

Vary strategies for successful weed management

The AWRI often receives queries from grapegrowers regarding the use and efficacy of herbicides. Here are some of the more common questions asked:

I use a range of different herbicides over the season but I'm not getting the same control I used to. How can I get the most out of the chemicals available?

To prevent or reduce resistance to chemicals, it is important to use different chemical modes of action to control weeds in vineyards, but it's not guaranteed. If one mode of action is used at the same time every season, then some weed species might be exposed to the same chemistry again and again, increasing the incidence of chemical resistance. To minimise the chance of resistance, a range of strategies need to be used together as part of any weed management program.

What are the principles of Integrated Weed Management?

The following Integrated Weed Management (IWM) principles should be incorporated into the herbicide program to avoid herbicide resistance by weeds:

- Rotate mode of action groups within and across years. Consider tank mixes of different actives where labels recommend it.
- Read and follow label directions carefully making note of the correct dose and timing.
- Keep accurate records of herbicide applications so reference can be made to previous season's activities.
- Don't rely solely on chemical techniques for weed control. Additional cultural weed control techniques such as grazing, mulching, cultivation, slashing and a competitive cover crop can reduce weed pressure and seed banks.
- Identify and monitor surviving weed

populations and check for resistant weeds. Keep good records of weed populations.

- If failure is suspected do not use the same product or group.
- Control weed escapes before the weeds set and shed viable seed.

The resistance observed most commonly in vineyards is to glyphosate in annual ryegrass. Tests by the University of Adelaide's Weed Science Group have confirmed resistance in 20 ryegrass samples from vineyards in South Australia alone. It is likely that there are hundreds more unconfirmed cases.

What are the herbicides at the most risk of resistance?

The activity groups registered for viticulture that carry greater risk for resistance development are listed below. Follow the guidelines to help preserve options for as long as possible.

HIGH RESISTANCE RISK herbicides

Group A (fluazifop, haloxyfop and quizalofop). The key recommendation for preventing Group A resistance in grass weeds is not to use them two seasons in a row, irrespective of how well they worked the previous season.

MODERATE RESISTANCE RISK herbicides include:

Group C (simazine, diuron, propanil and bromoxynil). Resistance to this group is known to exist in a range of weeds. Always use the label rate, apply to weeds at the critical growth stage (as stated on the label) and ensure that no weeds set and shed viable seed.

Group D (oryzalin, pendimethalin and trifluralin). Resistance is known


for an increasing number of populations of annual ryegrass so where possible avoid this group where ryegrass is dense. Rotate Group D with other groups.

Group F (diflufenican). Resistance is known in wild radish and mustards. Avoid applying this group in consecutive years unless one application is a mixture with another group that is active on the same weed or a follow up spray (with a different group) is conducted on the weeds that are not controlled.

Group J (2,2-DAP). Resistance is possible in a range of weeds especially annual ryegrass. To delay resistance rotate groups and don't cut herbicide rates. Use the maximum rate for annual ryegrass.

Group M (glyphosate). Resistance to this group occurs commonly when there has been intensive (year to year) use, lack of rotation of other herbicides, little or no tillage/cultivation following the glyphosate application.

Group Q (amitrole). Annual ryegrass resistance is rare in Australia but has occurred. Alternate Group Q with other modes of action and consider alternative methods of weed control before applying herbicides. The AWRI acknowledges CropLife Australia's Herbicide Resistance Management Strategies. It is recommended that you consult the full document at www.croplifeaustralia.org.au. The AWRI is grateful for the assistance of Dr Peter Boutsalis and Andrew Weeks in the preparation of this column.

Any producers seeking further information should contact the AWRI's Winemaking Services team on email: viticulture@awri.com.au or by telephone: 08 8313 6600. 



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