

5. TASMANIAN TRIALS

5.1 EVALUATION OF HERBICIDES FOR USE ON *VULPIA* SP. IN BARLEY

Location: Riccarton (Campbell Town) Tas.

Researchers: George Manifold SFS
Geoff Dean SFS

Growing season rainfall:
(April – November inclusive): 467 mm

Background:

Silvergrass (*Vulpia* sp.) is a significant weed species that can have a marked impact on crop vigour and grain yield in cereal crops. Its proliferation as a weed species has been attributed to several factors including direct drilling of crops. As well as competing directly for nutrients and moisture *Vulpia* also exhibits allelopathy, which significantly retards crop establishment, development and hence yield. Effective *Vulpia* control will significantly improve current crop vigour and yield; as well as lessen the carryover of allelopathic retardation in *Vulpia* residues on following year's crops.

Trials conducted in season 2000-2001 have indicated that Metribuzin (presently not registered for Silvergrass in barley) has potential in the control of *Vulpia* sp.

Results:

Pre-treatment	Nil				Trifluralin 1.5 l/ha				Trifluralin 3.0 l/ha			
Post-treatment	Nil	Metribuzin 0.25 l/ha	Metribuzin 0.50 l/ha	Simazine 750ml/ha	Nil	Metribuzin 0.25 l/ha	Metribuzin 0.50 l/ha	Simazine 750ml/ha	Nil	Metribuzin 0.25 l/ha	Metribuzin 0.50 l/ha	Simazine 750ml/ha
Barley yield (tonnes/ha)	4.0	4.4	5.0	4.9	4.8	5.1	5.4	4.9	5.0	5.1	5.4	5.3
Row 1					19%	18%	8%	-1%	26%	18%	8%	8%
Row 2		9%	25%	23%	19%	28%	35%	23%	26%	29%	35%	33%
Row 3		9%	25%	23%		8%	13%	3%		2%	7%	6%

Analysis of the pre-sowing treatment results (refer to Row 1 in the table above – which shows percentage increase of yield of each post-sowing treatment compared to respective post sowing, Nil pre-sowing treatment) show that a pre-sowing treatment of trifluralin at 1.5 l/ha increased the yield in a *Vulpia* infected barley crop by an average of 19%. Doubling the trifluralin rate to 3.0 l/ha increased the overall average yield by 26% compared to untreated crop. However variations between replications in the trial site in terms of *Vulpia* density and distribution are such that statistically significant differences exist only between Nil and trifluralin 3.0 l/ha, though a strong trend exists between Nil and trifluralin 1.5 l/ha.

Aim:

To compare the effectiveness and cost of several pre and post emergent herbicides on the control of Silvergrass in Gairdner barley in a replicated trial.

Treatments:

Pre-sowing: 3 replications involving 3 pre-sowing treatments: trifluralin (Trifluralin 400: 400 g/l ai) - 1.5 l/ha, 3.0 l/ha and nil.

Pre-emergent herbicides were applied 1 week prior to sowing and were lightly incorporated with light harrows before drilling with barley.

Post-emergent: 2 rates of metribuzin (Sencor 480SC: 480 g/l ai): 0.25 l/ha and 0.5 l/ha; simazine (500 g/l ai) 0.75 l/ha; and control (nil) applied over areas in replicated trifluralin & nil pre-sowing treatments.

Sowing Date: 19th June 2001
Seeding Rate: 110 kg/ha
Harvest date: 10th January 2002
Fertiliser used: 125 kg/ha 14:18:0:4

Further details: George Manifold, SFS Tasmania, phone: 03 6336 5436
George.Manifold@dpiwe.tas.gov.au

Post-emergent treatments with metribuzin (0.25 l/ha) had the effect of increasing the average yield by 9% over the control (Nil, Nil) plots (refer to Row 2 in above table – which shows percentage increase of each post-sowing treatment compared to Nil pre-sowing, Nil post-emergent treatment). This effect was also observed on the plots that received trifluralin at 1.5 l/ha. However the increasing average yield was not particularly noticeable at higher trifluralin rates (3.0 l/ha). A higher metribuzin rate (0.50 l/ha) increased the average yield to 25% over the Nil, Nil treatment. Simazine (0.75 l/ha) also showed a positive effect increasing average yield by 23% compared to zero post-emergent treatment. Again, variations between plots in the trial are great, so no significant statistical difference can be demonstrated from the results.

Combination treatments (Pre-sowing and Post-emergent) – refer to Row 3 – percentage increase of yield compared to respective pre-sowing treatment, Nil post-emergent - produced increased averaged yields compared to single treatments, though no statistically significant difference can be shown.

Conclusions:

Pre-sowing treatments of trifluralin herbicide are effective in increasing yields in a barley crop infested with *Vulpia*. Application rates of 3.0 l/ha produced a significant result, while application rate of 1.5 l/ha produced a strong trend. No significant differences could be demonstrated between Post-sowing treatments employed in this trial due to large variations between plots. However averaged results indicate trends that can be further explored with more trial work.

Highest average yields were achieved with a combination of trifluralin (1.5 l/ha) and metribuzin (0.5 l/ha). The efficacy of the metribuzin treatment does not appear to improve with a higher rate of Trifluralin. Simazine (0.75 l/ha) treatment average yields suggest an effective treatment in combination with Trifluralin (3.0 l/ha).

A combination of a pre-sowing treatment of trifluralin at a rate of 1.5 l/ha with a post emergent treatment with metribuzin at 0.50 l/ha produced an increased average yield in Gairdner barley of 35%. However, variations across the trial site in terms of *Vulpia* density and crop yield make it difficult to demonstrate any clear significant differences in either post-sowing or interaction between pre and post sowing herbicide treatments in this trial.

Tasmanian Grain Elevators

"the grain experts"

PROVIDING SOUND ADVICE, SUPPORT AND SERVICE TO RURAL TASMANIA

**buying & selling all your grains and legumes
always at very competitive prices!**

If you require any information on our products and services
then please call

"we dont mind a chat!"

Launceston

Lindsay Street
Ph.63315035
Or 0418 134 625

Bridgewater

4 Weily Park Rd
Ph. 62633955 Fax 62633957
Tony Wright 0417 123 147
Bill Shackcloth 0408 316 557

Devonport

D'port Wharf
Ph.64243312
Or 0417 012 528