Residual Control of Paradoxa Grass in Wheat

Trial ID: **DH2302** **Location:** **Edgeroi** **Trial Year:** **2023**
Investigator: **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 Group 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.

Objective:	**To evaluate options for the residual control of *Phalaris paradoxa* in wheat**
Crop & Hybrid:	**Wheat cv. LRPB Lancer**
Planting Date:	**5/05/2023**
Planting Details:	**Tyne planter on 37.5 cm row spacings and 40 kg/ha planting rate**
Application Date:	**3/05/2022**
Application Timing:	**IBS (Incorporated by sowing)**
Nozzles:	**AIXR11002**
Volume:	**100 L/ha**
Trial Design:	**Randomised complete block of 12 treatments x 4 replicates**
Plot Size:	**4 m x 9 m**
Keywords:	**Wheat, phalaris, paradoxa grass, residual**

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Crop Name			**Wheat**		
Crop Variety			**LRPB Lancer**		
Pest Scientific Name				***Phalaris paradoxa***	
Pest Name				**Paradoxa Grass**	
Assessment Date			**15/06/2023**	**18/07/2023**	
Assessment Type			**EMERGENCE**	**COUNT**	**CONTROL**
Assessment Unit			**/m²**	**/m²**	**%**
Assessment Area			**4 m row**	**4 x 0.25 m²**	**4 x 0.25 m²**
Treatment-Evaluation Interval				**76 DAA**	**76 DAA**
Plant-Evaluation Interval			**41 DAP**		
ARM Action Codes				**AL ER4**	**AL ER4**
Trt No.	**Treatment**	**Product Rate**			
1	Untreated	-	45-	16.6a	-
2	Sakura	118g/ha	55-	0d	100
3	Boxer Gold	2500ml/ha	61-	0.8bcd	95
4	TriflurX	1500ml/ha	57-	0.8bcd	95
5	Avadex Xtra TriflurX	1600ml/ha 1500ml/ha	53-	0.4cd	97
6	Rifle 440	1350ml/ha	53-	0.6cd	96
7	Luximax	500ml/ha	57-	0.6cd	96
8	Overwatch	1250ml/ha	53-	2.0bc	88
9	Diablo Duo	3000ml/ha	62-	1.2bcd	93
10	Arcade	3000ml/ha	52-	3.4b	80
11	Valor	120g/ha	51-	2.3bc	86
12	Mateno Complete	1000ml/ha	49-	0.6cd	96
		LSD P=.05	nsd	2.52 - 11.17	n/a
		Treatment Prob.(F)=	0.7599	0.001	n/a

Means followed by same letter or symbol (-) do not significantly differ (P=.05, LSD).
nsd – no significant difference
Mean comparisons performed only when AOV Treatment P (F) is significant at mean comparison OSL.
NB: A weed count of 0 = no surviving weeds were found in any plot

ARM Action Codes
ER4 = Excluded replicate 4 (negligible weed pressure)
AL = Automatic log transformation of X+1

DAA = Days after Application A
DAP = Days after Planting

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Conclusions:

This trial was conducted near Edgeroi in North-Western NSW. All treatments were applied and incorporated by sowing (IBS) with a tyned planter two days later.

The first rainfall received after planting was ~6 mm at 35 DAP (35 days after planting) with only ~50 mm in total over the 10 week trial duration.

Wheat emergence was assessed at 41 DAP. There was no significant difference in emergence between treatments with the untreated having the lowest mean emergence (45/m^2). There was no indication of visual crop effects from any herbicide. There were no weeds present at this assessment.

Counts of paradoxa grass were made at 76 DAA (76 days after application A). Paradoxa grass was present in untreated plots at ~17/m^2. All herbicide treatments significantly reduced paradoxa grass counts. Overwatch, Arcade and Valor provided useful paradoxa grass suppression but only reduced counts by ~80-90%. Sakura provided complete control in this situation and had significantly increased control compared to Overwatch, Arcade and Valor. Both treatments that included TriflurX at 1500 mL/ha provided at least 95% control.

In this situation, with dry conditions from April to July, Sakura, TriflurX and Mateno Complete all provided 95-100% paradoxa grass control. These three herbicides currently appear the best options for paradoxa grass control in wheat. Of the other new herbicides evaluated, Luximax provided encouraging activity. The level of suppression from Overwatch was unlikely to have been commercially acceptable under heavier weed densities.

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Application Description	
Application Date:	3/05/2023
Application Start Time:	12:30 PM
Application Stop Time:	2:40 PM
Air Temperature Start, Stop:	23.8, 25.2 C
% Relative Humidity Start, Stop:	37.7, 30.8
Wind Velocity & Direction Start:	13.7 km/h, W
Wind Velocity & Direction Stop:	9.6 km/h, W
Wet Leaves (Y/N):	No
Soil Moisture:	NORMAL
% Cloud Cover:	0
First Moisture Occurred On:	9/03/2023

Application Equipment	
Application Equipment:	Polaris
Equipment Type:	BOOM
Operation Pressure:	400 kPa
Nozzle Model:	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:	On farm
Distance:	3 km

Date	Amount	Unit	Comments
31/01/2023	63	mm	Monthly Total
28/02/2023	36	mm	Monthly Total
31/03/2023	90	mm	Monthly Total
30/04/2023	7	mm	Monthly Total
3/05/2023	-		Application
5/05/2023	-		Wheat planting
31/05/2023	0	mm	Monthly Total
9/06/2023	6	mm	
13/06/2023	7	mm	
15/06/2023	-		Assessment 1 - wheat emergence
23/06/2023	19	mm	
28/06/2023	3	mm	
4/07/2023	15	mm	
18/07/2023	-		Assessment 2 - weed counts