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Feathertop Rhodes grass in Sorghum

Trial ID: BB2414

Protocol ID: MCA2403 Location: Kioma

Trial Year: 2024/25

Study Director: Lawrie Price

Objectives:

To demonstrate the efficacy of Dual Gold and Valor EZE applications for control of feathertop Rhodes grass in sorghum in the Goondiwindi region

Materials and Methods:

Initial treatments were applied on August 8th 2024, in a fallow paddock intended to be planted to grain sorghum in October. Treatments of Dual Gold or Valor EZE were applied at 100 L/ha using a 4 metre boom mounted on a Polaris Ace. The boom was equipped with 8 AIXR nozzles at 50 cm spacing. Operating pressure was 300 kPa

On September 16th a count was made of feathertop Rhodes grass seedlings which had germinated following 67 mm of rainfall between 4 and 8 days after the first application. Four days after this assessment, these weeds were killed by applying Biffo at 10L/ha.

The site was planted to Concep treated grain sorghum cv. MR Acclaim on October 4th. The sorghum row spacing was 1.5metres. The second herbicide timing applications were made to many of the plots immediately after planting.

Sorghum establishment counts were made on October 14th when the sorghum was of 1 - 2 leaves.

A third herbicide timing was on October 25 when the majority of sorghum plants were at 4 leaf.

Counts of weed seedlings were made on December 10 and January 8.



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Results:

Assessment Date			16/09/2024	14/10/2024	3/12/2024
Description			FTR/m ²	Sorghum plants/m row	FTR/m ²
Crop Name				Sorghum	
Crop Variety				MR Acclaim	
Pest Name			Feathertop Rhodes grass		Feathertop Rhodes grass
Planting Interval			-18 DP-1	10 DP-1	60 DP-1
Trt	Treatment				
No.	Name	Timing			
1	Untreated		3.4 a	5.6 -	1.0 na
2	Dual Gold 1L	August 8th	0.0 b	6.8 -	0.0 na
3	Dual Gold 1L fb Dual Gold 1L	August 8th fb PSPE		5.7 -	0.0 na
4	Dual Gold 1L fb Dual Gold 1L	August 8th fb 4 leaf		6.8 -	0.0 na
5	Dual Gold 1L fb Dual Gold 1L	PSPE fb 4 leaf		7.0 -	0.0 na
6	Dual Gold 1L	PSPE		6.3 -	0.0 na
7	Dual Gold 2L	PSPE		5.3 -	0.0 na
8	Valor EZE 0.22L	August 8th	0.0 b	6.8 -	0.0 na
9	Valor EZE 0.29L	August 8th	0.3 b	5.3 -	0.0 na
10	Valor EZE 0.22L + Dual Gold 1L	August 8th	0.0 b	6.8 -	0.0 na
11	Valor EZE 0.22L fb Dual Gold 1L	August 8th fb PSPE		5.9 -	0.0 na
12	Valor EZE 0.22L fb Dual Gold 1L	August 8th fb 4 leaf		6.1 -	0.0 na
13	Valor EZE 0.22L fb Dual Gold 1L fb Dual Gold 1L	August 8th fb PSPE fb 4 leaf		5.7 -	0.0 na
LSD P=.05			1.6	1.82	.
CV			112.62	17.59	0
Treatment Prob(F)			0.004	0.486	-



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Assessment Date			8/1/2025	8/01/2025	8/01/2025	8/01/2025
Description			FTR/m ²	FTR Panicles/m ²	Fleabane/m ²	Sowthistle/m ²
Crop Name						
Crop Variety						
Pest Name			Feathertop Rhodes grass	Feathertop Rhodes grass	Flaxleaf Fleabane	Common Sowthistle
Planting Interval			96 DP-1	96 DP-1	96 DP-1	96 DP-1
Trt	Treatment					
No.	Name	Timing				
1	Untreated		0.6 a	0.6 -	0.2 -	0.2 a-d
2	Dual Gold 1L	August 8th	0.4 ab	0.0 -	0.3 -	0.4 a
3	Dual Gold 1L fb Dual Gold 1L	August 8th fb PSPE	0.0 c	0.0 -	0.2 -	0.1 c-f
4	Dual Gold 1L fb Dual Gold 1L	August 8th fb 4 leaf	0.0 c	0.1 -	0.2 -	0.2 abc
5	Dual Gold 1L fb Dual Gold 1L	PSPE fb 4 leaf	0.2 bc	1.0 -	0.3 -	0.2 a-e
6	Dual Gold 1L	PSPE	0.1 c	0.4 -	0.1 -	0.4 ab
7	Dual Gold 2L	PSPE	0.5 ab	2.5 -	0.5 -	0.2 abc
8	Valor EZE 0.22L	August 8th	0.3 bc	0.3 -	0.1 -	0.1 b-f
9	Valor EZE 0.29L	August 8th	0.2 bc	0.0 -	0.3 -	0.0 fg
10	Valor EZE 0.22L + Dual Gold 1L	August 8th	0.1 c	0.0 -	0.1 -	0.0 efg
11	Valor EZE 0.22L fb Dual Gold 1L	August 8th fb PSPE	0.1 c	0.4 -	0.2 -	0.0 efg
12	Valor EZE 0.22L fb Dual Gold 1L	August 8th fb 4 leaf	0.1 c	0.2 -	0.2 -	0.0 d-g
13	Valor EZE 0.22L fb Dual Gold 1L fb Dual Gold 1L	August 8th fb PSPE fb 4 leaf	0.0 c	0.0 -	0.1 -	0.0 g
LSD P=.05			0.33	1.36	0.38 - 0.40	0.11 - 0.29
CV			99.19	187.91	55.49t	48.05t
Treatment Prob(F)			0.0071	0.057	0.7851	0.0008



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Conclusions:

Counts of Feathertop Rhodes grass (FTR) seedlings on September 16 showed both Dual Gold and Valor to significantly reduce weed establishment during the fallow. In fallow plots there was an average of 3.4 FTR seedlings/m2

The sorghum establishment assessment showed no effects from any of the herbicide treatments.

Only 1 FTR seedling/m2 was found in untreated plots, in the early December assessment despite over 100mm of rain falling in mid-November. No FTR seedlings were observed in any of the treated plots.

The counts on January 8th revealed significant differences in efficacy between herbicide treatments. Only 0.4 FTR seedlings /m2 were found in untreated plots but treatments which included a Valor EZE application significantly reduced FTR and Sowthistle seedling numbers. For Dual Gold, control tended to be better where split applications had been applied.

There appeared to be poor control of FTR where Dual Gold had been applied at planting. This could perhaps be explained by the lack of rain after application. There was a fall of 5mm at 5 days after the application, but no more rain fell until mid-November. It appears that the 5mm was insufficient rain to activate the Dual Gold.

Numbers of flaxleaf fleabane were counted but the size of the weeds indicates that they were survivors of the pre plant knockdown sprays.

Appendices:

Crop Description			
Crop 1:C	SORVU Sorghum bicolor	Sorghum	BBCH Scale: BGRM
	Entry Date: Jul-31-2024	Stage Scale: BBCH	
	Variety: MR Acclaim		
	Attributes: Single skip sorghum Planting 71, 400 s/ha		
	Planting Date: Oct-4-2024	Planting Rate: 2.1	kg/ha
	Depth: 5 cm		
	Rows per Plot: 8	Planting Method: DIRDRI	direct drilled
	Row Spacing: 150 cm	Planting Equipment: DDISC	Double Disc Planter
	Spacing within Row: 10.7 cm	Seed Bed: FRIABL	friable
		Soil Moisture: SLIWET	slightly wet, moist

Pest Description		
Pest 1 Type: W	Code: CHRVl Chloris virgata	
	Common Name: Feathertop Rhodes Grass	Stage Scale: BBCH

Site and Design			
Treated Plot Width: 4	m	Site Type: FALLOW	fallow land - suitable for crops but left unseeded
Treated Plot Length: 12	m	Experimental Unit: 1 PLOT	plot
Treated Plot Area: 48.0	m2	Tillage Type: NOTILL	no-till
Replications: 3		Study Design: RACOB	Randomized Complete Block (RCB)
Treatments: 13			
Plots: 39			
Distance between Blocks: 1	m		
Distance between 'Plot' Experimental Units: 0	m		

Previous crop: Wheat 2023



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Weather Conditions

Rainfall

No.	Date	Moisture Total	Unit
1.	Aug-12-2024	2	mm
2.	Aug-13-2024	8	mm
3.	Aug-14-2024	45	mm
4.	Aug-15-2024	12	mm
5.	Sep-27-2024	7	mm
6.	Sep-28-2024	4	mm
7.	Oct-9-2024	5	mm
8.	Nov-13-2024	14.5	mm
9.	Nov-15-2024	63	mm
10.	Nov-18-2024	24.5	mm
11.	Nov-21-2024	37	mm
12.	Nov-30-2024	12	mm
13.	Dec-5-2024	9.5	mm
14.	Dec-18-2024	42	mm
15.	Dec-19-2024	37	mm
16.	Dec-27-2024	28	mm
17.	Dec-31-2024	8	mm
	Total	358.5	mm

Application Description

	A	B	C
Date	Aug-8-2024	Oct-4-2024	Oct-25-2024
Start Time	1:45 PM	11:30 AM	8:30 AM
Stop Time	3:00 PM	12:00 PM	8:50 AM
Interval to Prev. Appl.		57 DAYS	21 DAYS
Standard	PRNI	PRNI	PRNI
Method	SPRAY	SPRAY	SPRAY
Timing	PREPLA	PSPE	POSPRE
Placement	BROADC	BROADC	BROADC
Mixed/Prepared By	Brendan Burton	Brendan Burton	Brendan Burton
Applied By	Brendan Burton	Brendan Burton	Brendan Burton
Entry Date	Aug-8-2024	Oct-4-2024	Oct-26-2024
Air Temperature Start, Stop	23, 23.2 C	27.6, 27.5 C	20.8, 20.8 C
% Relative Humidity Start, Stop	45.7, 41.1	33.9, 30.5	27.5, 26
Wind Velocity+Dir. Start	7.1 KPH, E	2.7 KPH, N	13.8 KPH, S
Wind Velocity+Dir. Stop	2 KPH, E	1.9 KPH, N	15.2 KPH, S
Wet Leaves (Y/N)	N, no	N, no	N, no
Soil Moisture	SLIWET	DRY	DRY
% Ground Cover	40	40	40
% Cloud Cover	0	0	0
Time to First Moisture	4.0 DAY	5.0 DAY	19.0 DAY
Amount of First Moisture	2 mm	5 mm	14.5 mm

Crop Stage At Each Application

	A	B	C
Crop 1 Code, BBCH Scale	SORVU, BGRM	SORVU, BGRM	SORVU, BGRM
Stage Scale Used	BBCH	BBCH	BBCH
Stage Majority, Percent			21, -
Stage Minimum, Percent			14, -
Stage Maximum, Percent			22, -
Height Average			15 cm
Height Minimum, Maximum			10, 18



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Application Equipment

	A	B	C
Equipment Name	Quadbike	Quadbike	Quadbike
Equipment Type	BOOM	BOOM	BOOM
Operation Pressure	300 kPa	300 kPa	300 kPa
Nozzle Model	110015	110015	110015
Nozzle Type	AIXR	AIXR	AIXR
Nozzle TradeName	TeeJet	TeeJet	TeeJet
Nozzle Tip Size, Color	015, Green	015, Green	015, Green
Nozzle Spacing	50 cm	50 cm	50 cm
Nozzle Count	8	8	8
Spray Swath	4 m	4 m	4 m
% Coverage	100	100	100
Boom Length	4 m	4 m	4 m
Boom Height	50 cm	50 cm	50 cm
Ground Speed	7 KPH	7 KPH	7 KPH
Carrier	WATER	WATER	WATER
Application Amount	100 L/ha	100 L/ha	100 L/ha
Mix Overage	3560.0 mL	3560.0 mL	3560.0 mL
Mix Size	5 L	5 L	5 L
Tank Mix (Y/N)	N, no	N, no	N, no