

February 1, 2018

## Winter grass: the cold, hard truth on herbicide resistance

A previously low-key weed, winter grass (*Poa annua*) is challenging the herbicide resistance crown held by annual ryegrass, with glyphosate-resistant populations being confirmed in Victoria.

Perhaps considered as being more like Clark Kent than Superman, herbicide resistance testing has shown otherwise with at least 20 populations of winter grass exhibiting resistance to simazine (group C), propyzamide (group D), group B and group Z herbicides. Another population is resistant to the five herbicide modes of action B, C, D, M and Z.

“While winter grass might look like a soft plant, it has shown it is a force to be reckoned with,” says Dr Peter Boutsalis, from Plant Science Consulting and the University of Adelaide.

“The levels and extent of resistance have surprised me, and while all the resistant populations have developed on golf courses, it is a warning that any weed can develop resistance,” says Dr Boutsalis who reports to the Australian Glyphosate Sustainability Working Group (AGSWG).



**Figure 1** Glyphosate-susceptible (yellow) and glyphosate-resistant (green) winter grass on a fairway. J. Kaapro, Bayer

“This discovery serves as a timely reminder that any previously insignificant weed can become a huge problem with changes to management or environment.

“Grain growers should remember that present day problem weeds fleabane

and sowthistle were not on the radar 20 years ago.”

In the United States, winter grass from golf courses and sports turf has become resistant to groups B, C, D and M herbicides, while in Britain there is at least one population resistant to paraquat (L) from a vineyard.

Winter grass is a genetically diverse winter annual species that also has perennial populations. A native of Europe, it has now spread around the world, predominantly in temperate countries, but is also found infesting the sub Antarctic Islands of Macquarie and Heard.

It is predominantly a primary colonising weed of disturbed areas and is highly adaptable to heavy grazing and close mowing.

“These herbicide resistant populations are very concerning,” says Jyri Kaapro, Research Manager with Bayer Crop Science, who specialises in golf and sports turf management.

“Many golf courses have now lost most of their post-emergent herbicides for controlling winter grass and now rely on pre-emergent herbicides. It is causing some turf managers to consider using winter grass as a turf species,” Mr Kaapro says.

Winter grass, also known as annual bluegrass in North America, maintains a Jekyll and Hyde relationship with the managers of golf courses. While some managers try to control winter grass, others have decided they will live with it and make the most of its useful characteristics. A number of golf courses in Australia and New Zealand have replaced Bent grass greens with winter grass.

In the United States, several universities have golf green winter grass breeding programs for trying to select more perennial lines that have reasonable seed production. Golf greens are intensively managed and this places enormous selection pressure on the plant species present. Winter grass can set seed under intense mowing regimes and the intensive use of a range of herbicide modes of action has led to this selection of resistant populations.

While more perennial lines tend to develop in cooler climates, there are populations in Adelaide that are becoming perennial and heat-tolerant. A problem with more perennial lines is they produce fewer seeds than annual lines.

The AGSWG is supported by the Grains Research and Development Corporation (GRDC) and key R&D-based crop protection companies with an interest in the sustainability of glyphosate. The Group’s website has a range of information about glyphosate resistance, including a register of glyphosate-resistant weed populations and guides and links for management of glyphosate resistance in different crops and management situations. Go to: [www.glyphosateresistance.org.au](http://www.glyphosateresistance.org.au) for more information.

For a global listing of herbicide resistance in winter grass and other weeds, visit <http://www.weedscience.org/Summary/Species.aspx?WeedID=130>.

For information on herbicide sustainability, visit the *WeedSmart* information hub at [www.weedsmart.org.au](http://www.weedsmart.org.au)

**GRDC Project Code:** ARN00001

**Contact:**

**Peter Boutsalis, Plant Science Consulting**  
Phone 0400 664 460, email [info@plantscienceconsulting.com](mailto:info@plantscienceconsulting.com)

**Andrew Storrie, Executive Officer, AGSWG**  
Phone 0428 423 577, email [andrew@agronomo.com.au](mailto:andrew@agronomo.com.au)

For more information see Atlas of Living Australia online

<https://bie.ala.org.au/species/http://id.biodiversity.org.au/node/apni/2901115>