

Spray nozzles for crop topping annual ryegrass

Key findings

- All the spray nozzles trialled gave an equal level of ryegrass seed control.

Why do the trial?

Over the past few seasons growers have been shifting towards the use of spray nozzles that produce larger droplets. There are many benefits for this such as:

- meeting regulations when using 2,4-D amine or ester.
- reducing the risk of spray drift, particularly when using knockdown herbicides alongside crops already emerged.
- increasing the number of spraying opportunities if too windy for flat fan jets.
- losing less chemical before it hits the weeds or soil.

Much work has been conducted on the performance of nozzles on 2 leaf to early tillering grasses focusing on knock down timing prior to sowing and for in crop grass selective herbicides. However, very little work has been done on the influence of droplet size on the efficacy of desiccant herbicides on ryegrass seed heads, for crop topping.

This trial aimed to test the efficacy of a range of droplet sizes on ryegrass seed heads using a commonly used desiccant herbicide (paraquat).

How was it done?

Annual ryegrass was sown at 25kg/ha on the 19th June 2006 into pre-worked soil, and rolled immediately afterwards. DAP at 50kg/ha was pre-drilled into the site.

Spray nozzle treatments were applied on the 21st October using a motor bike and 3m boom at 50cm height. The temperature was 23.7°C, 71% relative humidity and 100% cloud cover.

The ryegrass was at full head emergence and the seed was at the milk to soft dough stage.

4 nozzles (Table 1) were trialled over ryegrass seed heads, with seed at the soft dough stage. Paraquat was used at 800ml/ha in 80L of water/ha of water, applied at 16km/hr. Spraying pressures were 4.5 bar for the AI nozzles and 3 bar for the flat fan nozzles.

Table 1. Spray nozzle type, size, boom pressure and the 4 resultant droplet sizes at Hart in 2007.

Nozzle type	Nozzle size	Pressure	Droplet size
Flat fan XR	025	3	Fine
Low drift	025	3	Medium
Low pressure air induction	025	4.5	Medium / coarse
Amistar nozzle	025	3	Fine

Results

There was no significant difference between droplet sizes for the control of ryegrass heads when using paraquat at 800ml/ha in 80 L/ha water (Figure 1). The low pressure air induction (AI) nozzles were as effective as flat fans for controlling ryegrass seed set.

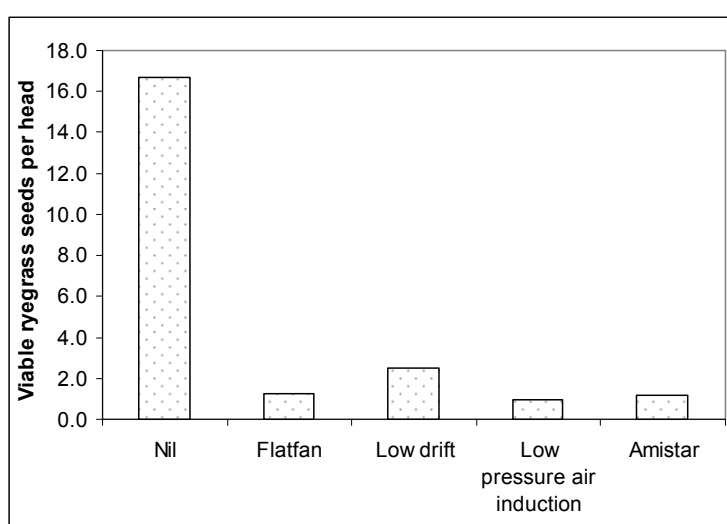


Figure 1. The comparison of 4 different droplet sizes and their control of ryegrass seeds at the milk to soft dough stage (LSD ($P < 0.05$) 0.68).

Acknowledgements: GRDC, Richard Porter (Peracto) and Jason Sabeeney (Syngenta).