wine?

Processed products such as wine do not normally have dedicated MRLs. For processed products, the MRL established for the raw commodity (e.g. grapes) applies to the processed product (e.g. wine). For wine, acceptable terms to describe the raw commodity include ‘grapes’, 'small fruit vine climbing', ‘berries and other small fruits’ or ‘fruit’. If a market has not established an MRL, the requirement is that no detectable residue is found in the exported product. The chemical may be used in the production of the raw commodity so long as no quantifiable residue is detected in the exported product.

### Why does the AWRI recommend that the application of some active constituents (for example spiroxamine) be restricted to 'Use no later than E-L 25 (80% capfall)?

The recommendations presented in Table 1 have been developed to satisfy the lowest MRL for **any** of Australia’s **major** wine markets after considering available data on the persistence of the agrochemical, both on grapes and through winemaking. In the case of spiroxamine, it is known that if it is sprayed onto grapes after 80% capfall, residues might be detectable in the resultant wine. Some of the markets to which Australia exports wine have a very low MRL for spiroxamine, or alternatively, have not announced their position on the course of action they would take if spiroxamine was detected in wine. To ensure that Australian wine meets MRLs set by all of these markets, the 80% capfall restriction is recommended.

## AWRI Agrochemical & MRL Search

Agrochemical information contained in this Agrochemicals registered for use in Australian viticulture publication (commonly known as the 'Dog book'), as well as MRL information, can be rapidly accessed in two ways:

1. Through the online 'AWRI Agrochemical & MRL Search' database (https://agrochem-mrl.awri.com.au/public_dashboard).
2. Through the 'AWRI Agrochemical & MRL Search' app. This is a free app, accessible from both the Apple App store and Google Play store. Scan the QR codes below to find the app in your chosen App store.

iOS devices

Android devices

Both the database and app allow users to rapidly access information contained in this publication. These tools also allow users to search for products registered for use on targets that are not listed in Table 1.

**Download the most current version of Agrochemicals registered for use in Australian viticulture (commonly known as the 'Dog book') in PDF from the AWRI website (**www.awri.com.au/wp-content/uploads/agrochemical_booklet.pdf**).**

AWRI Australian Wine Research Institute

## Need help with an agrochemical or grapegrowing issue?

Contact the AWRI helpdesk for free and confidential technical support.

**Phone**: +61 8 8313 6600

**Email**: helpdesk@awri.com.au

**Web**: www.awri.com.au

---

## Want to receive agrochemical-related communications?

To receive email notices from the AWRI on technical issues, including agrochemicals, subscribe to the AWRI's eBulletin. Visit **www.awri.com.au/subscribe**.

---

## Need help with library services?

The John Fornachon Memorial Library houses the largest collection of technical grape and wine resources in Australia, including books, eBooks, journals, journal articles, conference proceedings and more. Contact the AWRI for assistance with all library services.

**Phone**: +61 8 8313 6600

**Email**: infoservices@awri.com.au

**Web**: www.awri.com.au/information_services/library-services-to-levy-payers