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## Residual Control of Paradoxa Grass in Wheat

<b>Trial ID:</b> DH2202	<b>Location:</b> Burren Junction	<b>Trial Year:</b> 2022
	<b>Investigator:</b> Dean Hancock	

Paradoxa grass (*Phalaris paradoxa*) is an important weed of winter crops, particularly in seasons when wet conditions occur in late autumn and early winter. Improved understanding of the potential for residual paradoxa grass management is needed due to increasing levels of Group 1 (A) and 2 (B) post-emergent herbicide resistance.

This project evaluated a range of residual herbicides with existing registrations for use in wheat. Three of the herbicides have paradoxa grass control claims when applied at planting in wheat: Sakura, TriflurX and Mateno Complete and Overwatch has a suppression claim.

<b>Objective:</b>	To evaluate herbicide options for residual control of <i>Phalaris paradoxa</i> in cereals	
<b>Situation:</b>	Wheat	
<b>Planting Date:</b>	5/07/2022	
<b>Equipment:</b>	Direct drilled with a tyne planter on 33 cm row spacings at a depth of 5 cm at 45 kg/ha	
<b>Weed:</b>	Paradoxa grass	
<b>Application:</b>	A	B
<b>Application Date:</b>	1/07/2022	1/09/2022
<b>Application Description:</b>	Incorporated by sowing (IBS) 4 days after application	In-crop
<b>Crop Stage at Application:</b>	Pre-plant	~3 tiller stage
<b>Weed Stage at Application:</b>	Pre-emergent	~2 leaf stage
<b>Volume:</b>	100 L/ha	
<b>Nozzles:</b>	AIXR11002	
<b>Trial Design:</b>	Randomised complete block, 14 treatment x 4 replicates	
<b>Plot Size:</b>	4m x 12m	
<b>Keywords:</b>	Wheat, phalaris, residual	

Sowing and trial establishment was delayed due to ~90 mm of rain being received during May. Although the site was selected on the history of paradoxa grass management issues, the delayed commencement of the trial is likely to have missed the first cohorts of paradoxa grass emergence. An emergence of paradoxa grass, wild oats and volunteer cereals were controlled with a fallow application of glyphosate one day prior to sowing.

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Pest Scientific Name				Wheat 2/08/2022 EMERGENCE /m <sup>2</sup> 4 m row 32 DAA 28 DAP	<i>Phalaris paradoxa</i> Paradoxa Grass  1/09/2022 COUNT /m <sup>2</sup> 4 x 0.5 m <sup>2</sup> 62 DAA 58 DAP
Pest Name					
Crop Name					
Assessment Date					
Assessment Type					
Assessment Unit					
Assessment Area					
Treatment-Evaluation Interval					
Plant-Evaluation Interval					
Trt No.	Treatment	Product Rate	Appln. Code		
1	Untreated	-	-	65bcd	1.3-
2	Sakura	118g/ha	A	67bc	0.0-
3	Boxer Gold	2500ml/ha	A	75ab	1.0-
4	TriflurX	1500ml/ha	A	67bcd	0.0-
5	Avadex Xtra	1600ml/ha	A	63bcd	0.0-
	TriflurX	1500ml/ha	A		
6	Rifle 440	1350ml/ha	A	63bcd	0.0-
7	Luximax	500ml/ha	A	53d	0.0-
8	Overwatch	1250ml/ha	A	76ab	0.0-
9	Bolta Duo	3000ml/ha	A	57cd	1.5-
10	Diablo Duo	3000ml/ha	A	59cd	0.0-
11	Arcade	3000ml/ha	A	68bc	0.0-
12	Mateno Complete	1000ml/ha	A	64bcd	0.0-
13	Arcade *	3000ml/ha	B	83a	0.0-
14	Mateno Complete *	1000ml/ha	B	71abc	0.5-
LSD P=.				14.1	nsd
Treatment Prob.(F)=				0.0127	0.4191

Means followed by same letter or symbol 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.

nsd = no significant difference

\* Treatments 13 and 14 were unsprayed when both assessments were conducted

DAA = Days after Application A

DAP = Days after Planting

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### Conclusions:

This trial was conducted at “Old Burren” in North-Western NSW. All herbicides were applied and incorporated by sowing (IBS) 4 days later with Arcade and Mateno Complete also applied when the crop was at the 3 tiller stage.

Sowing was extremely delayed due to wet conditions with a total of 93 mm received in May when the trial was planned to commence. At planting treatments were applied on the 1<sup>st</sup> of July 2022 and incorporated by sowing (IBS) 4 days later. Sowing was conducted with a knife point, press wheel planter (on 33 cm row spacing) at a sowing depth of ~5 cm. Soil conditions were generally good for sowing except in the controlled traffic wheel tracks. First rainfall was received within hours of sowing (~7.5mm) which may have impacted on crop emergence in the wheel tracks.

An assessment of wheat establishment was conducted 28 days after planting (28 DAP). Establishment was variable with untreated plots (treatments 1, 13 and 14) having 65-83 plants/m<sup>2</sup>. There was no significant difference in wheat emergence between any treatment and the untreated. However, Luximax, Bolta Duo and Diablo Duo all had significantly lower establishment counts than Boxer Gold, Overwatch and treatment 13.

A count of emerged weeds was conducted 62 days after application (62 DAA). Paradoxa grass counts were very low with no significant difference between any treatment. Paradoxa grass was only found in the untreated, Boxer Gold and Bolta Duo plots. The post-emergent treatments 13 and 14 were applied at this time.

The site was inundated by flood waters in October and no further assessments could be made. No useful efficacy data was generated in this trial.

Application Description		
	A	B
Application Date:	1/07/2022	1/09/2022
Application Start Time:	11:50 AM	11:00 AM
Application Stop Time:	2:00 PM	11:15 AM
Interval to Previous Application:		62 DAYS
Application Method:	SPRAY	
Application Timing:	IBS	EARLY POST-EM
Application Placement:	SOIL	PLANT
Air Temperature Start, Stop:	16.4, 17.5 C	24.5, 24.5 C
% Relative Humidity Start, Stop:	66.6, 64.7	54.5, 54.5
Wind Velocity & Direction Start:	5.2 km/h, SE	4.5 km/h, NW
Wind Velocity & Direction Stop:	6.3 km/h, SE	4.5 km/h, NW
Soil Moisture:	SLIWET	NORMAL
% Cloud Cover:	80	50
First Moisture Occurred On:	6/07/2022	2/09/2022
Moisture 1 Week after Application:	20 mm	

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Crop Stage at Each Application		
	A	B
Stage Majority, %:	Pre-plant	3 tiller, 70%
Stage Minimum, %:		2 tiller, 10%
Stage Maximum, %:		4 tiller, 20%

Pest Stage at Each Application		
	A	B
Stage Majority, %:	Pre-emergent, 100%	2 leaf, 80%
Stage Minimum, %:		1 leaf, 10%
Stage Maximum, %:		3 leaf, 10%
Height Average:		5 cm

Application Equipment		
	A	B
Application Equipment:	Polaris	
Equipment Type:	BOOM	
Operation Pressure:	400 kPa	
Nozzle Type:	AIXR11002	
Nozzle Spacing:	50 cm	
Boom Length	4 m	
Boom Height	50 cm	
Ground Speed	11 km/h	
Application Amount	100 L/ha	

### Rainfall:

Closest Weather Station:	Old Burren Station
Distance:	4 km

Month	Amount	Unit	Comments
31/01/2022	135	mm	Monthly total
28/02/2022	61	mm	Monthly total
31/03/2022	40	mm	Monthly total
30/04/2022	19	mm	Monthly total
31/05/2022	93	mm	Monthly total
30/06/2022	15	mm	Monthly total
31/07/2022	7	mm	Monthly total
31/08/2022	66	mm	Monthly total
30/09/2022	137	mm	Monthly total
31/10/2022	138	mm	Monthly total