

# Sustainable glyphosate use in winter grain cropping

Glyphosate resistant annual ryegrass is present in crops, along fence lines and irrigation channels in the southern grain cropping region.

Tip the scales in your favour to minimise the risk of glyphosate resistance in weeds

## Factors that decrease risk:

- ✓ The **double knock** technique\*
- ✓ **Strategic** use of alternative knockdown herbicide groups
- ✓ **Full disturbance** cultivation at sowing
- ✓ **Effective** in-crop weed control
- ✓ Use **alternative** herbicide groups or tillage for inter-row and fallow weed control
- ✓ **Non-herbicide** practices to prevent formation of **viable weed seed**
- ✓ Use of crops with **high levels** of **weed competition**
- ✓ Use of **late season weed control** and in-crop spray-topping with **alternative herbicide groups**
- ✓ Farm hygiene to **prevent movement** of resistant seed
- ✓ Applying **stewardship plans** when growing glyphosate tolerant crops

## Factors that increase risk:

- ✗ **Continual reliance** on glyphosate before seeding
- ✗ Lack of tillage
- ✗ Lack of **effective** in-crop weed control
- ✗ **Frequent** glyphosate-based chemical fallow
- ✗ **Inter-row** glyphosate use (unregistered)
- ✗ **Frequent** late season weed control and in-crop spray-topping with glyphosate
- ✗ **Over-reliance** on glyphosate tolerant crops
- ✗ **High** weed numbers

## All Group M herbicides are glyphosate herbicides.

If you suspect you have a resistance problem – get plants or seed tested to see which herbicides still work. The best strategy is to ensure that no further seed set is allowed to occur, and drive down the weed seed bank using a number of diverse weed management tactics.

This guide is based on an original concept for minimising glyphosate resistance in annual ryegrass by Paul Neve, AHRI, University of WA. Optimal management techniques for other weed species may differ.

This guide has been produced by the Australian Glyphosate Sustainability Working Group (AGSWG), a collaborative initiative aimed at promoting the sustainable use of glyphosate in Australian agriculture.

Organisations involved in the AGSWG include: Monsanto, Syngenta Crop Protection, Nufarm, Dow AgroSciences, Australian Herbicide Resistance Initiative (University of WA), University of Adelaide, Charles Sturt University, Queensland DEEDI, Department of Agriculture and Food, WA, Industry & Investment NSW, CRT/Town & Country, Crop Life Herbicide Resistance Management Review Group, Horticulture Australia Ltd, Cotton Research and

Development Corporation, Independent Consultants Australia Network, The Grains Research and Development Corporation (GRDC) and Conservation Agricultural Alliance of Australia & New Zealand (CAAANZ).

**For more information visit the website:**  
[www.glyphosateresistance.org.au](http://www.glyphosateresistance.org.au)

\*The double knock technique is defined as using a full cut cultivation OR the full label rate of a paraquat-based product (Herbicide Group L) following the glyphosate (Herbicide Group M) knockdown application.

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