Knockdown Control of Feathertop Rhodes Grass

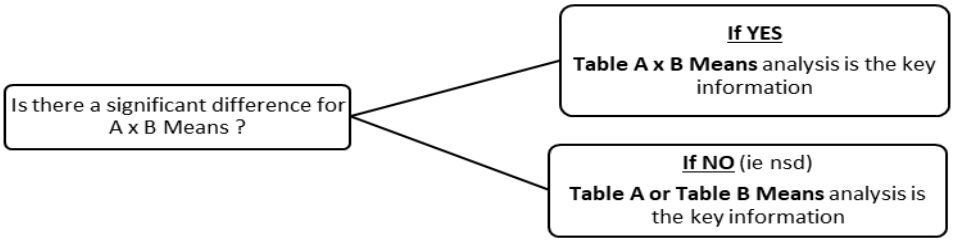
Trial ID: LB1804 **Location:** Bowenville **Trial Year:** 2018
Investigator: Linda Bailey

Objective:	**To evaluate the knockdown control of seedling Feathertop Rhodes grass**	
Situation:	**Fallow**	
Application:	**A** **First Knock**	**B** **Second Knock**
Application Date:	**12/11/2018**	**26/11/2018**
Application Timing:	**Late Post-emergent**	**14 Days after Application A**
Nozzles:	**AIXR 110015**	
Volume:	**100 L/ha**	
Weed:	**Feathertop Rhodes grass**	
Weed Stage at Application:	**Tillering, just prior to stem elongation, 30 cm high**	
Weed Population at Application:	**34 Plants/m^2**	
Keywords:	**Feathertop Rhodes grass, fallow, knockdown, double knock**	

NB: Trial was designed and analysed as a Strip Plot

	In Simple Terms
Table of A Means:	Mean of 'First knock' performance with **ALL** 'Second knock' treatments
Table of B Means:	Mean of 'Second knock' performance with **ALL** 'First knock' treatments
Table of A x B Means:	'First knock' performance with **EACH** 'Second knock' treatment

How to Interpret?



NB: Trial conducted on more advanced feathertop Rhodes grass than planned.

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Trt No.	Treatment	Product Rate	Appln. Code	5/12/2018 BURNDOWN % 23 DAA/ 9DAB	2/01/2019 Surviving COUNT /m² 51 DAA/ 37 DAB	2/01/2019 Regrowing COUNT /m² 51 DAA/ 37 DAB	2/01/2019 Panicles COUNT /m² 51 DAA/ 37 DAB
Pest Scientific Name				*Chloris virgata*			
Pest Name				Feathertop Rhodes Grass			
Assessment Date				5/12/2018	2/01/2019	2/01/2019	2/01/2019
Description					Surviving	Regrowing	Panicles
Assessment Type				BURNDOWN	COUNT	COUNT	COUNT
Assessment Unit				%	/m²	/m²	/m²
Treatment-Evaluation Interval				23 DAA/ 9DAB	51 DAA/ 37 DAB	51 DAA/ 37 DAB	51 DAA/ 37 DAB
ARM Action Codes							AA
TABLE OF A MEANS (First Knock)							
1	Glyphosate CT	1500ml/ha	A	59.2c	30.3-	28.7-	14.3ta
2	Verdict 520	150ml/ha	A	62.5c	31.2-	31.0-	4.2tb
	Uptake	0.5% v/v	A				
3	Verdict 520	150ml/ha	A	86.7a	28.5-	28.3-	0.7tb
	Glyphosate CT	1500ml/ha	A				
	Uptake	0.5% v/v	A				
4	Shogun	500ml/ha	A	74.2b	34.8-	28.7-	3.1tb
	Hasten	1% v/v	A				
5	Shogun	900ml/ha	A	90.8a	34.5-	32.3-	0.3tb
	Hasten	1% v/v	A				
6	Shogun	500ml/ha	A	76.7b	39.7-	38.2-	3.3tb
	Glyphosate CT	1500ml/ha	A				
	Hasten	1% v/v	A				
TABLE OF B MEANS (Second Knock)							
1	First knock only	-	-	54.2b	42.2-	39.7-	8.0ta
2	Gramoxone	2400ml/ha	B	95.8a	24.2-	22.7-	0.6tb
TABLE OF A x B MEANS (First Knock x Second Knock)							
1	Glyphosate CT	1500ml/ha	A	26.7e	36.7abcd	34.0-	21.5t-
1b	Glyphosate CT	1500ml/ha	A	91.7ab	24.0cde	23.3-	8.4t-
	Gramoxone	2400ml/ha	B				
2	Verdict 520	150ml/ha	A	30.0e	40.7ab	40.3-	11.6t-
	Uptake	0.5% v/v	A				
2b	Verdict 520	150ml/ha	A	95.0a	21.7de	21.7-	0.4t-
	Uptake	0.5% v/v	A				
	Gramoxone	2400ml/ha	B				
3	Verdict 520	150ml/ha	A	78.3c	35.7bcd	35.7-	2.9t-
	Glyphosate CT	1500ml/ha	A				
	Uptake	0.5% v/v	A				
3b	Verdict 520	150ml/ha	A	95.0a	21.3de	21.0-	0.0t-
	Glyphosate CT	1500ml/ha	A				
	Uptake	0.5% v/v	A				
	Gramoxone	2400ml/ha	B				
4	Shogun	500ml/ha	A	50.0d	51.7a	45.7-	12.0t-
	Hasten	1% v/v	A				
4b	Shogun	500ml/ha	A	98.3a	18.0e	11.7-	0.0t-
	Hasten	1% v/v	A				
	Gramoxone	2400ml/ha	B				
5	Shogun	900ml/ha	A	83.3bc	50.7ab	46.7-	0.4t-
	Hasten	1% v/v	A				
5b	Shogun	900ml/ha	A	98.3a	18.3e	18.0-	0.2t-
	Hasten	1% v/v	A				
	Gramoxone	2400ml/ha	B				

NB: LSD for Surviving FTR and Panicle counts at 10% level

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Pest Scientific Name / Pest Name / Assessment Date / Description / Assessment Type / Assessment Unit / Treatment-Evaluation Interval / ARM Action Codes				*Chloris virgata* Feathertop Rhodes Grass			
				5/12/2018 BURNDOWN % 23 DAA/ 9DAB	2/01/2019 Surviving COUNT /m² 51 DAA/ 37 DAB	2/01/2019 Regrowing COUNT /m² 51 DAA/ 37 DAB	2/01/2019 Panicles COUNT /m² 51 DAA/ 37 DAB AA
Trt No.	Treatment	Product Rate	Appln. Code				
6	Shogun	500ml/ha	A	56.7d	37.7abc	36.0-	8.6t-
	Glyphosate CT	1500ml/ha	A				
	Hasten	1% v/v	A				
6b	Shogun	500ml/ha	A	96.7a	41.7ab	40.3-	0.4t-
	Glyphosate CT	1500ml/ha	A				
	Hasten	1% v/v	A				
	Gramoxone	2400ml/ha	B				

NB: LSD for Surviving FTR and Panicle counts at 10% level

COMPLETE STRIP-BLOCK AOV
***Chloris virgata* - Feathertop Rhodes grass**
5/12/2018
BURNDOWN % 23 DAA 9 DAB

Source	DF	Sum of Squares	Mean Square	F	Prob.(F)	LSD (.05)
Total	35	24850.000000				
R	2	12.500000	6.250000	0.246	0.7866	
A	5	4783.333333	956.666667	21.064	0.0001	8.7
RA	10	454.166667	45.416667			
B	1	15625.000000	15625.000000	2500.000	0.0004	3.6
RB	2	12.500000	6.250000			
AB	5	3708.333333	741.666667	29.180	0.0001	9.2
RAB	10	254.166667	25.416667			

COMPLETE STRIP-BLOCK AOV For
***Chloris virgata* - Feathertop Rhodes Grass**
2/01/2019
SURVIVING /m² 51 DAA 37 DAB

Source	DF	Sum of Squares	Mean Square	F	Prob.(F)	LSD (.05)
Total	35	12823.000000				
R	2	1446.000000	723.000000	6.619	0.0148	
A	5	483.666667	96.733333	0.388	0.8465	20.3
RA	10	2496.333333	249.633333			
B	1	2916.000000	2916.000000	1.996	0.2933	54.8
RB	2	2922.000000	1461.000000			
AB	5	1466.666667	293.333333	2.685	0.0862	19.0
RAB	10	1092.333333	109.233333			

Knockdown Control of Feathertop Rhodes Grass

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COMPLETE STRIP-BLOCK AOV
***Chloris virgata* - Feathertop Rhodes grass**
2/01/2019
REGROWING /m² 51 DAA 37 DAB

Source	DF	Sum of Squares	Mean Square	F	Prob.(F)	LSD (.05)
Total	35	11371.638889				
R	2	1138.388889	569.194444	4.460	0.0413	
A	5	425.472222	85.094444	0.549	0.7365	16.0
RA	10	1550.277778	155.027778			
B	1	2618.027778	2618.027778	1.763	0.3155	55.3
RB	2	2970.388889	1485.194444			
AB	5	1392.805556	278.561111	2.183	0.1374	20.6
RAB	10	1276.277778	127.627778			

COMPLETE STRIP-BLOCK AOV
***Chloris virgata* - Feathertop Rhodes Grass**
2/01/2019
PANICLES /m² 51 DAA 37 DAB AA

Source	DF	Sum of Squares	Mean Square	F	Prob.(F)	LSD (.05)
Total	35	4421.869891				
R	2	34.302900	17.151450	0.291	0.7534	
A	5	1341.104206	268.220841	3.297	0.0512	11.6
RA	10	813.523828	81.352383			
B	1	1271.963253	1271.963253	45.191	0.0214	7.6
RB	2	56.292847	28.146424			
AB	5	316.092397	63.218479	1.074	0.4298	14.0
RAB	10	588.590461	58.859046			

Assessment Type
BURNDOWN = % Burndown/brown out
ARM Action Codes
AA = Automatic arcsine square root % transformation

DAA = Days after Application A
DAB = Days after Application B

Application Description		
	A	B
Application Date:	12/11/2018	26/11/2018
Application Start Time:	10:55 AM	10:30 AM
Application Stop Time:	2:00 PM	11:30 AM
Application Method:	SPRAY	
Application Placement:	FOLIAR	
Air Temperature, Unit:	30 C	29 C
% Relative Humidity:	27	27
Wind Velocity, Unit:	6 km/h	11 km/h
Wind Direction:	E	SW
Dew Presence (Y/N):	No	
Soil Moisture:	DRY	
% Cloud Cover:	0	5
Next Moisture Occurred On:	17/11/2018	28/11/2018

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Pest Stage at Each Application		
	A	B
Pest:	*Chloris virgata* Feathertop Rhodes Grass	
Stage Majority, %:	29 80%	
Stage Minimum, %:	22 15%	
Stage Maximum, %:	31 5%	
Diameter, Unit:	30 cm	
Density, Unit:	34 m^2	

Application Equipment		
	A	B
Appl. 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:	60 cm	
Ground Speed, Unit:	7.2 km/h	
Spray Volume, Unit:	100 L/ha	

Conclusions:

This trial was designed to evaluate options for the knockdown control of feathertop Rhodes grass (FTR). The first knock was applied to a population of 34 FTR/m^2 at ~GS29 (tillering prior to stem elongation). A second knock of Gramoxone at 2400 mL/ha was applied 14 days later.

When burndown was assessed at 23 DAA there was a significant interaction between 1st and 2nd knock treatments. Where no second knock had been applied, differences between first knock treatments were apparent. Shogun at 900 mL/ha + Hasten and Verdict 150 mL/ha + Glyphosate CT 1500 mL/ha + Uptake provided significantly more burndown than all other first knock options. However there were no significant differences when a second knock of Gramoxone 2400 mL/ha was applied. All treatments were rated in excess of 90% burndown.

Surviving plant counts were taken four weeks later. Nearly all surviving plants were regrowing at 51 DAA with no apparent difference between treatments. There was no significant difference in counts between Glyphosate CT 1500 mL/ha alone and any other first knock treatment. However there was an apparent trend (p=0.10) for improved control when either Verdict or Shogun alone were followed with Gramoxone. There was no improvement in control when treatments containing Glyphosate CT were followed with Gramoxone.

The second knock reduced the number of panicles present by >90% overall. Differences between 1st knock treatments were only significant at p=0.10. Glyphosate CT alone was significantly poorer than all other first knock treatments.

In this situation, no option provided effective control of a dense population of FTR when applied at the end of tillering. The results however reinforced that Group A herbicides (Verdict or Shogun) followed by a second knock of Gramoxone provide improved suppression of FTR compared to Glyphosate alone. The results also reinforced the benefit from a second knock of Gramoxone.