

Oaten hay crops and ryegrass control

The aim of this replicated trial was to investigate herbicide options for the control of ryegrass in three oaten hay varieties.

By: Adam Dellwo (La Trobe University) and the BCG

Summary: High yielding export quality oaten hay crops were successfully grown in the Charlton district (Echidna yielded 6.5 t/ha dry matter) in the 2001 season. Controlling ryegrass to produce export quality hay is a challenge confronting growers as export standards stipulate ryegrass contamination must be less than 5%. Ryegrass suppression in oats can be achieved using Dual Gold, Diuron and Glean. Suppression in dry matter yield resulted from the use of these treatments (average of 1 t/ha loss in dry matter). None of the treatments sufficiently suppressed the high ryegrass populations encountered at this site (more than 100 plants/m²) – with most treatments failing to come under the 5% contamination limit. Trifluralin is not registered in oats because the conventional application technique causes unacceptable crop damage. The trial work has shown that trifluralin (at 290gai/ha) can be used with some degree of crop safety when it is applied immediately prior to sowing in a direct drilled situation with narrow points. When using trifluralin in oats, the sowing rate should be increased by at least 10% to compensate for crop damage. Trifluralin at 290gai/ha suppressed dry matter yield by 2 t/ha.

Background

Export oaten hay is a growing industry and in the higher rainfall areas many farmers are interested in supplying this market. Export quality hay has rigid quality standards, which include less than 5% foreign weed material such as ryegrass. Ryegrass is not an easy weed to control in oats and typical weed control options available in wheat and barley, such as Trifluralin (Group D) or Group A grass herbicides, are not registered in oats and can cause unacceptable crop damage.

Methods

The trial work was undertaken at a site approximately 20km south of Charlton on a red duplex soil. The ryegrass at the site is resistant to group A herbicides. Ryegrass populations were very high with a minimum of 100 plants/m². Three oat varieties were sown in blocks – Echidna (sown at 115 kg/ha), Enterprise (sown at 81 kg/ha) and Reil (sown at 81 kg/ha). The trial was sown 9 inch (23cm) spacings with narrow points and a trailing prickle-chain. Mallee Mix 1 at 80 kg and Urea at 80 kg/ha were sown with the oats in a single pass operation.

Twelve herbicide options and a control were applied in a replicated design.

The herbicide treatments in the trial were:

Treatment	Chemical name	Rate /ha	Timing#	Cost \$/ha
Dual Gold	metolachlor 480gai	0.5L	PSPE	
Diuron	diuron 500gai	1L	PSPE	8.60

Dual Gold + Diuron	xxxxxxxxxx	0.5L + 1L	PSPE	
Glean	chlorosulfuron 18.7 gai	25g	EPE	4.50
Triflur480	trifluralin 480 gai	0.6	IBS	5.10
Triflur480 and Dual Gold	xxxxxxx	0.6 and 0.5L	IBS and PSPE	
Triflur480 and Diuron	xxxxxxx	0.6L and 1L	IBS and PSPE	13.70
Triflur480 and Dual Gold + Diuron	xxxxxxx	0.6L and 0.5L + 1L	IBS and PSPE	
Triflur480 and Glean	xxxxxxx	0.6L and 25g	IBS and EPE	9.60
Triflur480	xxxxxxx	1.2L	IBS	10.20
Crew	trifluralin 330gai - slow release (from NuFarm)	0.9L	IBS	na
Crew		1.8L	IBS	na

timing: PSPE – post sowing pre-emergent; EPE – early post emergent; IBS – incorporated by sowing

The Dual Gold, Diuron and Glean are registered in oats grown for grain. Trifluralin is not registered in oats.

Prior to sowing the site was sprayed with RoundUp CTXtra at 1.5L/ha. The trifluralin treatments were applied immediately prior to sowing. The direct drilling operation with narrow points resulted in minimal incorporation of the trifluralin into the sowing band. The oats were sown at 6cm depth. The PSPE treatments were applied to an almost dry soil, 15mm of rain fell six days after application of the herbicides. The EPE treatments were applied at the 3- to 4-leaf crop stage when the ryegrass had less than 4 leaves.

Results

All trifluralin treatments reduced the emergence of oats by 10 to 20% (higher rates causing lower emergence). Echidna was less sensitive to trifluralin compared to Enterprise and Reil. Give averages or refer to result table if including one???

Hay production was significantly different between the varieties (Echidna 6.5 t/ha, Enterprise 4.4 t/ha and Reil 5.6 t/ha). All herbicide treatments reduced dry matter yield with the trifluralin treatments causing the greatest loss. When compared to the unsprayed controls, Echidna dry matter yield was reduced by 1.0 t/ha for the non-trifluralin herbicide treatments and up to 3.0 t/ha for the high rate of trifluralin.

The untreated control plots contained between 10 and 14% ryegrass by weight in the hay sample – well outside the acceptable level of 5%. All herbicide treatments, except for Crew (slow release trifluralin formulation) reduced the amount of ryegrass in the hay sample. The Dual Gold achieved the best ryegrass control, however the level of control only reached the acceptable standards in a few of the plots.

All three varieties had excellent feed quality meeting export hay feed value standards

Commercial Practice

In situations with high levels of ryegrass (more than 100 plants per square metre) it is difficult to grow export hay and achieve acceptable contamination limits. Selecting paddocks with low ryegrass populations would assist in minimising any potential problem due to contamination.

Suppression of ryegrass in oats can be achieved using Dual Gold or Diuron post sowing pre-emergent, or with Glean early post emergent. Some yield suppression will result but the level of damage is commercially acceptable.

Trifluralin can be used with some degree of safety at a rate of (290 gai/ha. this is not clear??) If trifluralin has to be used the safest method is application immediately prior to sowing and

incorporation by sowing where trifluralin is being used seeding rates should be increased by at least 10% Trifluralin is not registered in oats