

# Sustainable glyphosate use in northern Australian grain and cotton

Glyphosate resistant awnless barnyard grass, liverseed grass and windmill grass are present in northern Australian grain and cotton systems.

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

## Factors that decrease risk:

- ✓ **Monitoring** and **preventing** weed control escapes from **setting seed**
- ✓ **Planning** and **implementing** an IWM strategy to reduce the weed seed-bank
- ✓ **Strategic** use of **alternative** knockdown herbicides and tillage in fallows and prior to sowing
- ✓ Use of alternate herbicide modes of action including **residual herbicides** in crops and fallows
- ✓ Use of a **double knock\*** – glyphosate followed by tillage or paraquat (Group L) based products at effective rates
- ✓ **Applying stewardship plans when growing glyphosate tolerant crops**
- ✓ Farm hygiene to **prevent importing** and **moving** resistant seeds

## Factors that increase risk:

- ✗ **Frequent** glyphosate-based chemical fallows
- ✗ **Continuous reliance** on glyphosate as a knockdown prior to sowing
- ✗ **Inter-row use** of glyphosate in grain crops (unregistered)
- ✗ Lack of tillage
- ✗ Lack of use of **alternative herbicide modes of action** in fallows and crops
- ✗ Allowing **survivors** of glyphosate applications to **set seed**
- ✗ **High** weed numbers
- ✗ Lack of **crop competition** on weeds
- ✗ **Over-reliance** on glyphosate tolerant crops

## 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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