

GOA Individual Trial Site report

Project Name

Knockdown control of Fleabane seedlings in fallow, 2012

Trial Code

GOA1232

Trial Location

"Long Plain" 45km south west of Narromine NSW

Trial commencement date

April 2012

Background

In the GOA area the prevalence of Flaxleaf fleabane (FB) has become an increasing problem in both the fallow and in crops. Limited products are registered for the control of fleabane and past trials have shown inconsistent results for the control of larger fleabane plants in the fallow with most requiring follow up treatment with a second pass or double knock with paraquat to achieve control.

However, data available for the control of seedling fleabane in the fallow situation was low particularly for herbicide spikes used pre seeding that did not carry plant back restrictions. Much of the data available relating to seedling control was for use in crop but not in fallow. The existing trials also did not investigate some new products such as Sharpen or the potentially repositioning of older products or Goal (Oxyfluorfen).

DISCLAIMER

Following is a report on a scientific experiment. It may contain some herbicide treatments that are not registered for the situation manner or rate at which they are used in this trial. This document or anything else resulting from, construed or taken from this or by GOA or its representatives should not be taken as a suggestion, recommendation or endorsement of any unregistered herbicide uses.

Aims

- To investigate appropriate products for the control of seedling Flaxleaf fleabane in fallow prior to seeding winter crops
- To investigate the value of a double knock approach on seedling Flaxleaf Fleabane

Methods

- Split plot- randomised complete block with three replicates in small plots of 3m x 12m

- Sites selected in areas of fields with an even fleabane population with seedlings of relatively equal size
- Plots were treated when the seedlings were approximately the size of a 20c coin with 2-4 fully expanded leaves present. It is estimated that these seedling would have germinated on significant rainfall in the first week of March and as such would have 4-5 weeks growth since emergence, at the time of spraying.
- The plots were split into two halves, the first was only treated with the initial treatments using a handboom and the second half received a second pass of Paraquat at 2L/ha, 17 days after the first application (DAA) using an ATV mounted boom spray
- The percentage of plant death was assessed on multiple dates

Treatment table

	Treatment	Rate/ha
1	UTC	Nil
2	Paraquat	1.6L
3	Glyphosate 450 + Goal + Wetter 1000	800ml + 75ml
4	Glyphosate 450 + Goal + Wetter 1000	800ml + 150ml
5	Glyphosate 450 + Sharpen + Bonza	800ml + 100ml
6	Glyphosate 450 + Wetter 1000	800ml
7	Glyphosate 450 + Wetter 1000	1.6L
8	Glyphosate 450 + Amicide Advanced + Wetter 1000	800ml + 800ml
9	Glyphosate 450 + Glean + Wetter 1000	800ml + 20g
10	Glyphosate 450 + Hammer + Supercharge	800ml + 30ml
11	Glyphosate 450 + Lontrel + Wetter 1000	800ml + 150ml
12	Glyphosate 450 + Starane Advance + Wetter 1000	800ml + 200ml
13	Glyphosate 450 + Ally + Wetter 1000	800ml + 7g
14	Glyphosate 450 + Tordon 75-D + Wetter 1000	800ml + 700ml

Application details

Initial application	Date	Water rate	Nozzle	Pressure
	20/04/2012	100L/ha	AIXR015	3 bar
	Start time	Temp °C	Wind vel.	Wind Dir.
	12pm	25.9	5.2 km/hr	WNW
	Finish time	Δt	Humidity	% Cloud
	1pm	7.9	34%	10
Second pass application	Date	Water rate	Nozzle	Pressure
	07/05/2012	100L/ha	TTAI015	4 bar
	Start time	Temp °C	Wind vel.	Wind Dir.
	10am	10.8	6.1 km/hr	ENE
	Finish time	Δt	Humidity	% Cloud
	10.30am	7.7	85%	15

Results

Table 1. Percentage seedlings killed at 33 and 54 Days after first application (DAA)

Treatment	33DAA - single pass		33DAA – with double knock		54DAA - single pass		54DAA – with double knock	
UTC	0	f	53.3	g	0	h	50	c
Paraquat	8.3	def	90.7	abc	23.3	fg	100	a
Glyphosate 450 + Goal @ 75ml	16.7	de	78.3	def	40	de	96.7	a
Glyphosate 450 + Goal @ 150ml	20	cd	75	ef	46.7	cd	100	a
Glyphosate 450 + Sharpen	83.3	a	83.3	cde	58.3	c	80	b
Glyphosate 450 @ 800ml	31.7	c	78.3	def	50	cd	100	a
Glyphosate 450 1.6L	61.7	b	93.3	ab	56.7	c	100	a
Glyphosate 450 + Amicide Advanced	56.7	b	93.3	ab	83.3	ab	100	a
Glyphosate 450 + Glean	6.7	ef	85	bcd	30	ef	96.7	a
Glyphosate 450 + Hammer	10	def	80	def	13.3	gh	90	ab
Glyphosate 450 + Lontrel	51.7	b	95	a	78.3	b	100	a
Glyphosate 450 + Starane Advance	10	def	91.7	abc	36.7	def	96.7	a
Glyphosate 450 + Ally	8.3	def	73.3	f	55	c	93.3	a
Glyphosate 450 + Tordon 75-D	86.7	a	95	a	96.7	a	100	a
LSD (0.05)	13.17		8.34		13.44		12.28	
CV	24.32		5.97		16.77		7.86	
p value	0.0001		0.0001		0.0001		0.0001	

Means within columns followed by the same letter are not significantly different at the 5% level according to least significant difference (LSD) test.

Discussion

Firstly it should be noted that preferably fleabane should have been sprayed earlier than in this trial. Label claims may only cover smaller and younger plants and common-sense would be that smaller plants are easier and more reliably controlled by any herbicide. A point to note though was the surrounding paddock was sprayed at the same time due to time and weather constraints delaying commercial applications. In this sense this trial does simulate what would be a real world situation.

Figure 1 below graphically demonstrates the level of control offered by the various treatments applied. The darker bars indicate the level of control where a double knock was **NOT** applied. As it shows, only one treatment, achieved a level of control that would be commercially acceptable- Tordon 75-D. All the other treatments failed to achieve satisfactory control.

The lighter bars in figure 1 illustrate the final control after a double knock (DK) was applied. It should be noted at this point that the DK was applied after 17 days after the initial applications. This time interval is longer than generally recommended for FB control. It can be seen that the level of final control of all options have been significantly improved. Only two treatments failed to achieve a commercially acceptable level of control.

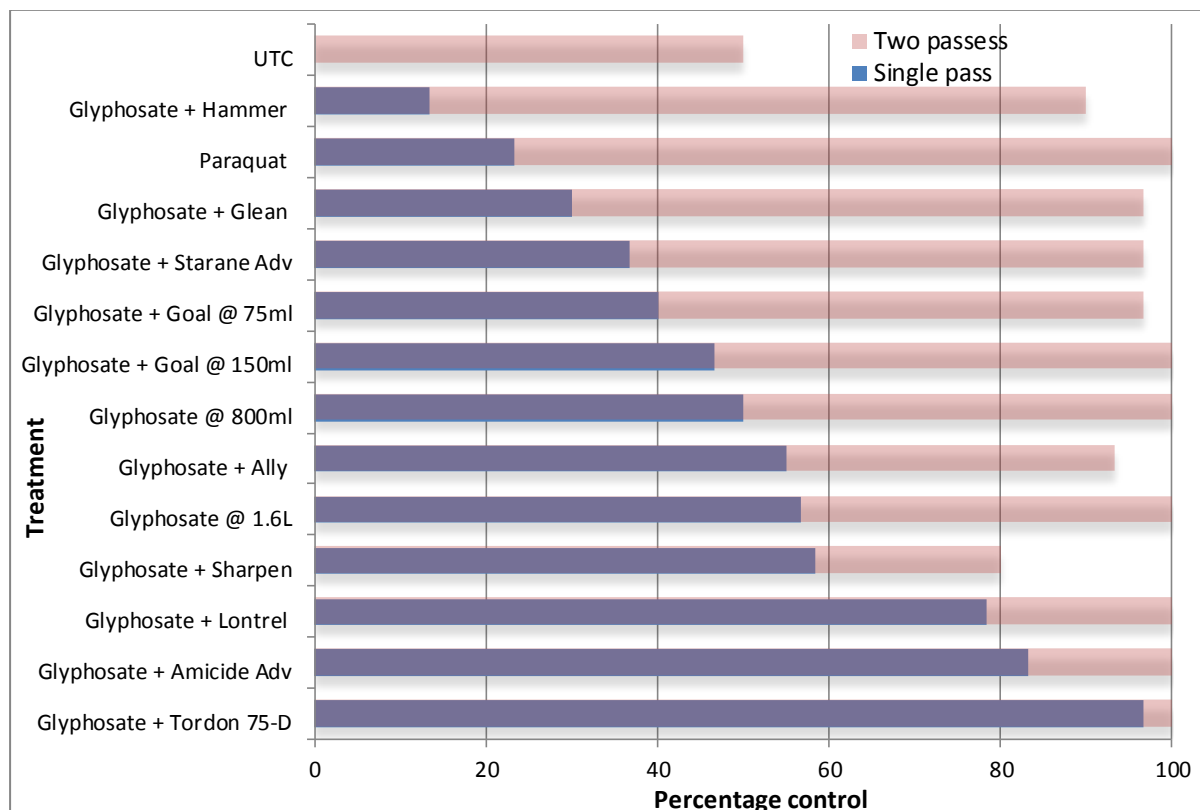
Two points should also be raised here-

1. Although many of the poorer performing treatments were improved to acceptable levels with the DK a huge amount of the improvement was done by the paraquat as shown by

the length of the second half of the “Bar”. This situation may put undue pressure to select for resistance to paraquat.

2. Many of these poorer performing treatments are unregistered and therefore not recommended (for good reasons). With the consideration of point 1 above, the registered treatments of either Tordon 75D or Amicide Advance are much more effective, and place less pressure on the DK.

Figure 1. Percentage control of seedling fleabane at 54DAA.



Conclusions

The only tank mix product in this trial that would be commercially acceptable and appropriate for use as a single pass option for the control of seedling fleabane was Tordon 75-D. Amine Advance and Lontrel both offered good control only when followed by a double knock. However the majority of treatments when followed by a double knock also offered acceptable control.

The level of effectiveness of the double knock demonstrated in this trial, although encouraging, was much better than was experienced in two similar trials run by GOA this season. Much of the control achieved for many of the treatments was greatly due to the double knock as demonstrated by different lengths of the bars in the graphs between single pass and double knock applications with paraquat. This could represent significant pressure on the paraquat which is more susceptible to variable results than other herbicides as well as increased pressure to select for resistance.

A number of these tankmix products do have plant-back restrictions following their use. However they may be suitable in certain situations- check the label before use.

Even Goal used at a double rate which has been suggested to be used by some advisors still failed to achieve acceptable control. In fact all the Group G spikes- Hammer, Goal and Sharpen all failed to achieve good single pass control in this trial.

It is an important point to note that at the commencement of the trial it was thought that many products would gain acceptable control of seedlings, but from this trial it has shown that fleabane seedlings are difficult to control even at a young age and may often still require a DK to ensure control. However this double knock could be provided in the form of disturbance and burial through the sowing process which was not examined in this trial.

And as a final point many of the unregistered options did not offer good control and to use them in an attempt to control seedling FB in a single pass situation is of little value. Particularly in light of other products offering much greater control but offering growers and advisors the safety of operating within “label” conditions.

Acknowledgements

GOA would like to thank

The Tink Family- “Long Plain” Narromine for hosting the trial

Matt Shepherd of IMAG consulting for helping locate the trial site for GOA