



Are these Australia's next glyphosate resistant weeds?

Following the recent confirmation of glyphosate resistance in barnyard grass in northern NSW, four more weeds have been identified as at risk of developing resistance to glyphosate (e.g. Roundup), the most valuable herbicide in Australian agriculture systems.

The discovery that wild oats, sowthistle, flaxleaf fleabane and liverseed grass are all at risk of developing glyphosate resistance has led researchers from the Glyphosate Sustainability Working Group (GSWG) to emphasise the importance of using good herbicide practice and early identification of low levels of herbicide resistance right across Australia.

Up until the recent discovery of glyphosate resistance in awnless barnyard grass, only annual ryegrass has been resistant to glyphosate in Australia.

The risk assessment was conducted as part of the Northern Glyphosate Resistance Project, by members of Weeds CRC, NSW Department of Primary Industries and Queensland Department of Primary Industries and Fisheries.

Three common factors determined the high risk category for these weeds. Each of the weeds produce large quantities of seed, resulting in large populations; has a history of herbicide resistance somewhere in the world; and occur in minimum tillage or no-till farming systems where they are exposed to multiple applications of glyphosate.

Preliminary results indicate that flaxleaf fleabane populations show large differences in glyphosate susceptibility. This is thought to be linked to the level of previous exposure to glyphosate.

According to Dr Steve Walker (GSWG), glyphosate alone is only effective on very small flaxleaf fleabane plants.

“Our research has shown that as flaxleaf fleabane matures, control was reduced from 88 per cent kill for weeds five centimetres diameter to a very poor 13 per cent kill for weeds 10cm diameter or larger.”

A number of tank mixes including glyphosate were found to provide better control or the use of a double knock, such as glyphosate (eg Roundup®) followed by paraquat or a mix of paraquat and diquat (eg Spray.Seed®) was also effective.

“Prevention of weed seed-set by the use of crop competition and even the use of strategic tillage to kill mature and stressed weeds are other control options to be considered,” said Dr Walker. “However, the best long-term strategy is to control flaxleaf fleabane plants early.”

For barnyard grass, the aim is also to prevent seed set.

“Barnyard grass is a highly competitive weed of summer crops and fallows,” said Mr Andrew Storrie, also of the GSWG. “Where glyphosate resistance is suspected in awnless barnyard

grass, a summer fallow using residual herbicides and paraquat should be considered in the rotation.”

“Another option is to sow a broad leaved summer crop, which allows pre emergent herbicides followed by selective post emergent herbicides to be used.”

Both researchers emphasise that using different herbicide mode-of-action groups is essential if herbicide resistance is to be kept to a minimum.

“Continual use of any one herbicide group increases the potential for the development of herbicide resistance, resulting in reduced control options,” said Dr Walker.

”A mixture of cultural and herbicide control methods should be employed to maximise the opportunity to prevent seed-set and to reduce the weed seed bank.”

More information on preventing and managing herbicide resistance is available in the Weeds CRC’s Integrated Weed Management manual

www.weeds.crc.org.au/publications/iwm_manual_flyer.html

If herbicide resistance is suspected samples should be tested to help with future weed control decisions. Information about testing is available from the GSWG website.

The GSWG has established an on-line register of glyphosate resistant populations in Australia as well as guides to growers and advisors on how to keep glyphosate resistance rare.

For more information visit www.weeds.crc.org.au/glyphosate

ENDS

For more information contact Mr Andrew Storrie, Glyphosate Sustainability Working Group 0428 265 409; 02 6763 1174; andrew.storrie@dpi.nsw.gov.au

For images of key weed species mentioned in text contact Jenny Barker on 08 8303 7250 or jennifer.barker@adelaide.edu.au