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**Knockdown Control of Tarvine in Fallow**

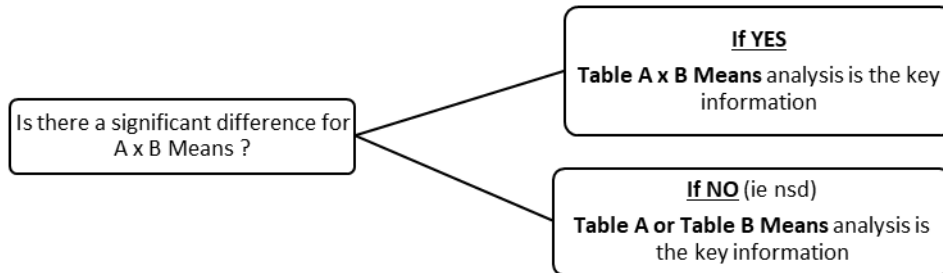
Trial ID: **LB1921**                      Location: **Felton**                      Trial Year: **2019**  
Investigator: **Linda Bailey**

Objective:	To evaluate herbicide options for the control of Tarvine in fallow	
Situation:	Fallow	
Application:	A	B
Application Date:	07/11/2019	14/11/2019
Weed:	Tarvine	
Weed Stage at Application:	75% 3 true leaves, 25% flowering	
Weed Population at Application:	4/m <sup>2</sup>	
Nozzles:	AIXR 110015	
Volume:	100 L/ha	
Keywords:	Tarvine, knockdown, double knock, fallow	

Trial designed and analysed as a Strip Plot

	In Simple Terms
Table of A Means:	Mean of '1 <sup>st</sup> Knock' performance with <b>BOTH</b> '2 <sup>nd</sup> Knock' treatments
Table of B Means:	Mean of '2 <sup>nd</sup> Knock' performance with <b>ALL</b> '1 <sup>st</sup> Knock' treatments
Table of A x B Means:	'1 <sup>st</sup> Knock' performance with <b>EACH</b> '2 <sup>nd</sup> Knock' treatment

**How to Interpret?**



## Knockdown Control of Tarvine in Fallow

Trial ID: LB1921

Location: Felton

Trial Year: 2019

Pest Scientific Name Pest Name Assessment Date Assessment Type Assessment Unit Treatment-Evaluation Interval ARM Action Codes				<i>Boerhavia dominii</i> Tarvine	
				22/11/2019 BURNDOWN %	19/12/2019 COUNT /m <sup>2</sup>
Trt No.	Treatment	Product Rate	Appln. Code	15 DAA	42 DAA AL
<b>TABLE OF A MEANS (1st Knock)</b>					
1	Knockout 450	2000 ml/ha	A	53g	1.49t -
2	Knockout 450	4000 ml/ha	A	65de	0.96t -
3	Amicide Advance 700 Hasten	1500 ml/ha 1% v/v	A A	58f	1.86t -
4	Knockout 450 Amicide Advance 700	2000 ml/ha 1500 ml/ha	A A	63de	1.39t -
5	Knockout 450 Amicide Advance 700 Hasten	2000 ml/ha 1500 ml/ha 1% v/v	A A A	63e	1.04t -
6	Ally Liberate	7 g/ha 0.1% v/v	A A	64de	1.28t -
7	Knockout 450 Ally Liberate	2000 ml/ha 7 g/ha 0.1% v/v	A A A	56fg	1.12t -
8	Knockout 450 Glean Liberate	2000 ml/ha 20 g/ha 0.1% v/v	A A A	63de	1.80t -
9	Basta	5000 ml/ha	A	68cd	1.10t -
10	Basta	9000 ml/ha	A	78b	0.88t -
11	Gramoxone	2400 ml/ha	A	93a	1.38t -
12	Knockout 450 Cutlass	2000 ml/ha 240 ml/ha	A A	67cd	0.73t -
13	Knockout 450 Pixxaro Uptake	2000 ml/ha 400 ml/ha 0.5% v/v	A A A	64de	1.03t -
14	Knockout 450 EXPERIMENTAL Hasten	2000 ml/ha 240 ml/ha 1.0% v/v	A A A	80b	1.84t -
15	Knockout 450 Stinger Uptake	2000 ml/ha 14 g/ha 0.5% v/v	A A A	58f	0.93t -
16	Knockout 450 Valor Hasten	2000 ml/ha 30 g/ha 1.0% v/v	A A A	70c	1.82t -
<b>TABLE OF B MEANS (2nd Knock)</b>					
1	1st Knock only	-	-	36b	1.73t a
2	Gramoxone	2400 ml/ha	B	97a	0.88t b

DAA = Days after Application A

Means followed by same letter do not significantly differ (P=.05, LSD)

t=Mean descriptions are reported in transformed data units, and are not de-transformed.

Mean comparisons performed only when AOV Treatment P (F) is significant at mean comparison OSL.

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				22/11/2019 BURNDOWN %	19/12/2019 COUNT /m <sup>2</sup>
Trt No.	Treatment	Product Rate	Appln. Code	15 DAA	42 DAA AL
<b>TABLE OF A x B MEANS (1st Knock x 2nd Knock)</b>					
1a	Knockout 450	2000 ml/ha	A	13m	2.26t-
1b	Knockout 450	2000 ml/ha	A	94bc	0.91t-
	Gramoxone	2400 ml/ha	B		
2a	Knockout 450	4000 ml/ha	A	33hij	1.39t-
2b	Knockout 450	4000 ml/ha	A	97abc	0.61t-
	Gramoxone	2400 ml/ha	B		
3a	Amicide Advance 700	1500 ml/ha	A	17lm	2.40t-
	Hasten	1% v/v	A		
3b	Amicide Advance 700	1500 ml/ha	A	99ab	1.41t-
	Hasten	1% v/v	A		
	Gramoxone	2400 ml/ha	B		
4a	Knockout 450	2000 ml/ha	A	27k	1.82t-
	Amicide Advance 700	1500 ml/ha	A		
4b	Knockout 450	2000 ml/ha	A	100a	1.02t-
	Amicide Advance 700	1500 ml/ha	A		
	Gramoxone	2400 ml/ha	B		
5a	Knockout 450	2000 ml/ha	A	28jk	1.84t-
	Amicide Advance 700	1500 ml/ha	A		
	Hasten	1% v/v	A		
5b	Knockout 450	2000 ml/ha	A	97abc	0.47t-
	Amicide Advance 700	1500 ml/ha	A		
	Hasten	1% v/v	A		
	Gramoxone	2400 ml/ha	B		
6a	Ally	7 g/ha	A	31ijk	1.27t-
	Liberate	0.1% v/v	A		
6b	Ally	7 g/ha	A	98ab	1.29t-
	Liberate	0.1% v/v	A		
	Gramoxone	2400 ml/ha	B		
7a	Knockout 450	2000 ml/ha	A	16lm	2.25t-
	Ally	7 g/ha	A		
	Liberate	0.1% v/v	A		
7b	Knockout 450	2000 ml/ha	A	97abc	0.38t-
	Ally	7 g/ha	A		
	Liberate	0.1% v/v	A		
	Gramoxone	2400 ml/ha	B		

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Pest Scientific Name Pest Name Assessment Date Assessment Type Assessment Unit Treatment-Evaluation Interval ARM Action Codes				<i>Boerhavia dominii</i> Tarvine	
				22/11/2019 BURNDOWN %	19/12/2019 COUNT /m <sup>2</sup>
Trt No.	Treatment	Product Rate	Appln. Code	15 DAA	42 DAA AL
8a	Knockout 450 Glean Liberate	2000 ml/ha 20 g/ha 0.1 % v/v	A A A	28 jk	3.16t-
8b	Knockout 450 Glean Liberate Gramoxone	2000 ml/ha 20 g/ha 0.1 % v/v 2400 ml/ha	A A A B	98 ab	0.89t-
9a	Basta	5000 ml/ha	A	36 hi	1.16t-
9b	Basta Gramoxone	5000 ml/ha 2400 ml/ha	A B	99 ab	1.04t-
10a	Basta	9000 ml/ha	A	60 f	0.69t-
10b	Basta Gramoxone	9000 ml/ha 2400 ml/ha	A B	97 abc	1.08t-
11a	Gramoxone	2400 ml/ha	A	87 d	1.78t-
11b	Gramoxone Gramoxone	2400 ml/ha 2400 ml/ha	A B	98 ab	1.03t-
12a	Knockout 450 Cutlass	2000 ml/ha 240 ml/ha	A A	37 h	0.91t-
12b	Knockout 450 Cutlass Gramoxone	2000 ml/ha 240 ml/ha 2400 ml/ha	A A B	98 ab	0.57t-
13a	Knockout 450 Pixxaro Uptake	2000 ml/ha 400 ml/ha 0.5 % v/v	A A A	29 jk	1.98t-
13b	Knockout 450 Pixxaro Uptake Gramoxone	2000 ml/ha 400 ml/ha 0.5 % v/v 2400 ml/ha	A A A B	99 ab	0.38t-
14a	Knockout 450 EXPERIMENTAL Hasten	2000 ml/ha 240 ml/ha 1.0 % v/v	A A A	68 e	1.50t-
14b	Knockout 450 EXPERIMENTAL Hasten Gramoxone	2000 ml/ha 240 ml/ha 1.0 % v/v 2400 ml/ha	A A A B	92cd	2.24t-

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Trial Year: 2019

Pest Scientific Name				<i>Boerhavia dominii</i>	
Pest Name				Tarvine	
Assessment Date				22/11/2019	19/12/2019
Assessment Type				BURNDOWN	COUNT
Assessment Unit				%	/m <sup>2</sup>
Trt-Evaluation Interval				15 DAA	42 DAA
ARM Action Codes					AL
Trt No.	Treatment	Product Rate	Appln. Code		
15a	Knockout 450	2000 ml/ha	A	19l	1.54t-
	Stinger	14 g/ha	A		
	Uptake	0.5 % v/v	A		
15b	Knockout 450	2000 ml/ha	A	97abc	0.47t-
	Stinger	14 g/ha	A		
	Uptake	0.5 % v/v	A		
	Gramoxone	2400 ml/ha	B		
16a	Knockout 450	2000 ml/ha	A	43g	2.91t-
	Valor	30 g/ha	A		
	Hasten	1.0 % v/v	A		
16b	Knockout 450	2000 ml/ha	A	96abc	1.03t-
	Valor	30 g/ha	A		
	Hasten	1.0 % v/v	A		
	Gramoxone	2400 ml/ha	B		

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COMPLETE STRIP-BLOCK AOV <i>Boerhavia dominii</i> - Tarvine 22/11/2019 BURNDOWN % 15 DAA						
Source	DF	Sum of Squares	Mean Square	F	Prob.(F)	LSD (.05)
Total	95	109972.656250				
R	2	23.828125	11.914063	1.322	0.2818	
A	15	8912.239583	594.149306	46.865	0.0001	4
RA	30	380.338542	12.677951			
B	1	90651.041667	90651.041667	20782.090	0.0001	2
RB	2	8.723958	4.361979			
AB	15	9726.041667	648.402778	71.927	0.0001	5
RAB	30	270.442708	9.014757			

COMPLETE STRIP-BLOCK AOV <i>Boerhavia dominii</i> - Tarvine 19/12/2019 COUNT /m <sup>2</sup> 42 DAA AL						
Source	DF	Sum of Squares	Mean Square	F	Prob.(F)	LSD (.05)
Total	95	3.130287				
R	2	0.087800	0.043900	2.185	0.1300	
A	15	0.454246	0.030283	1.155	0.3555	0.19
RA	30	0.786761	0.026225			
B	1	0.633449	0.633449	21.721	0.0431	0.15
RB	2	0.058325	0.029163			
AB	15	0.506988	0.033799	1.682	0.1098	0.24
RAB	30	0.602717	0.020091			

**ARM Action Codes**

AL = Automatic log transformation of X+1

DAA = Days after Application

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### Conclusions:

This trial was designed to screen a range of options for the management of Tarvine. 1<sup>st</sup> knock treatments were applied to a population of ~4 weeds/m<sup>2</sup> ranging from 6cm (1-9 leaves) to ~35cm diameter (flowering). The 2<sup>nd</sup> knock treatment was applied 7 days later to an 8m strip across the plots.

Burndown was assessed 8 days after the 2<sup>nd</sup> knock application. There were significant differences between the 1<sup>st</sup> knock treatments for burndown, with Gramoxone being the most efficacious at ~87%. The 2<sup>nd</sup> knock significantly improved burndown for all treatments. Glyphosate + Amicide Advance + Hasten followed by Gramoxone was rated as providing 100% burndown at 15 days after the initial application.

Final weed counts were taken at 42 days after the 1<sup>st</sup> knock (35 days after 2<sup>nd</sup> knock). By this time, all surviving weeds were regrowing. There were no significant differences between the 1<sup>st</sup> knock treatments, however the 2<sup>nd</sup> knock roughly halved the number of surviving weeds (~1.8 to ~0.9 weeds/m<sup>2</sup>).

In this trial, no option provided effective control of Tarvine. Gramoxone provided high levels of initial burndown but new plant material regrew from surviving root fragments.

Application Description		
	A	B
Application Date:	7/11/2019	14/11/2019
Application Start Time:	8:55 AM	12:00 PM
Application Stop Time:	11:45 AM	12:10 PM
Application Method:	SPRAY	
Application Placement:	FOLIAR	
Air Temperature, Unit:	25.5 C	33.7 C
% Relative Humidity:	22.3	16.3
Wind Velocity, Unit:	3.1 km/h	3.4 km/h
Wind Direction:	SW	NE
Dew Presence (Y/N):	No	
Soil Moisture:	DRY	
% Cloud Cover:	0	
Next Moisture Occurred On:	27/11/2019	27/11/2019

Application Equipment		
	A	B
Application Equipment:	Polaris	
Equipment Type:	BOOM	
Operation Pressure, Unit:	300 kPa	
Nozzle Type:	AIXR	
Nozzle Size:	110015	
Nozzle Spacing, Unit:	50 cm	
Nozzles/Row:	8	
Boom Length, Unit:	4 m	
Boom Height, Unit:	50 cm	
Ground Speed, Unit:	7.2 km/h	
Spray Volume, Unit:	100 L/ha	