TOLERANCE OF LINOLA TO HERBICIDES

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Summary Several different post-emergent herbicides were applied on two linola sites. Post-emergent applications of Glean, Ally and Lontrel were found to be safe on linola. Other herbicides which showed some promise but will need further testing include Brodal, Broadstrike, Brominal and bromoxynil MCPA. Treatments including dicamba and Eclipse were found to be far too damaging to linola crops.

INTRODUCTION

There has been an increasing interest in linola cropping amongst a small number of Western Australian farmers, partly because of the perception that it will grow on a wider range of soil types, and partly in the expectation that it can be grown in paddocks with a known wild radish, mustard or turnip problem. As there is no linseed oil industry in Western Australia, weed control options and information were initially based on the limited options listed in 'Weed Control in Winter Crops' 1993, a publication produced by Mullen and Dellow (NSW Agdex 110/682).

In these two trials we have tested a number of common post-emergent herbicides that were considered most likely to be tolerated by linola. All of the selected herbicides have a known action against the likely weed spectrum encountered in the Western Australian wheat belt area. The main emphasis is on linola tolerances to the treatments.

MATERIALS AND METHODS

Two trials were established.

Trial 1 (Corrigin) Grey clay, prone to water logging. The crop was sown by the farmer in mid June with the Argyle variety. The treatments were applied on 25 July 1995 when the linola was about 5–10 cm high. This site was infested with a low and variable density of toadrush.

Trial 2 (Three Springs) Red loamy soil, planted to wheat in 1994, and linola in 1995. This site was sown to Wallaga linola at 50 kg ha^{-1} with 100 kg ha^{-1} Agras No. 1. on the 24 May 1995. Before sowing the existing weeds were sprayed with 270 g ha^{-1} Pacer. The trial was sprayed on the 1 August 1995, when the linola was 15–30 cm high. Broadleaf weed numbers were low but included capeweed, (10–60 cm), and radish (10–60 cm). Grass weeds included tillering ryegrass and self sown cereals, these grasses were sprayed with 500 mL ha^{-1} Fusilade two weeks after the trial was established.

Table 1. Trial number 1 (Three Springs).

Treatments	Mean damage ratings	Yield kg ha^{-1}
Nil	0.2	278.5
Brominal M 1.4 L ha^{-1}	0.4	315.6
Brominal 2.0 L ha^{-1}	0.2	248.8
Jaguar 0.75 L ha^{-1}	1.2	260.9
Brodal 0.2 L ha^{-1}	0	256.2
Tigrex 0.5 L ha^{-1}	1.2	278.4
Glean 20 g ha^{-1} + 0.1% wetter	0.3	302.4
Ally 5 g ha^{-1} + 0.1% wetter	0	349.4
Lontrel 0.3 L ha^{-1}	0	319.8
Eclipse 7 g ha^{-1} + 0.1% wetter	2	123.1
Broadstrike 25 g ha^{-1} + 0.1% wetter	0.4	206.5
Banvel 200 1.0 L ha^{-1}	2	104.4

Table 2. Trial number 2 (Corrigin).

Treatments	Mean damage ratings	Yield kg ha^{-1}
Nil	0	140.3
Brominal M 1.4 L ha^{-1}	1.7	138.5
Brominal 2.0 L ha^{-1}	0.3	112.6
Jaguar 0.75 L ha^{-1}	4.3	168.0
Brodal 0.2 L ha^{-1}	0.3	145.9
Tigrex 0.5 L ha^{-1}	3.3	110.8
Glean 20 g ha^{-1} + 0.1% wetter	0.3	118.2
Ally 5 g ha^{-1} + 0.1% wetter	0.7	184.7
Lontrel 0.3 L ha^{-1}	0	157.0
Diuron 1.0 L	3.7	143.7
Eclipse 7 g ha^{-1} + 0.1% wetter	4.0	110.8
Broadstrike 25 g ha^{-1} + 0.1% wetter	0.3	155.1
Banvel 200 1.0 L ha^{-1}	5.7	57.2
LSD=80.3		

Damage ratings at flowering.
0 = no biomass reduction.
5 = 50% reduction.

RESULTS

The plots of both trials were harvested and the results analysed.

The trial site at Corrigin (trial 2) was infested with a low and variable density of toadrush – this appeared to compete with linola and with the water logging present has severely limited yields. The visual assessments at flowering therefore give a better estimate of herbicides tolerated by the crop at this site. Herbicides gave poor toadrush control with the exception of diuron which was excellent.

DISCUSSION

In both these trials yields were low, thus making it difficult to gauge tolerances accurately. It would appear however that the herbicides Eclipse® (metosulam), and Banvel 200® (dicamba) were far too damaging in both trials.

Conversely, treatments that appeared totally acceptable in terms of crop damage and yield include, Glean® (trial 7), Ally® (trial 8) and Lontrel® (trial 9) treatments.

Other treatments offered a lower degree of certainty in regard to crop damage. The bromoxynil MCPA treatment (trial 2) appeared safe at 1.4 L ha^{-1}, whilst the 2.0 L ha^{-1} treatment of bromoxynil (trial 3) appeared to be lower yielding than the nil in both trials. This may suggest that the upper limit on bromoxynil may be around 1–1.5 L ha^{-1}.

The higher Jaguar (trial 4) and Tigrex (trial 6) damage ratings in both trials would seem a bit surprising in that the bromoxynil, bromoxynil MCPA (trial 2) and Brodal (trial 5) treatments did not appear as damaging as individual treatments. Possibly the formulation of Brodal is softening the damage effect of the diflufenican on the linola.