TOPIC: HERBICIDES FOR SELECTIVE SPOT SPRAYING APPLICATION ON SUMMER WEEDS

Group: *Mullewa 2010*

A trial conducted by Grant Thompson at Daisy Downs, Mullewa (C Crawford)

ABSTRACT

1. To assess current and novel herbicides and mixes at elevated rates to achieve fast control of summer weeds through weedseeker selective spot spraying.
2. To plant trial plots to wheat to assess carryover or plantback issue with these treatments.

KEY MESSAGES

- Weed sensing and selective spot spraying with machinery such as the WEEDSEEKER and WEED-IT selective spot sprayers has allowed for very cost effective broadacre spot spraying of weeds without spraying the whole paddock area.
- Selective spot spraying of hard to kill summer weeds is one application where this technology has a potential to save growers significant funds usually allocated to herbicides.
- Elevated rates of non-traditional or previously cost prohibited herbicides of a different resistance group can now be used to achieve much more reliable and faster control of weeds
- Alliance, Gramoxone, Basta, Roundup Powermax and Ally provided acceptable levels of control on large Roly Poly at high rates suitable for selective spot spraying.
- Hammer and Sharpen did not provide acceptable control of Roly Poly after initial impressive weed burndown
- Roundup Powermax, Garlon, Grazon, Kamba 500 and Tordon 75D all provided excellent Afghan Melon control
- Grazon, Kamba 500 and Tordon 75D caused herbicide toxicity issues in the following wheat crop

METHODS

Herbicide Application

- Trials spray with hand booms – 2m wide, with Agrotop airmix 110 01 nozzles at 2 bar, 4 km/hr at 98L/Ha (similar application rates and droplet composition as the weedseeker)
- Herbicides applied from 6am – 8.30am during warm dry summer spraying conditions (20-24C and , 60-50%RH) typical of farmer application window in summer spraying. All treatments applied with 1% Bonza spraying oil adjuvant.
- Herbicide mixtures prepared the evening before and stored in 2L plastic containers

Weeds

- Afghan Melons *(Citrullus lanatus(Thunb.) Matsum.)* 1-2m diameter (stressed),
- Roly Poly *(Salsola kalivar. kali)* 30-70cm tall (healthy)
- Ratings – 8, 16 and 55 days after application.
- Assessment of subsequent crop health and effect of herbicide carryover on the crop grown in spray plots.

Herbicides used

Glyphosate 540 g/L, Gramoxone, Basta , Alliance, Ally, Kamba 500, Garlon, Grazon, Tordon 75D, Hammer, Estericide 680, Diuron Sc 500g/L, Hotshot, Sharpen, Bonza oil.

Figure 1: Untreated Roly Poly

Figure 2: Roly Poly 8daa with 10L Basta

RESULTS

Ratings of Herbicide efficacy at 16 and 55 days after application. ***(Control Ratings 1=poor, 10=excellent)***

No.	Treatment	Rate	Melons Afghan (1-10) 16DAA	Melons Afghan (0 - 10) 55DAA	Roly poly (0 - 10) 16DAA	Roly poly (0 - 10) 55DAA
1	Garlon Bonza	200 ml 1 %	9	**10**	6	4
2	Garlon Bonza	1000 ml 1 %	**10**	**10**	5	5
3	Roundup Pmax	10000 ml	**10**	**10**	**10**	**10**
4	Hammer + BS1000	125 ml + 0.1 %	5	4	5	5
5	Paraquat 250	10000 ml	8	5**	**10**	**10**
6	Grazon Bonza	300 ml 1 %	2	2	3	2
7	Grazon Bonza	1000 ml 1 %	**10**	**10**	5	5
8	Sharpen Bonza	500 ml 1 %	2	2	6	3**
9	Diuron BS100	5000 ml 0.1 %	5	6	1	0
10	Starane Advance Rup Powermax BS1000	900 ml 3000 ml 0.1 %	7	7	7	5
11	Alliance	10000 ml	7	3**	**10**	**10**
12	Basta	10000 ml	**10**	7	**10**	**10**
13	Ester 680 Bonza	10000 ml 1 %	8	8	6	8
14	Metsulfuron Bonza	20 g 1 %	7	9	**10**	**10**
15	Tordon 75D Bonza	1000 ml 1 %	**10**	**10**	7	6
16	Tordon 75D Bonza	10000 ml 1 %	**10**	**10**	6	6
17	Alliance Ester 680 Bonza	10000 ml 2000 ml 1 %	9	5**	**10**	**10**
18	Powermax Ester 680 Garlon Ally LI700	5000 ml 2000 ml 300 ml 5 g 0.5 %	**10**	**10**	Not Applied	Not Applied
19	Kamba 500 Bonza	4000 ml 1 %	**10**	**10**	6	4
20	Hotshot	3000 ml	**10**	**10**	5	4
		LSD 0.01	5	5	5	5
		LSD 0.05	4	4	3	4
		CV	29	33	33	40

Roly Poly – (Salsola kalivar. kali)
The non selective herbicides Roundup Powermax at 10L/ha, Gramoxone at 10L/Ha, Basta at 10L/Ha and Alliance at 10L/Ha all provided very fast and effective control of large Roly Poly. Ally (Metsulfuron Methyl) at 20g with oil also provided very good control of Roly Poly and is particularly cheap. Hammer and Sharpen provided some initial burndown on the outside margins of the Roly Poly plants, but due to their rapid activity in bright sunny and warm conditions, provided little systemic activity and the plants continued growing from the centre. Grazon, Garlon and Tordon provided impressive early yellowing and retardation of Roly Poly, but during the dry conditions after spraying, showed minimal activity after the initial effects and plants survived. The high rates of Grazon, Tordon and Diuron caused unacceptable damage of the following wheat crop at the Roly Poly site, and would not be advised in this scenario.

Afghan Melon - (Citrullus lanatus(Thunb.) Matsum
Garlon , Grazon, Tordon, Hotshot and Kamba 500 all provided very good rapid control of Afghan Melons. Roundup Powermax at 10L/Ha also provided effective control. Ally (Metsulfuron Methyl) at 20g with oil also provided reasonable control of Afghan melon at 55days after application and would make a cheap and handy tankmix partner in this case. Basta, Gramoxone and Alliance provided impressive intial burndown, but the Afghan melons continued growing and control was not satisfactory at 55 days after application. The high rates of Grazon, Tordon, Kamba 500 and Hotshot caused unacceptable damage of the following wheat crop at the melon site , and would not be advised in this scenario.

CONCLUSION
Suitable conventional and novel herbicides exist for specific application and control of summer weeds by spot spraying technology. Residual soil herbicide activity must be considered when planting the next crop.

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