

Post sowing application of residual herbicides and annual ryegrass control

This trial is funded by the GRDC and is part of a collaborative project.

Key findings

- Compared to the pre-emergent ryegrass control trial, conducted alongside, the post emergent application results were very poor, below 60% control.
- Boxer Gold applied post sowing pre-emergence at either 1.5 or 2.5 L/ha produced the greatest in-row ryegrass control (78%).

Why do the trial?

There is an increasing frequency of trifluralin (Group D) resistant annual ryegrass across southern Australia. Pre-emergent herbicides play an important role in current cropping systems and so the evaluation of alternative groups and strategies is vital.

Regardless of herbicide efficacy a common paddock observation is the lack of residual ryegrass control. In 2009 the ryegrass control trial clearly showed that pre-emergent herbicides applied after sowing and before emergence (PSPE) were the most effective for not only improving in-row ryegrass control, but also extending the control.

This trial also aims to investigate the potential efficacy of pre-emergent herbicides applied post sowing on ryegrass control. It aims to measure if the period of residual ryegrass control can be extended and also if in-row ryegrass control can be improved.

How was it done?

Plot size	1.4m x 10m	Fertiliser	DAP @ 90 kg/ha
Seeding date	30 th May 2011	Variety	Guardian wheat @ 80 kg/ha

The trial was a randomised complete block design with 3 herbicides, 2 application timings, 2 herbicide rates and 3 replicates.

To ensure even ryegrass establishment across the trial site, ryegrass seed was broadcast at 25 kg/ha ahead of seeding and worked in with a shallow pass with the seeder prior to herbicide application. The ryegrass used was harvested from paddocks and is approximately 30% resistant to trifluralin.

The seeding equipment used was a knife-point press wheel system on 22.5cm (9") row spacings.

Herbicides rates applied:

- Boxer Gold @ 1.5 L/ha or 2.5 L/ha
- Sakura @ 80 g/ha or 118 g/ha
- Dual Gold @ 350 ml/ha or 500 ml/ha

Post-sow pre-emergent (PSPE) herbicides were applied on the 31st May, 1 day after sowing. The site received 12mm of rainfall 4 days after the PSPE applications.

Post emergent application treatments were applied on the 26th July, when the ryegrass growth stage was between 1.5 and 2.5 leaves. The site received 8mm of rainfall 4 days after the treatments were applied.

Crop emergence was assessed by counting the number of emerged wheat seedlings along both sides of a 0.5 m rod at 3 random locations within each plot. Ryegrass was counted at 6 & 10 weeks after sowing (i.e. July & August) using a 0.1 square metre quadrat from within and between the crop rows from 4 random locations within each plot.

Results

Average ryegrass control ranged from 20% (Dual Gold, 500ml/ha, 2 leaf) to 60% (Sakura, 118 g/ha, PSPE) (Figure 1). Compared to the pre-emergent ryegrass control trial, conducted alongside, these results are very poor. In the pre-emergent trial trifluralin applied alone produced at least 60% ryegrass control.

Dual Gold at any rate or timing, or Sakura applied at the 2 leaf ryegrass stage produced significantly lower ryegrass control compared to Boxer Gold at any rate or timing. Boxer Gold applied PSPE or at the 2 leaf ryegrass stage and Sakura applied PSPE produced the best average ryegrass control, 56% (Figure 1).

Boxer Gold applied PSPE at either 1.5 or 2.5 L/ha produced the greatest in-row ryegrass control (78%).

All the herbicide treatments had good crop safety, no damage or reduction in crop emergence was recorded. This might be due to the low amount of rainfall following the herbicide applications in 2011.

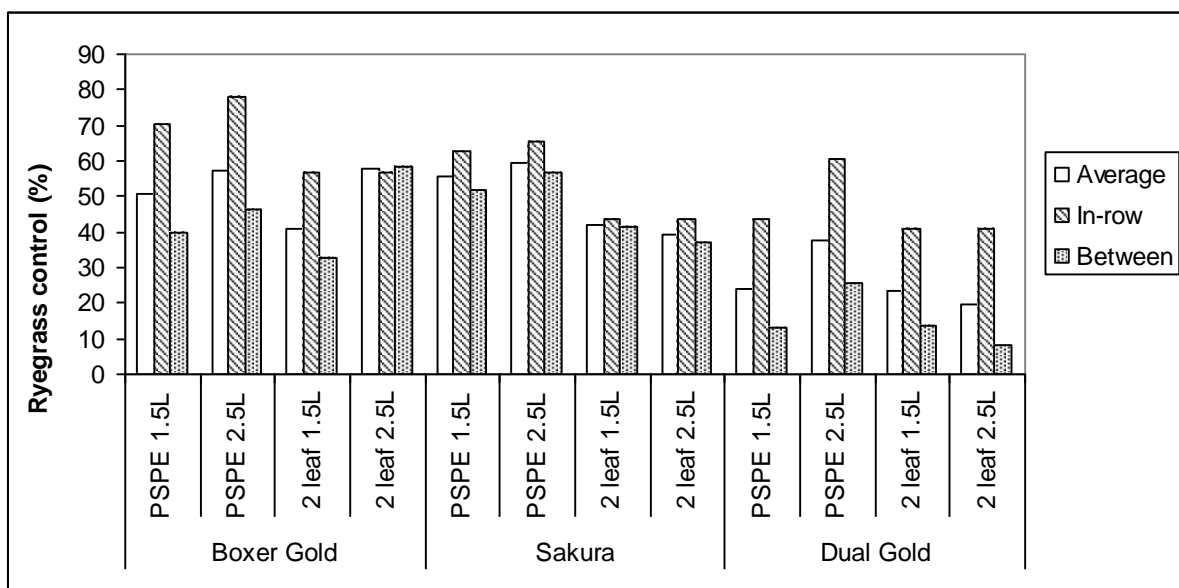


Figure 1. Effect of post emergent herbicide treatments applied post sowing pre emergence or at the 2 leaf growth stage on ryegrass (% control) at Hart in 2011.

Some of the herbicide treatments contain unregistered pesticides and application rates. The results within this document do not constitute a recommendation for that particular use by the author or authors organisations.