

# The control of wild oats in a cereal crop



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## Summary

Wild oat control in dryland cereals is important for yield maximisation and profit. Even low levels of wild oats (50 plants per m<sup>2</sup>) can reduce yields by 17% (PISA Weed Decide Calculator). In a trial conducted at Birchip, Victoria Hussar® and Atlantis® (group B herbicides) were shown to give similar wild oat control when compared to the current standards and can be used to rotate modes of action. Hoegrass® and Decision™ were shown to be less effective than current standards for wild oat control, at the rates used. Yields varied greatly within replicates so little can be derived from them.

The trial helped emphasise that early weed control (before tillering) with good crop safety is the key to yield maximisation.

## Background

The aim of this trial was to compare the effectiveness of a range of herbicides on wild oats in a standard variety of wheat. A number of relatively new herbicides have been included (Hussar, Atlantis and Decision).

There is a range of products for use at early post-emergence of wheat for wild oats control and until recently the majority have been group A herbicides. There are a couple of new herbicides in the group B herbicides that control wild oats selectively from standard wheat.

Chemical residues are often associated with group B herbicides. Sulfonylurea based herbicides, such as Atlantis®, are more persistent in alkaline soils commonly found in the Mallee. This residual activity can interrupt rotations where pulses such as lentils and even barley are grown in rotation with wheat.

## Methods

This trial was conducted using a fully replicated (3x) randomised long block design on Jeff Rickard's property. Application was later than normal to look at the herbicides effectiveness on large weeds.

Date sown	Crop	Variety	Fertiliser
14/6/03	Wheat	Yitpi	50kg/ha MAP

## Post-emergent Application

Date applied	Timing	Weed stage	Weed Population	Application
27/8/03	Early to mid tillering wheat	Wild oats 3 leaf, 4 tillers Ryegrass 1-4 tillers	20-300 pl/m <sup>2</sup> 0-20 pl/m <sup>2</sup>	75L/ha AI Jets at 5 bar Wind 10 km/h WSW

Table 1. Treatment list with rates and wetters

Treatment	Rate/ha	Wetter/oil	\$/ha	Timing
Control	Nil	Nil	-	-
Atlantis	330 mL/ha	250ml BS 1000/100L water	\$26.40	EPE
Hussar	200 g/ha	1L Hasten/100L water	\$36.30	EPE
Hoegrass	750 mL/ha	250ml BS 1000 /100L water	\$18.00	EPE
Achieve	380 g/ha	750ml Supercharge /100L water	\$37.00	EPE
Tristar Advance	1500 mL/ha	Nil	\$31.00	EPE
Puma Progress	450 mL/ha	Nil	\$27.00	EPE
Topik	65 mL/ha	500ml Hasten /100L water	\$29.00	EPE
Wildcat	300 mL/ha	250ml BS 1000 /100L water	\$27.00	EPE
Decision	1000 mL/ha	1L Hasten /100L water	\$20.00	EPE

## Results

The results are an average of three replicates.

Table 2. Phytotoxicity scores and yield results.

Treatment	Rate (/ha)	Crop Phytotoxicity* (9/10/03)	Wild oat control* (12/11/2003)	Yield (t/ha)	Protein (%)	Weed count (seeds in 500mL)
Control	-	1.0	1.0	1.39	11.2	5
Atlantis	330mL/ha	1.7	8.3	1.28	11.1	5
Hussar	200g/ha	2.0	9.0	1.41	11.6	10
Hoegrass	750mL/ha	1.7	6.7	1.35	11.8	0
Achieve	380g/ha	1.7	9.0	1.25	11.4	55
Tristar Advance	1500mL/ha	1.3	8.3	1.14	10.6	45
Puma Progress	450mL/ha	1.7	8.0	1.27	10.2	0
Topik	65mL/ha	1.3	5.7	1.45	10.7	10
Wildcat	300mL/ha	1.3	8.0	1.25	10.2	15
Decision	1000mL/ha	1.7	7.3	1.22	10.6	40
LSD (5%)				N.S.	N.S.	

\* Damage scores are based on the EWRC system where: 1 = no affect, 3 = some visual affect, 5 = strong visual but weed or crop not dead, 7 = very strong visual and weed or crop growth retarded but not dead, 9 = dead.

## Interpretation

The site chosen had an even cover of wild oats, but this did vary with header rows going across the treatments. Wild oats were quite thick and large (up to 4 tillers). Ryegrass numbers were generally low in most treatments. Generally the application timing was later than ideal being 10 weeks after sowing; the ideal timing for these herbicides is 4-7 weeks after sowing.

### Weed Control

In this trial wild oat control was commercially acceptable for Hussar, Achieve, Atlantis, Tristar, Puma and Wildcat. Wild oat control was not commercially acceptable for Topik, Hoegrass and Decision. Topik had poor efficacy in this trial but worked well in the rest of the paddock sprayed at a similar time. This is an anomaly I cannot explain. It is not surprising that Hoegrass and Decision have not worked well as the rates are not high enough for wild oat control especially considering the later than ideal timing 10 weeks after sowing. Air induction nozzles were used in this trial at 5 bar pressure which will reduce the number of small droplets and can reduce the efficacy of some grass herbicides in some circumstances when compared to the standard XR flat fan. Hussar and Atlantis did a good job of wild oat control with weeds not controlled dramatically suppressed, they work slower than the group A products.

**Crop Safety**

All products showed little crop effect in this trial.

**Yield Results**

The yield varied enormously between replicates; greater than 50% yield difference between replicates is not going to produce a significant difference between treatments, as the variation between replicates is too great. This shows in the LSD of 0.35 which is 25% of the average yield. Weed control was consistent between replicates. Unlike most trials with wild oats, weed control has not increased yield. There are a number of reasons why this may have happened; late application meant the majority of the damage had been done. There was little rain after application, resulting in less opportunity for the wheat to reduce weed competition; also the presence of weed seed in harvested samples can increase yields.

**Commercial Practice**

It is important to keep paddock records of what herbicides you have used in which paddocks so you can rotate chemical groups (modes of action) to delay the onset of resistance.

In wheat we now have more options for wild oat control: group B herbicides (Atlantis and Hussar), group A herbicides, a group E herbicide (Avadex<sup>®</sup> BW- pre-emergent) and a K group herbicide (Mataven<sup>®</sup> - early-late post-emergent).

Hussar is very effective as a one-pass herbicide for control of wild oats, ryegrass and many broadleaf weeds.

Atlantis is an effective herbicide for broad spectrum grass situations controlling wild oats and suppressing ryegrass and brome grass.

**Acknowledgements**

Thanks to Jeff Rickard for the use of his paddock.