



## **Ten year anniversary of glyphosate resistance**

The first case of glyphosate resistance was recorded in annual ryegrass in Australia in 1996. A decade later, there are still only 54 populations resistant to glyphosate, all of them annual ryegrass. This anniversary is an opportune time to review the situation and the methods used to minimise the development of glyphosate resistance.

As a cost effective, broad spectrum herbicide glyphosate is valued by land managers from the home gardener to broadacre farmers. It is a particularly popular herbicide for the control of grass weeds in many situations from roadsides and irrigation channels to between vine rows, before sowing crops and for crop topping. But too frequent use results in the development of weeds that are resistant to the herbicide and do not die when it is applied.

Glyphosate was first released in Australia in 1974. For the first twenty two years of use no major problems were noted but in 1996 the first case of annual ryegrass with resistance to glyphosate was recorded in a no-till cropping situation in Echuca, Victoria.

In 2004 the national Glyphosate Sustainability Working Group (GSWG) was initiated by the Grains Research and Development Corporation (GRDC). The Group consists of researchers and industry representatives and is charged with the task of minimising the development of glyphosate resistance and maximising the effective life of this key herbicide.

Dr Chris Preston, University of Adelaide, is a member of the GSWG and maintains a register of incidences of glyphosate resistance in Australia.

To the middle of 2006, 54 cases of herbicide resistant annual ryegrass had been recorded on the register. These are located in NSW, SA, WA and Victoria. It is unlikely this represents the whole picture as testing often does not occur until large problem patches have developed. This is a small number compared to the level of resistance to other types of herbicides. However, to keep the number of resistant populations low users must not over rely on a single herbicide group.

The frequency of resistance occurring fluctuates from year to year and is not indicating an explosion in incidences of resistance but new cases are being reported every year. A large number of cases have been found in paddocks that have been chemically fallowed and in vineyards but in 2005 an increasing number were recorded along fencelines, irrigation channels and in non agricultural situations such as airstrips.

"If resistance is suspected it is important to take action early and prevent seed-set," said Dr Rex Stanton, chair of the GSWG.

In small patches seed-set can be prevented by physical control, including mowing or removing plants. In larger areas the use of alternative herbicide groups or the use of the double knock may be required.

The double knock refers to an application of glyphosate followed by application of a paraquat-based product. This strategy relies on paraquat controlling the rare glyphosate resistant survivors.

“Continuous use of glyphosate and allowing weed numbers to increase are both situations that amplify the risk of glyphosate resistance occurring and should be avoided if possible.”

With assistance from the Cooperative Research Centre for Australian Weed Management, the GRDC and the industry body CropLife Australia, the GSWG has developed a website ([www.weeds.crc.org.au/glyphosate/](http://www.weeds.crc.org.au/glyphosate/)) containing useful information and resources about weed management techniques to minimise the risk of glyphosate resistance. There are answers to frequently asked questions, fact sheets, information on identification and testing for glyphosate resistance and a database of glyphosate resistant weed populations. Growers and agronomists are encouraged to visit the site and use and share the information as widely as possible.

If herbicide resistance is suspected samples should be tested to help with future weed control decisions. Information about testing is also found on the website.

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For more information contact Dr Rex Stanton, (02) 6938-1618, [RStanton@csu.edu.au](mailto:RStanton@csu.edu.au)