

Disclaimer:

This document is based on the results from an individual trial and may contain experimental use patterns that are currently off-label. **This document does not provide any interpretation and should not be taken as an endorsement of any unregistered use pattern.** Professional advice should be sought for specific recommendations to ensure access to the most up to date information and knowledge. **Any product referred to in this document must be used strictly as directed, and in accordance with all label or permit instructions. Always consult the label prior to use.**

Wild Oat Management in Chickpeas: The Impact of Pre-Emergent Herbicides, Soil Levelling and Post-Emergent Herbicide Strategies

Trial ID: LB2006 **Location:** Millmerran **Trial Year:** 2020
Investigator: Linda Bailey

This trial was primarily designed to screen recent residual herbicide registrations in chickpeas for wild oat efficacy. The residual herbicides were evaluated in both the presence and absence of soil levelling, conducted shortly after planting. Soil levelling is a relatively common practice in chickpeas with potential benefits for both herbicide crop safety as well as for crop harvestability. Where chickpeas are planted in deep furrows, without levelling, pods may be produced too close to the actual ground level to be effectively harvested. The aim was to identify whether soil levelling had any impact on the residual herbicide wild oat efficacy or crop safety.

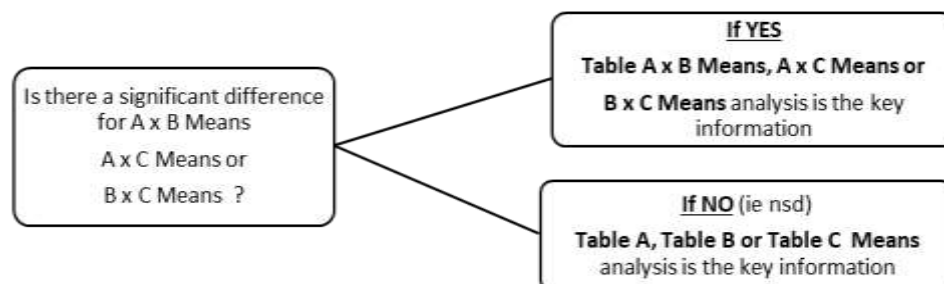
Industry observation has also indicated that wild oats surviving a residual herbicide treatment may be more difficult to control with post-emergent herbicides. The trial design allowed for an analysis of the impact of the residual herbicide on efficacy of the post-emergent application.

Objective:	To evaluate the combined impact of residual herbicides, soil levelling and post emergent options for wild oat efficacy		
Crop & Variety:	Chickpeas PBA Seamer		
Planting Date:	6/6/2020		
Planting Details:	55 kg/ha seed planted at 8cm depth using an Excel Stubble Warrior tyne planter on 50cm spacing. Levelling conducted using Kelly chains		
Application:	A (IBS)	B (Early Post Emergent)	C (Late Post Emergent)
Application Date:	05/06/2020	04/08/2020	21/08/2020
Crop Growth Stage at Application:	Pre-emergence	12 nodes	19 nodes
Weed:	Wild Oats		
Weed Stage at Application:	Pre-emergence	2 tillers	2 nodes
Weed Population at Application:	-	5/m ²	
Nozzles:	AIXR110015		
Volume:	100 L/ha		
Keywords:	Wild oats, chickpeas, residual, soil levelling, post emergent		

Trial designed & analysed as a Split Plot

	In Simple Terms
Table of A Means:	Mean of 'Pre-emergent' performance with ALL 'Levelling' and 'Post-emergent' treatments
Table of B Means:	Mean of 'Levelling' performance with ALL 'Pre-emergent' and 'Post-emergent' treatments
Table of C Means:	Mean of 'Post-emergent' performance with ALL 'Levelling' and 'Pre-emergent' treatments
Table of A x B Means:	'Pre-emergent' performance with EACH 'Levelling' treatment
Table of A x C Means:	'Pre-emergent' performance with EACH 'Post-emergent' treatment
Table of B x C Means:	'Levelling' performance with EACH 'Post-emergent' treatment

How to interpret?



Wild Oat Management in Chickpeas: The Impact of Pre-Emergent Herbicides, Soil Levelling and Post-Emergent Herbicide Strategies

Trial ID: LB2006 Location: Millmerran Trial Year: 2020

Please note: All named products in the table below are registered for use in chickpeas at planting, at the rates applied. Avadex Xtra and Rustler are registered for wild oat control, Sakura, TriflurX and Rifle 440 are registered for wild oat suppression.

Key analysis is highlighted in grey

Table 1 - Chickpea and wild oat emergence counts, prior to application of post-emergent treatments

Pest Scientific Name			Chickpea PBA Seamer 29/06/2020 EMERGENCE /m ² 05 V3 24 DAA 23 DAP AL	Avena spp. Wild Oats 6/07/2020 COUNT /m ² 31 DAA 30 DAP AL
Pest Name				
Crop Name				
Crop Variety				
Assessment Date				
Assessment Type				
Assessment Unit				
Crop Stage Majority				
Treatment-Evaluation Interval				
Plant-Evaluation Interval				
ARM Action Codes				
Trt No.	Treatment	Product Rate		
TABLE OF A MEANS (Pre-emergent)				
1	Untreated	-	21.8t-	5.0ta
2	Sakura	118g/ha	21.9t-	0.5tcd
3	Boxer Gold	2500ml/ha	23.6t-	0.5tcd
4	Experimental 1	1800ml/ha	21.9t-	0.3td
5	Avadex Xtra	1600ml/ha	21.7t-	1.1tbcd
6	TriflurX	1700ml/ha	23.9t-	1.3tbc
7	Avadex Xtra TriflurX	1600ml/ha 1700ml/ha	22.1t-	0.3tcd
8	Outlook	1000ml/ha	21.7t-	2.4tab
9	Rustler	1000ml/ha	23.8t-	1.0tbcd
10	Rifle 440	2500ml/ha	23.5t-	0.3tcd
11	Ultro	1100g/ha	22.2t-	0.2td
12	Experimental 2	1250ml/ha	23.1t-	3.4ta
TABLE OF B MEANS (Levelling)				
1	Unlevelled		23.1t-	0.6t-
2	Levelled		22.0t-	1.6t-
TABLE OF A x B MEANS (Pre-emergent x Levelling)				
1a	Untreated, Unlevelled	-	23.2t-	3.4ta-d
1b	Untreated, Levelled	-	20.5t-	7.2tab
2a	Sakura, Unlevelled	118g/ha	22.5t-	0.4tgh
2b	Sakura, Levelled	118g/ha	21.3t-	0.5tgh
3a	Boxer Gold, Unlevelled	2500ml/ha	23.6t-	0.5tgh
3b	Boxer Gold, Levelled	2500ml/ha	23.5t-	0.5tgh
4a	Experimental 1, Unlevelled	1800ml/ha	22.8t-	0.2th
4b	Experimental 1, Levelled	1800ml/ha	21.1t-	0.4tgh
5a	Avadex Xtra, Unlevelled	1600ml/ha	21.1t-	0.6tfgh
5b	Avadex Xtra, Levelled	1600ml/ha	22.4t-	1.7tc-g
6a	TriflurX, Unlevelled	1700ml/ha	24.0t-	0.2tgh
6b	TriflurX, Levelled	1700ml/ha	23.9t-	3.3tb-e
7a	Avadex Xtra, Unlevelled TriflurX	1600 ml/ha 1700 ml/ha	23.3t-	0.6tfgh
7b	Avadex Xtra, Levelled TriflurX	1600 ml/ha 1700 ml/ha	21.0t-	0.1th
8a	Outlook, Unlevelled	1000 ml/ha	23.3t-	1.2td-h
8b	Outlook, Levelled	1000 ml/ha	20.2t-	4.3tabc

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.

Wild Oat Management in Chickpeas: The Impact of Pre-Emergent Herbicides, Soil Levelling and Post-Emergent Herbicide Strategies

Trial ID: LB2006

Location: Millmerran

Trial Year: 2020

Table 1 - Chickpea and wild oat emergence counts, prior to application of post-emergent treatments (continued)

Pest Scientific Name			Chickpea PBA Seamer 29/06/2020 EMERGENCE /m ² 05 V3 24 DAA 23 DAP AL	Avena spp Wild Oats 6/07/2020 COUNT /m ² 31 DAA 30 DAP AL
Pest Name				
Crop Name				
Crop Variety				
Assessment Date				
Assessment Type				
Assessment Unit				
Crop Stage Majority				
Treatment-Evaluation Interval				
Plant-Evaluation Interval				
ARM Action Codes				
Trt No.	Treatment	Product Rate		
9a	Rustler, Unlevelled	1000ml/ha	23.7t-	0.1th
9b	Rustler, Levelled	1000ml/ha	23.8t-	2.6tb-f
10a	Rifle 440, Unlevelled	2500ml/ha	25.3t-	0.8tfgh
10b	Rifle 440, Levelled	2500ml/ha	21.9t-	0.0th
11a	Ultro, Unlevelled	1100g/ha	21.8t-	0.2tgh
11b	Ultro, Levelled	1100g/ha	22.7t-	0.2tgh
12a	Experimental 2, Unlevelled	1250ml/ha	23.4t-	0.9te-h
12b	Experimental 2, Levelled	1250ml/ha	22.8t-	9.0ta

Wild Oat Management in Chickpeas: The Impact of Pre-Emergent Herbicides, Soil Levelling and Post-Emergent Herbicide Strategies

Trial ID: LB2006

Location: Millmerran

Trial Year: 2020

NB: Interaction only significant for pre-emergent x post-emergent treatments. For simplicity, only this interaction is presented.

Table 2 - Wild oat plant and panicle counts, following application of post-emergent herbicides

Pest Scientific Name Pest Name				Avena spp Wild Oats	
Assessment Date				18/09/2020	1/10/2020
Assessment Type				COUNT	PANICLES
Assessment Unit				/m ²	/ m ²
Treatment-Evaluation Interval				45 DAB/ 28 DAC	58 DAB/ 41 DAC
ARM Action Codes				AL	AL
Trt No.	Treatment	Product Rate	Appln. Code		
TABLE OF A MEANS (Pre-emergent)					
1	Untreated	-	-	0.55ta	0.41ta
2	Sakura	118g/ha	A	0.17tbc	0.15tbc
3	Boxer Gold	2500ml/ha	A	0.19tbc	0.08tbc
4	Experimental 1	1800ml/ha	A	0.05tc	0.10tbc
5	Avadex Xtra	1600ml/ha	A	0.08tc	0.08tbc
6	TriflurX	1700ml/ha	A	0.13tc	0.02tbc
7	Avadex Xtra	1600ml/ha	A	0.11tc	0.02tbc
	TriflurX	1700ml/ha	A		
8	Outlook	1000ml/ha	A	0.24tbc	0.22tab
9	Rustler	1000ml/ha	A	0.21tbc	0.04tbc
10	Rifle 440	2500ml/ha	A	0.10tc	0.08tbc
11	Ultro	1100g/ha	A	0.00tc	0.00tc
12	Experimental 2	1250ml/ha	A	0.43tab	0.21tab
TABLE OF B MEANS (Levelling)					
1	Unlevelled			0.10t-	0.08t-
2	Levelled			0.27t-	0.15t-
TABLE OF C MEANS (Post-emergent)					
1	Verdict 520	100 ml/ha	B	0.00tb	0.00tb
	Status	500 ml/ha	B		
	Uptake	0.5 % v/v	B		
	Liase	1 % v/v	B		
2	Oatmaster	1875 ml/ha	C	0.39ta	0.23ta
	Uptake	0.5 % v/v	C		
TABLE OF A x C MEANS (Pre-emergent x Post-emergent)					
1a	Untreated	-	-	0.00te	0.00td
	Verdict 520	100 ml/ha	B		
	Status	500 ml/ha	B		
	Uptake	0.5 % v/v	B		
	Liase	1 % v/v	B		
1b	Untreated	-	-	1.41ta	1.00ta
	Oatmaster	1875 ml/ha	C		
	Uptake	0.5 % v/v	C		
2a	Sakura	118 g/ha	A	0.00te	0.00td
	Verdict 520	100 ml/ha	B		
	Status	500 ml/ha	B		
	Uptake	0.5 % v/v	B		
	Liase	1 % v/v	B		
2b	Sakura	118 g/ha	A	0.38tcd	0.33tbc
	Oatmaster	1875 ml/ha	C		
	Uptake	0.5 % v/v	C		
3a	Boxer Gold	2500 ml/ha	A	0.00te	0.00td
	Verdict 520	100 ml/ha	B		
	Status	500 ml/ha	B		
	Uptake	0.5 % v/v	B		
	Liase	1 % v/v	B		
3b	Boxer Gold	2500 ml/ha	A	0.43tcd	0.17tbcd
	Oatmaster	1875 ml/ha	C		
	Uptake	0.5 % v/v	C		

Wild Oat Management in Chickpeas: The Impact of Pre-Emergent Herbicides, Soil Levelling and Post-Emergent Herbicide Strategies

Trial ID: LB2006

Location: Millmerran

Trial Year: 2020

Table 2 - Wild oat plant and panicle counts, following application of post-emergent herbicides (continued)

Pest Scientific Name Pest Name Assessment Date Assessment Type Assessment Unit Treatment-Evaluation Interval ARM Action Codes				<i>Avena spp</i> Wild Oats	
				18/09/2020 COUNT /m ² 45 DAB/ 28 DAC AL	1/10/2020 PANICLES / m ² 58 DAB/ 41 DAC AL
Trt No.	Treatment	Product Rate	Appln. Code		
4a	Experimental 1	1800 ml/ha	A	0.00te	0.00td
	Verdict 520	100 ml/ha	B		
	Status	500 ml/ha	B		
	Uptake	0.5 % v/v	B		
	Liase	1 % v/v	B		
4b	Experimental 1	1800 ml/ha	A	0.11tde	0.21tbcd
	Oatmaster	1875 ml/ha	C		
	Uptake	0.5 % v/v	C		
5a	Avadex Xtra	1600 ml/ha	A	0.00te	0.00td
	Verdict 520	100 ml/ha	B		
	Status	500 ml/ha	B		
	Uptake	0.5 % v/v	B		
	Liase	1 % v/v	B		
5b	Avadex Xtra	1600 ml/ha	A	0.17tcde	0.16tbcd
	Oatmaster	1875 ml/ha	C		
	Uptake	0.5 % v/v	C		
6a	TriflurX	1700 ml/ha	A	0.00te	0.00td
	Verdict 520	100 ml/ha	B		
	Status	500 ml/ha	B		
	Uptake	0.5 % v/v	B		
	Liase	1 % v/v	B		
6b	TriflurX	1700 ml/ha	A	0.27tcde	0.04tcd
	Oatmaster	1875 ml/ha	C		
	Uptake	0.5 % v/v	C		
7a	Avadex Xtra	1600 ml/ha	A	0.00te	0.00td
	TriflurX	1700 ml/ha	A		
	Verdict 520	100 ml/ha	B		
	Status	500 ml/ha	B		
	Uptake	0.5 % v/v	B		
	Liase	1 % v/v	B		
7b	Avadex Xtra	1600 ml/ha	A	0.23tcde	0.05tcd
	TriflurX	1700 ml/ha	A		
	Oatmaster	1875 ml/ha	C		
	Uptake	0.5 % v/v	C		
8a	Outlook	1000 ml/ha	A	0.00te	0.00td
	Verdict 520	100 ml/ha	B		
	Status	500 ml/ha	B		
	Uptake	0.5 % v/v	B		
	Liase	1 % v/v	B		
8b	Outlook	1000 ml/ha	A	0.53tbc	0.48tb
	Oatmaster	1875 ml/ha	C		
	Uptake	0.5 % v/v	C		
9a	Rustler	1000 ml/ha	A	0.01te	0.00td
	Verdict 520	100 ml/ha	B		
	Status	500 ml/ha	B		
	Uptake	0.5 % v/v	B		
	Liase	1 % v/v	B		
9b	Rustler	1000 ml/ha	A	0.44tcd	0.07tcd
	Oatmaster	1875 ml/ha	C		
	Uptake	0.5 % v/v	C		

Wild Oat Management in Chickpeas: The Impact of Pre-Emergent Herbicides, Soil Levelling and Post-Emergent Herbicide Strategies

Trial ID: LB2006

Location: Millmerran

Trial Year: 2020

Table 2 - Wild oat plant and panicle counts, following application of post-emergent herbicides (continued)

Pest Scientific Name				<i>Avena spp</i>	
Pest Name				Wild Oats	
Assessment Date				18/09/2020	1/10/2020
Assessment Type				COUNT	PANICLES
Assessment Unit				/m ²	/ m ²
Trt-Evaluation Interval				45 DAB/ 28 DAC	58 DAB/ 41 DAC
ARM Action Codes				AL	AL
Trt No.	Treatment	Product Rate	Appln. Code		
10a	Rifle 440	2500 ml/ha	A	0.00te	0.03tcd
	Verdict 520	100 ml/ha	B		
	Status	500 ml/ha	B		
	Uptake	0.5 % v/v	B		
	Liase	1 % v/v	B		
10b	Rifle 440	2500 ml/ha	A	0.20tcde	0.13tcd
	Oatmaster	1875 ml/ha	C		
	Uptake	0.5 % v/v	C		
11a	Ultro	1100 g/ha	A	0.00te	0.00td
	Verdict 520	100 ml/ha	B		
	Status	500 ml/ha	B		
	Uptake	0.5 % v/v	B		
	Liase	1 % v/v	B		
11b	Ultro	1100 g/ha	A	0.00te	0.00td
	Oatmaster	1875 ml/ha	C		
	Uptake	0.5 % v/v	C		
12a	Experimental 2	1250 ml/ha	A	0.00te	0.00td
	Verdict 520	100 ml/ha	B		
	Status	500 ml/ha	B		
	Uptake	0.5 % v/v	B		
	Liase	1 % v/v	B		
12b	Experimental 2	1250 ml/ha	A	1.05tab	0.47tb
	Oatmaster	1875 ml/ha	C		
	Uptake	0.5 % v/v	C		

Wild Oat Management in Chickpeas: The Impact of Pre-Emergent Herbicides, Soil Levelling and Post-Emergent Herbicide Strategies

Trial ID: LB2006

Location: Millmerran

Trial Year: 2020

COMPLETE SPLIT-PLOT AOV Chickpea 29/06/2020						
EMERGENCE /m ² 05 V3 24 DAA 23 DP1						
Source	DF	Sum of Squares	Mean Square	F	Prob.(F)	LSD (.05)
Total	71	0.118447				
R	2	0.005889	0.002945	1.780	0.1806	
B	1	0.007199	0.007199	9.738	0.0892	0.0
ERROR B	2	0.001478	0.000739			
A	11	0.017453	0.001587	0.959	0.4962	0.0
AB	11	0.013632	0.001239	0.749	0.6865	0.1
ERROR A	44	0.072796	0.001654			

COMPLETE SPLIT-PLOT AOV <i>Avena spp</i> - Wild Oats 6/07/2020						
COUNT /m ² 31 DAA 30 DAP AL						
Source	DF	Sum of Squares	Mean Square	F	Prob.(F)	LSD (.05)
Total	71	8.034084				
R	2	0.052774	0.026387	0.571	0.5690	
B	1	0.686674	0.686674	4.676	0.1631	0.4
ERROR B	2	0.293672	0.146836			
A	11	3.492889	0.317535	6.874	0.0001	0.3
AB	11	1.475537	0.134140	2.904	0.0058	0.4
ERROR A	44	2.032538	0.046194			

COMPLETE SPLIT-PLOT AOV <i>Avena spp</i> - Wild Oats 18/09/2020						
COUNT /m ² 45 DAB/ 28 DAC AL						
Source	DF	Sum of Squares	Mean Square	F	Prob.(F)	LSD (.05)
Total	143	3.823310				
R	2	0.028633	0.014317	0.226	0.8072	
B	1	0.143156	0.143156	1.270	0.3768	0.24
ERROR B	2	0.225435	0.112718			
C	1	0.727654	0.727654	11.492	0.0275	0.12
BC	1	0.147574	0.147574	2.331	0.2016	0.16
ERROR C	4	0.253273	0.063318			
A	11	0.396363	0.036033	2.756	0.0041	0.09
AB	11	0.175243	0.015931	1.219	0.2868	0.13
AC	11	0.395365	0.035942	2.749	0.0042	0.13
ABC	11	0.180189	0.016381	1.253	0.2653	0.19
ERROR A	88	1.150425	0.013073			

Wild Oat Management in Chickpeas: The Impact of Pre-Emergent Herbicides, Soil Levelling and Post-Emergent Herbicide Strategies

Trial ID: LB2006

Location: Millmerran

Trial Year: 2020

COMPLETE SPLIT-PLOT AOV <i>Avena spp</i> - Wild Oats 1/10/2020 PANICLES / m² 58 DAB/ 41 DAC AL						
Source	DF	Sum of Squares	Mean Square	F	Prob.(F)	LSD (.05)
Total	142	1.943309				
R	2	0.001972	0.000986	0.049	0.9524	
B	1	0.029989	0.029989	0.862	0.4512	0.13
ERROR B	2	0.069592	0.034796			
C	1	0.295647	0.295647	14.813	0.0183	0.07
BC	1	0.033978	0.033978	1.702	0.2620	0.09
ERROR C	4	0.079834	0.019958			
A	11	0.244833	0.022258	2.329	0.0146	0.08
AB	11	0.051542	0.004686	0.490	0.9046	0.11
AC	11	0.249978	0.022725	2.378	0.0127	0.11
ABC	11	0.054666	0.004970	0.520	0.8849	0.16
ERROR A	87	0.831279	0.009555			

ARM Action Codes

AL = Automatic log transformation of X+1

Crop Stage

05V3 = 3rd node

DAP = Days after Planting

DAA = Days after Application A

DAB = Days after Application B

DAC = Days after Application C

Wild Oat Management in Chickpeas: The Impact of Pre-Emergent Herbicides, Soil Levelling and Post-Emergent Herbicide Strategies

Trial ID: LB2006

Location: Millmerran

Trial Year: 2020

Conclusions:

This was a complex trial evaluating wild oat management strategies in chickpeas involving pre-emergent herbicide applications, overlaid with soil levelling, followed by post-emergent herbicides and their combined impact on weed control.

Pre-emergent herbicides were applied one day prior to sowing and soil levelling. Levelling was conducted after sowing using Kelly chains. The early post-emergent treatment, Verdict 100 mL/ha + Status 500 mL/ha + Liase 1% v/v + Uptake 0.5% v/v, was applied 59 days after planting (59 DAP), when wild oats were at early tillering (~GS22). Oatmaster 1.875 L/ha + Uptake 0.5% v/v was applied 76 DAP, at stem elongation (~GS32).

There was no significant impact on chickpea establishment from the pre-emergent herbicides or from the levelling treatments.

Residual wild oat control was assessed at 31 DAA, approximately two weeks after receiving ~24 mm of rain. Untreated plots recorded ~5 wild oats/m² with a non-significant trend to increased wild oat counts where the levelling operation was undertaken.

In the absence of soil levelling, all treatments except Outlook, significantly reduced wild oat counts (by ~74-97%). The 'standard' treatment of Avadex Xtra 1.6 L/ha + TriflurX 1.7 L/ha provided ~82% control. No treatment provided significantly improved control compared to Avadex Xtra + TriflurX.

Wild oat counts were significantly higher where levelling was undertaken for TriflurX, Outlook, Rustler and Experimental 2. In all these cases wild oat counts were not significantly different to the untreated when soil levelling was undertaken. The 'standard' treatment of Avadex Xtra 1.6 L/ha + TriflurX 1.7 L/ha provided ~99% control. No treatment provided significantly improved control compared to Avadex Xtra + TriflurX. No treatment significantly improved wild oat control when levelling was undertaken.

Final wild oat plant counts were recorded 45 days after early post emergent application (45 DAB) and 28 days after the late post emergent application (28 DAC). In the 11-week interval from the initial wild oat count, ~84 mm of rain was received. There was no significant effect of levelling treatments on final wild oat control.

The post-emergent application of Verdict + Status provided almost complete wild oat control regardless of whether residual herbicides had been applied. Oatmaster did not provide complete control, leaving ~0.4 wild oats/m². There was no apparent impact from the pre-emergent herbicides on the activity of the post-emergent applications, when the initial wild oat populations were considered.

At 58 DAB/ 41 DAC wild oat panicle counts were assessed. Verdict + Status provided almost complete control with Oatmaster significantly poorer (~0.2 panicles/m²). There was no apparent impact from the pre-emergent herbicides on the activity of the post-emergent applications, when the initial wild oat populations were considered.

In this situation, there were no crop safety issues from any treatment for chickpea emergence and overlaying the levelling operations had no apparent impact on crop safety. Levelling significantly reduced the wild oat efficacy of TriflurX, Outlook, Rustler and Experimental 2 with no treatment significantly improved by the levelling operation. There was no apparent antagonism from the pre-emergent herbicides on post-emergent activity with Verdict + Status providing almost complete knockdown control.

Application Description			
	A	B	C
Application Date:	5/06/2020	4/08/2020	21/08/2020
Application Start Time:	11:40 AM	10:40 AM	8:45 AM
Application Stop Time:	2:45 PM	11:05 AM	9:05 AM
Application Method:	SPRAY		
Application Timing:	IBS	EARLY POST-EM	LATE POST-EM
Application Placement:	SOIL	FOLIAR	FOLIAR
Air Temperature, Unit:	19 C	19.4 C	14.8 C
% Relative Humidity:	41.4	54.5	54.6
Wind Velocity, Unit:	5.2 km/h	7.2 km/h	2.4 km/h
Wind Direction:	NE	NW	SW
Dew Presence (Y/N):	No		
Soil Moisture:	DRY	SLIDRY	SLIWET
% Cloud Cover:	0	60	40
Next Moisture Occurred On:	14/06/2020	8/08/2020	6/09/2020

Wild Oat Management in Chickpeas: The Impact of Pre-Emergent Herbicides, Soil Levelling and Post-Emergent Herbicide Strategies

Trial ID: LB2006

Location: Millmerran

Trial Year: 2020

Crop Description	
Crop:	<i>Cicer arietinum</i> Chickpea
Variety:	PBA Seamer
Planting Date:	6/06/2020
Planting Method:	Direct Drilled
Row Spacing Unit:	50 cm

Crop Stage at Each Application					
	A	B		C	
Crop:	<i>Cicer arietinum</i> Chickpea				
Stage Scale Used:	GRDC	GRDC		GRDC	
Stage Majority, %:	Pre-plant	06 V12	80%	06 V19	50%
Stage Minimum, %:		06 V11	10%	06 V15	30%
Stage Maximum, %:		06 V13	10%	06 V19	50%

Application Equipment			
	A	B	C
Application Equipment:	Polaris		
Equipment Type:	BOOM		
Operation Pressure, Unit:	300 kPa		
Nozzle Type:	AIXR		
Nozzle Size:	110015		
Nozzle Spacing, Unit:	50 cm		
Boom Length, Unit:	4 m	4 m	4 m
Boom Height, Unit:	50 cm	60 cm	70 cm
Ground Speed, Unit:	7.2 km/h	7.2 km/h	7.2 km/h
Spray Volume, Unit:	100 L/ha	100 L/ha	100 L/ha

Rainfall:	
Closest Weather Station:	SILO grid point -27.75, 151.25
Distance, Unit:	2km

Date	Amount	Unit
11/06/2020	0.1	mm
14/06/2020	2.5	mm
15/06/2020	17.7	mm
17/06/2020	0.9	mm
20/06/2020	2	mm
21/06/2020	0.6	mm
4/07/2020	1.2	mm
10/07/2020	0.4	mm
11/07/2020	0.5	mm
12/07/2020	2.2	mm
13/07/2020	9	mm
23/07/2020	0.1	mm
26/07/2020	28.5	mm
27/07/2020	6.1	mm
7/08/2020	0.4	mm
8/08/2020	14.6	mm
15/08/2020	17.1	mm
16/08/2020	4.3	mm
6/09/2020	0.5	mm
7/09/2020	0.2	mm
19/09/2020	0.1	mm
22/09/2020	0.2	mm