

Control of ryegrass with pre-emergent herbicides and inter-row sowing

This trial was funded by GRDC and in collaboration with Birchip Cropping Group and the University of Adelaide

Key findings

- There was no significant change in wheat or ryegrass establishment due to sowing systems or position.
- BAY-191 produced the greatest control of ryegrass. 79%.

Why do the trial?

To compare the effect of different pre-emergent herbicides and 2 seeding systems on wheat establishment and ryegrass control.

How was it done?

Plot size	1.5m x 10m	Fertiliser	DAP @ 60 kg/ha + 2% Zn Post Emergent Urea @ 75kg/ha on 29 th July 2008
Seeding date	27 th May 2008	Variety	JNZ wheat @ 90kg/ha

The trial was a randomised complete block design with 3 replicates, 2 sowing systems, 2 sowing positions and 7 herbicide treatments.

The trial was sown into wheat stubble established in 2007, using 2cm auto steer.

Table 1: Pre-emergent herbicide treatments and active ingredients for the inter-row sowing trial at Hart in 2008.

Herbicide treatment	Active ingredients
Nil	
Trifluralin 480 1.4L/ha	trifluralin 480g/L
Trifluralin 480 1.4L/ha + Dual Gold 0.5L/ha	trifluralin 480g/L + S-metolachlor 960g/L
Trifluralin 480 1.4L/ha + Avadex Xtra 1.6L/ha	trifluralin 480g/L + tri-allate 500g/L
Boxer Gold 2.5L/ha	S-metolachlor 120g/L + prosulfocarb 800g/L
Tri-athelete 2.3L/ha	trifluralin + cinmethylin
BAY-191 118g/ha	experimental

Sowing systems:

- Knife point – Agmaster press wheel system on 225mm (9”) spacing
- Disc – Single disc Austil on 225mm (9”) spacing

Sowing positions:

Inter-row seeding with 2cm accuracy or random sowing

Pre-emergent herbicides were applied on the day of sowing.

The ryegrass used was approximately 30% resistant to trifluralin and was broadcast at 25 kg/ha ahead of seeding.

Crop emergence was measured by counting plants along 2m of row, per plot.

Ryegrass was counted with 0.1 square metre quadrats at 5 sites (total 0.5m²) within each plot.

All plots were assessed for grain yield.

Results

There was no significant change in wheat or ryegrass establishment due to sowing system or position. Herbicide treatment did not influence wheat establishment although Tri-athlete treatments tended to reduce emergence.

The greatest ryegrass control (79%), was achieved with the herbicide BAY-191 118g/ha (treatment 1) although this was not significantly different to treatments 3 to 6 (Table 1). It is likely that Trifluralin 480 1.4L/ha + Dual Gold 0.5L/ha (treatment 3) produced only 52% ryegrass control because of the dry start to the growing season.

Trifluralin 480 1.4L/ha alone gave only 17% control of the ryegrass and is typical for the control of resistant ryegrass.

Table 1: Wheat and ryegrass establishment for herbicide treatment averaged for both sowing system and position.

Treatment number	Herbicide treatment	Plants per sq m		Ryegrass
		Wheat	Ryegrass	% control
1	Nil	168	42	0
2	Trifluralin 480 1.4L/ha	157	35	17
3	Trifluralin 480 1.4L/ha + Dual Gold 0.5L/ha	158	20	52
4	Trifluralin 480 1.4L/ha + Avadex Xtra 1.6L/ha	153	11	74
5	Boxer Gold 2.5L/ha	159	10	76
6	Tri-athlete 2.3L/ha	140	12	71
7	BAY-191 118g/ha	174	9	79
LSD(0.05)		ns	11	27

Grain yield was not significantly affected by any treatment in the trial averaging 1.03t/ha.