David Eksteen
Agricultural Consulting

TRIAL REPORT

Compare the efficacy of S-Metolachlor 960 with Dual Gold in controlling toad rush (*Juncus bufonius*) in WHEAT.

Walbundrie , NSW
2015

Client:
Company A

Author:
Dave Eksteen
Report Date:
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SUMMARY

A trial was conducted on a growers paddock ten kilometres north of Walbundrie to investigate if S-Metolachlor 960 controlled **toad rush (*Juncus bufonius*)** in Wheat. There was a significant reduction in toad rush when either Dual Gold® or S-Metolachlor 960 was applied. Increasing the rate of Dual Gold® significantly reduced the toad rush for each increment applied. For the S-Metolachlor there was no significant difference between the 150 and 250ml/ha. There was a significant reduction between the 250ml/ha and the 500ml/ha.

At the low rate (150ml/ha) the S-Metolachlor significantly reduced the toad rush compared to the Dual Gold® at the same rate. There was no significant difference in toad rush control between Dual Gold® and S-Metolachlor 960 at the 250 and 500ml/ha rate.

There was no significant effect on any of the chemicals or rates on the wheat tiller numbers. There was also no significant effect of any of the chemicals or rates applied on the total dry matter production of the wheat. The chemicals thus had no significant effect on germination and growth of the wheat crop.

INTRODUCTION

Aims

- To evaluate the **efficacy of S-Metolachlor with Dual Gold in controlling toad rush (*Juncus bufonius*) in WHEAT**

Weeds

The trial was conducted on a grower's paddock that has a history of toad rush.

Crop

Wheat - Suntop

MATERIALS AND METHODS

Product list

Product name	Active Ingredient (ai)	Concentration of ai	Formulation
Dual Gold®	S-Metolachlor	960g/L	EC
S-Metolachlor	S-Metolachlor	960g/L	EC

Treatment list

No.	Treatment	Rate			Application schedule
		Rate	Unit	Active ingredient (g ai/ha)	
1	Dual Gold®	150	mL/ha	144	Applied pre-emergent
2	Dual Gold®	250	mL/ha	240	
3	Dual Gold®	500	mL/ha	480	
4	S-Metolachlor 960	150	mL/ha	144	
5	S-Metalochlor 960	250	mL/ha	240	
6	S-Metolachlor 960	500	mL/ha	480	
7	Metolachlor 960	750	mL/ha	720	
8	Control	0	mL/ha	0	

Chronology of events

The trial site was sown on the 26th May 2015 using knife points and press wheels. The treatments were applied on the 29th May 2015 using a 4m boom spray mounted on a quad bike. The number of toad rush plants were recorded randomly in each plot using a circle 84 days after applying the treatments. Wheat tillers were counted in a 50cm row in each plot with the plants then being harvested to determine the wheat dry matter production for each plot. Photos of each treatment plot were taken. The results were analysed and the report written up.

RESULTS

There was a significant reduction in toad rush when either Dual Gold® or S-Metolachlor 960 was applied (Table 1). Increasing the rate of Dual Gold® significantly reduced the toad rush for each increment applied. For the S-Metolachlor there was no significant difference between the 150 and 250ml/ha. There was a significant reduction between the 250ml/ha and the 500ml/ha.

At the low rate (150ml/ha) the S-Metolachlor significantly reduced the toad rush compared to the Dual Gold® at the same rate. There was no significant difference in toad rush control between Dual Gold® and S-Metolachlor 960 at the 250 and 500ml/ha rate.

There was no significant effect on any of the chemicals or rates on the wheat tiller numbers (Table 1). There was also no significant effect of any of the chemicals or rates applied on the total dry matter production of the wheat. The chemicals thus had no significant effect on germination and growth of the wheat crop.

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Table 1: Effect of Dual Gold® and S-Metolachlor on toad rush in wheat (21st August 2015 – 84 days from treatment)

Plot	Treatment	Toad rush /m^2	Wheat tillers /m^2	Wheat dry matter biomass g/m^2
1	150 ml/ha Dual Gold®	257.0^b	550.0	188.1
2	250ml/ha Dual Gold®	80.3^c	556.6	189.4
3	500ml/ha Dual Gold®	8.0^c	563.2	169.0
4	150ml/ha S-Metolachlor 960	136.5^b	613.8	192.7
5	250ml/ha S-Metalochlor 960	112.4^c	618.2	172.3
6	500ml/ha S-Metolachlor 960	0.0^c	589.6	170.3
7	750ml/ha Metolachlor 960	0.0^c	572.0	146.5
8	Control	457.8^a	686.4	207.9
	Mean	**131.5**	**593.7**	**179.5**
	P-value	<0.001	0.99	0.76
	LSD (5%)	58.9	NS	NS

CONCLUSIONS

The following was concluded:

- All the products were very effective in controlling Toad rush in wheat, with even the low rate (250ml/ha) having significantly lower toad rush numbers than the control.
- The S Metolachlor 960 was significantly better than the Dual Gold® at 150ml/ha. There was no significant difference between the 250 and 500ml/ha rates.
- For each increase in rate for the Dual Gold® there was a significant reduction in toad rush. For the S-Metolachlor 960 there was no significant reduction in toad rush between 150 and 250ml/ha but there was a significant reduction in toad rush from 250ml/ha to 500ml/ha.
- There was no significant effect of any of the products or the rates used on wheat tiller establishment.
- There was no significant effect of any product or rate used on final total dry matter production of the wheat.
- There was no significant rain event for 20 days after spraying, allowing the crop to emerge before any chemical could be washed into the rows.

Photographic effect of treatments on toad rush control 84 days from applying treatments.

<table>
<tr><td colspan="2">Photo 21st August 2015 (84 days from treatment)</td></tr>
<tr><td>150ml/ha Dual Gold®</td><td>250ml/ha Dual Gold®</td></tr>
<tr><td> 

ld®</td><td> 
</td></tr>
<tr><td>500ml/ha Dual Gold®</td><td>150ml/ha S-Metolachlor 960</td></tr>
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250ml/ha S-Metalochlor 960	500ml/ha S-Metolachlor 960
	
750ml/ha Metolachlor 960	Control
	

APPENDICES

Appendix i. Trial details

Site details

Grower	Grower A
Telephone	**********162
Location	Munyapla Boundary Rd, Urangeline East, NSW, 2656
GPS coordinates	-33.565768°S,146.738919°E,
Soil type	Clay loam
Crop	Wheat
Spraying date	29th May 2015
Trial design	Complete randomised block
Replications	3
Plot size	4 m x 10m

Trial location map

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Trial plan

Replicate 1 Replicate 2 Replicate 3

PLOT		
1	4	1
2	7	6
3	1	2
4	5	8
5	3	4
6	2	3
7	8	5
8	6	7

Application details – spray conditions

Application equipment		
Method	Low volume boom spraying	
Equipment	12V pump with 4m boom on back of Quad Bike	
Nozzles	ALXR TeeJet nozzles	
Nozzle spacing	500 mm	
Spray volume	80 L/ha	
Pressure	250 kPa	
Ground speed	10 kph	
Treatment application		
Application number	1	
Date	29/05/2015	
Time	11:30am	
Treatments applied	all	
Temperature (°C)	15	
Relative humidity (%)	82	
Cloud cover (%)	0	
Wind direction	SW	
Wind speed (m/s)	2.7	
Soil moisture	Wet	

Anova: Single Factor. Toad rush/m2

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
150 ml/ha Dual Gold®	3	771.0843	257.0	7161.175
250ml/ha Dual Gold®	3	240.9639	80.3	1354.817
500ml/ha Dual Gold®	3	24.09639	8.0	193.5453
150ml/ha S-Metolachlor	3	409.6386	136.5	3096.724
250ml/ha S-Metalochlor	3	337.3494	112.4	774.1811
500ml/ha S-Metolachlor	3	0	0.0	0
750ml/ha Metolachlor960	3	0	0.0	0
Control	3	1373.494	457.8	12193.35
			131.5	

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	525257.7	7	75036.81	24.23103	2.22E-07	2.657197
Within Groups	49547.59	16	3096.724			
Total	574805.2	23				

Anova: Single Factor. Wheat tillers/m2

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
150 ml/ha Dual Gold®	3	1650	550	26847.48
250ml/ha Dual Gold®	3	1669.8	556.6	15609
500ml/ha Dual Gold®	3	1689.6	563.2	16567.32
150ml/ha S-Metolachlor	3	1841.4	613.8	65209.32
250ml/ha S-Metalochlor	3	1854.6	618.2	38434.44
500ml/ha S-Metolachlor	3	1768.8	589.6	72062.76
750ml/ha Metolachlor960	3	1716	572	69013.56
Control	3	2059.2	686.4	31755.24

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	42904.79	7	6129.255	0.146153	0.992253	2.657197
Within Groups	670998.2	16	41937.39			
Total	713903	23				

Anova: Single Factor. Wheat above ground dry matter g/m2						
SUMMARY						
Groups	*Count*	*Sum*	*Average*	*Variance*		
150 ml/ha Dual Gold®	3	564.3	188.1	3257.852		
250ml/ha Dual Gold®	3	568.26	189.4	2079.119		
500ml/ha Dual Gold®	3	506.88	169.0	1491.059		
150ml/ha S-Metolachlor	3	578.16	192.7	726.5808		
250ml/ha S-Metalochlor	3	516.78	172.3	105.8508		
500ml/ha S-Metolachlor	3	510.84	170.3	3496.997		
750ml/ha Metolachlor960	3	439.56	146.5	1697.533		
Control	3	623.7	207.9	1815.145		
			179.5			
ANOVA						
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	7469.669	7	1067.096	0.581914	0.760929	2.657197
Within Groups	29340.27	16	1833.767			
Total	36809.94	23				

Alma Park 10km from trial site.

Daily rainfall

Alma Park (Albaringa)

Details

Station: Alma Park (Albaringa)
Number: 74263
Opened: 1997
Now: Open
Lat: 35.63° S
Lon: 146.83° E
Elevation: 202 m

Show in table...

2015	Jan	Feb	Mar	Apr	May	Jun	Jul
Graph							
1st	0	0	1.6	0	0	2.2	0
2nd	0	16	0	0	0	0	0.6
3rd	0	0	0	0	0	0	0
4th	0	0	0	0	0	0	0
5th	0	0	0	1.8	0	3.4	0
6th	0	0	0	0	0	0	0
7th	0	0	0	35	0	0	1
8th	0	0	0	2.6	0	0	0
9th	11.6	0	0	0	0	0.2	0
10th	5.4	0	0	0	2.6	0	6.4
11th	8.4	0	0	0	8	0	0.2
12th	0	4.4	0	0	0.6	0	9.2
13th	0	3	0	0	1	0	5
14th	23	0.2	0	0	0	0	0
15th	0	8	0	3.4	0	0	5.2
16th	0	0	0	0.8	0	11	1
17th	0	0	0	0.8	0	6.4	0
18th	0	0.2	0.2	24.4	0	23	0
19th	0	0	0	12.4	16	26.8	0
20th	0	0	0.2	1.2	10.4	0	0
21st	7.4	0	0	0	0	0	0
22nd	0	0	0	0	0	0	6
23rd	0	0	0	0	0	0	4.4
24th	1.4	10	0	1	0	7	0
25th	0	0	0	4.2	0	3.4	2.8
26th	0	0	0	3.8	0	0	1
27th	0	0	0	0	1	0	0
28th	0.6	0	0	0	0	0	0
29th	0		0	0	2	0	0
30th	0		0	0	0	0	0
31st	0		0		0		0.2
Monthly Total	57.8	41.8	2	91.4	41.6	83.4	43