

# Avadex Xtra – annual ryegrass control in no-till systems



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## Take home messages

- Avadex Xtra provided excellent annual ryegrass control; either standalone, or in a tank mix with Triflur X.
- Avadex Xtra (Group J) provides an alternative mode of action for Group D resistant annual ryegrass populations.
- Nufarm is continuing the development and registration process for higher application rates of Avadex Xtra. Note: Avadex Xtra rates above 2.0 L/ha are not currently registered in cereals.

## Background

This trial work supports a current Nufarm project aimed at increasing the maximum label rate for Avadex Xtra (500g/L triallate) to provide standalone control of annual ryegrass and another pre-emergent option (Group J) – which will prove particularly useful for Group D (trifluralin) resistant populations.

## Aim

To evaluate the performance of Avadex Xtra on annual ryegrass in a no-till cropping system.

## Method

A small plot replicated field trial was established using a hand operated spray boom using AirMix 110015 nozzles at 2.5 bar pressure and 100L/ha water volume. All treatments (Table 1) were incorporated by sowing (IBS) with farmer sown equipment within 3 hours of application. Stubble load (wheat in 2008) at time of application was light (30% ground cover) and soil moisture at time of sowing was adequate for seed germination.

Assessments of crop safety (emergence counts), weed control (9, 16, and 24 weeks after sowing) and grain yield were conducted. Means followed by the same letter do not significantly differ.

Location: Minyip

Replicates: 4

Plot size: 3m x 12m

Sowing date: 7 May 2009

Seeding density: 122 plants/m<sup>2</sup> (established plants at 33 days after sowing)

Crop type/s: Gairdner barley

Seeding equipment: No-till (knife point, press wheel on 30cm row spacing)

Avadex Xtra was applied standalone and in tank mixes at rates greater than the current maximum label rate of 2.0L/ha.

**Table 1.** Treatment list (all incorporated by sowing) and costings based on 2010 prices.

Treatment no.	Product	Rate (L/ha)	Cost (\$/ha)*
1.	Untreated control	-	-
2.	Avadex Xtra	2.0	22
3.	Avadex Xtra	2.4*	26
4.	Avadex Xtra	2.8*	31
5.	Avadex Xtra	3.2*	35
6.	TriflurX	1.5	9
7.	TriflurX	3.0	18
8.	Avadex Xtra + TriflurX	1.6 + 1.5	27
9.	Boxer Gold	2.5	32

\*The use of Avadex Xtra above 2.0L/ha is not registered in wheat/barley and was used in this research only to demonstrate the effect of this mix on ryegrass control. When using any of these herbicides always follow the instructions on the registration label.

## Results

A crop emergence assessment at 33 days after application (data not presented) displayed no crop effect from any treatments; there was no visual or statistical difference from any treatments compared to the untreated control.

An assessment of weed control was conducted at 24 weeks after sowing by a measurement of annual ryegrass tiller density (Table 2). Annual ryegrass pressure at the site was high; with a tiller density of 864 tillers/m<sup>2</sup> in the untreated control.

Avadex Xtra exhibited a clear rate response with increased annual ryegrass control as rates increased from 2.0 – 3.2L/ha; although the response appeared to peak at the high rate of 3.2L/ha.

Triflur X displayed a high level of annual ryegrass control in this trial at both the 1.5 and 3.0L/ha rates; a strong indication that the population was Group D susceptible.

The tank mix of Avadex Xtra and TriflurX exhibited the highest level of annual ryegrass control in the trial (91%) (photos 1 and 2) with significantly higher control than the Boxer Gold treatment and the Avadex Xtra applied at 2.0 or 2.4L/ha.

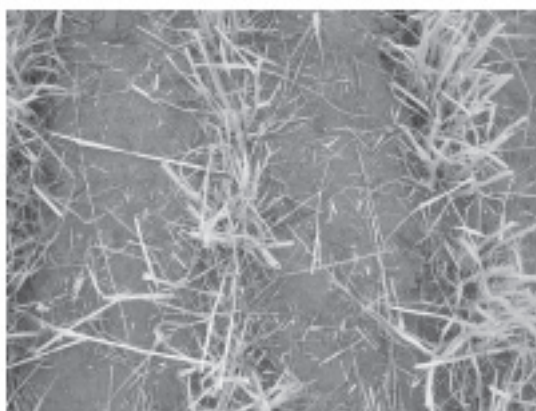
**Table 2.** Annual ryegrass control.

Treatment no.	Product and rate (L/ha)	Ryegrass control	
		Tillers/m <sup>2</sup>	% control
1.	Untreated control	864 <sup>#</sup>	0
2.	Avadex Xtra @ 2.0	392 <sup>a</sup>	55
3.	Avadex Xtra @ 2.4	294 <sup>ab</sup>	66
4.	Avadex Xtra @ 2.8	200 <sup>bc</sup>	77
5.	Avadex Xtra @ 3.2	190 <sup>bc</sup>	78
6.	TriflurX @ 1.5	144 <sup>bc</sup>	83
7.	TriflurX @ 3.0	98 <sup>c</sup>	89
8.	Avadex Xtra @ 1.6 + TriflurX @ 1.5	78 <sup>c</sup>	91
9.	Boxer Gold @ 2.5	282 <sup>ab</sup>	67
	<b>Sig. diff</b>	<b>S</b>	
	<b>L.S.D. (P = 0.05)</b>	<b>141.9</b>	
	<b>CV%</b>	<b>45.99</b>	

<sup>#</sup> Untreated (treatment 1) is excluded from analysis.



**Photo 1:** Untreated control.



**Photo 2:** Avadex Xtra + TriflurX

Harvest of the barley (Table 3) displayed some large variation in grain yield results; the difference between the untreated control and the highest yielding treatment (Avadex Xtra @ 3.2L/ha) was 0.93t/ha. All treatments; with exception of Avadex Xtra @ 2.0L/ha, yielded significantly higher than the untreated control.

**Table 3:** Grain yield.

Treatment no.	Product and rate (L/ha)	Grain yield (t/ha)
1.	Untreated control	1.99 <sup>c</sup>
2.	Avadex Xtra @ 2.0	2.33 <sup>bc</sup>
3.	Avadex Xtra @ 2.4	2.53 <sup>ab</sup>
4.	Avadex Xtra @ 2.8	2.55 <sup>ab</sup>
5.	Avadex Xtra @ 3.2	2.92 <sup>a</sup>
6.	TriflurX @ 1.5	2.72 <sup>ab</sup>
7.	TriflurX @ 3.0	2.66 <sup>ab</sup>
8.	Avadex Xtra @ 1.5 + TriflurX @ 1.6	2.60 <sup>ab</sup>
9.	Boxer Gold @ 2.5	2.51 <sup>ab</sup>
Sig. diff		<b>S</b>
LSD (P<0.05)		<b>0.45</b>
CV%		<b>12.1</b>

## Interpretation

Avadex Xtra applied at rates higher than the current registered maximum label rate offer a potential future option for annual ryegrass control; particularly as an alternate mode of action to Triflur X.

Product choice should also factor in other weed species present, resistance status, tillage system, weed pressure, weed seed location, and price.

## Acknowledgments

This work was conducted by Nufarm. Thanks to BCG for harvesting the trial.