Controlling ryegrass along fencelines

This trial was funded by the GRDC in collaboration with the University of Adelaide and Plant Science Consulting.

Key findings

- The best control of ryegrass was from Roundup Powermax at 1.5L/ha, giving 70% control.
- High rates of glyphosate can be effective, but nevertheless lead to increased resistance. Different modes of action should be used where possible.

Why do the trial?

Glyphosate resistance occurs when annual ryegrass populations are treated intensively with glyphosate, where no other herbicides are applied, there is minimal or no tillage and little competition from other plants. In 2008 there were 73 populations of annual ryegrass from around Australia with known resistance to glyphosate. Much of the glyphosate resistance is from winter fallow systems in northern NSW, however an increasing number are from fencelines and other uncropped parts of the farm.

This trial was established on a commercial property to investigate the effectiveness of different herbicides on glyphosate resistance ryegrass along a fenceline.

How was it done?

Herbicide efficacy was evaluated in a trial conducted within a commercial paddock in the Mid-North. The paddock was selected for its fenceline ryegrass which showed a low level resistance to glyphosate.

The ryegrass was at 3 leaf to 1st node (GS31) within a commercial crop of oats at 1st node (GS31). The herbicide treatments were applied on 11th of September.

The trial was a randomised complete block designs with 4 replicates.

The herbicide treatments were applied using a hand boom at 2 bar pressure, using 85 L/ha water with 110^{o} 01 flat fan nozzles.

Herbicide efficacy was assessed on 8th October and was based on the level of stunting, yellowing and plant death relative to the control with 0 being no control, and 100% being full control.

Results

Table 1: Effect of herbicides on ryegrass in a cereal crop, 2008.

Herbicide treatment	% control
Roundup Powermax 1.0L/ha + wetter 0.2%	43
Roundup Powermax 1.5L/ha + wetter 0.2%	70
Roundup Powermax 1.0L/ha + wetter 0.2% + 250ml/ha Goal	60
SpraySeed 1.5L/ha + wetter 0.2%	23
SpraySeed 1.5L/ha + wetter 0.2% + 250ml/ha Goal	18
SpraySeed 1.5L/ha + wetter 0.2% + 6L/ha Diuron	65
Basta 3L/ha + wetter 0.2% + 250ml/ha Goal	58
Alliance 3L/ha	30
Untreated	0
LSD (P<0.05)	15

The best ryegrass control was achieved from Roundup Powermax at 1.5L/ha, giving 70% control (Table 1). Other treatments which were not significantly different were Roundup Powermax at 1.0L/ha with Goal, SpraySeed at 1.5L/ha with 6L/ha Diuron, or Basta 3.0L/ha mixed with Goal 250ml/ha. The addition of Goal to the Roundup gave a significant improvement in control.

SpraySeed applied alone or with Goal was weak on ryegrass, as was the newer herbicide, Alliance.

Table 2: Active ingredients of herbicides used

Herbicide	Active Constituent
Roundup PowerMax	540 g/L glyphosate
Goal	240 g/L oxyfluorfen
SpraySeed	135 g/L paraquat + 115g/L diquat
Diuron	500 g/L diuron
Basta	200 g/L glufosinate-ammonium
Alliance	250 g/L Amitrole + 125g/L paraquat

Cautionary note:

The continual use of glyphosate for fenceline ryegrass control will increase the chance of developing resistance. Different herbicide modes of action should be used where possible.

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