The effect of metolachlor herbicide on toadrush and ten pasture species during establishment

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Toadrush (Juncus bufonius) is a serious weed of autumn sown pasture and can germinate intermittently for months after autumn rains especially on poorly structured acid soil, with high rainfall and waterlogging (1). It may be best controlled by applying a pre-emergent herbicide when the seedbed is trafficable. Metolachlor was thus tested at Hamilton on clay flats which are prone to severe water logging and toadrush infestation after cultivation.

Methods

Four blocks, each with plots of 10 pasture species, were planted on 24 May, 1936. The next day metolachlor was applied at 100 ml/ha on 2 of the 4 blocks. The yields of the sown species, toadrush and other weeds were measured on 8 October 1936.

Results and Discussion

<u>Table 1</u> Effect of metolachlor on the yield of ten pasture species, toadrush and other weeds, at Hamilton, 1996.

| Pasture species sown | Drv matter yield (t/ha) | | | | | | | | |
|--------------------------|-------------------------|------------------|------|--------------|------------------|------|--------------|------------------|-------------|
| | Sown species | | | Toadrush | | | Other weeds | | |
| | Cont- trol | Metol- achlor | Mean | Con- trol | Metol- achlor | Mean | Con- trol | Metol- achlor | - Mean r |
| Medicago murex | 0.03 | 0.04 | 0.04 | 2.45 | 0.72 | 1.59 | 0.66 | 1.83 | 1.25 |
| Haifa white clover | 0.33 | 0.10 | 0.22 | 2.27 | 0.47 | 1.37 | 1.03 | 1.93 | 1.48 |
| Paradana balansa clover | 0.72 | 1.21 | 0.97 | 2.12 | 0.17 | 1.15 | 0.87 | 1.38 | 1.13 |
| Enfield sub. clover | 0.08 | 0.09 | 0.09 | 2.76 | 0.30 | 1.53 | 0.70 | 2.05 | 1.38 |
| Vic. per. ryegrass | 0.83 | 1.17 | 1.00 | 2.15 | 0.24 | 1.20 | 0.79 | 0.65 | 0.72 |
| Trikkala sub. clover | 0.24 | 0.41 | 0.33 | 2.30 | 0.74 | 1.52 | 0.85 | 1.55 | 1.20 |
| Maral Persian clover | 0.26 | 0.49 | 0.38 | 2.19 | 0.41 | 1.30 | 1.11 | 1.74 | 1.43 |
| Sirosa Phalaris | 0.40 | 1.03 | 0.72 | 2.45 | 0.40 | 1.43 | 0.93 | 1.11 | 1.02 |
| Mt. Barker sub. clover | 0.09 | 0.13 | 0.14 | 2.72 | 0.47 | 1.60 | 0.91 | 2.09 | 1.50 |
| Redquin red clover | 0.22 | 0.92 | 0.12 | 2.33 | 0.72 | 1.53 | 0.77 | 1.53 | 1.15 |
| Mean | 0.32 | 0.47 | 0.40 | 2.37 | 0.46 | 1.42 | 0.86 | 1.59 | 1.23 |
| LSD(P=0.05) + signif. | | | | | | | | | |
| Main effects | | | | | | | | | |
| Species | | 0.114 | ** | | 4.531 | ** | | 0.705 | ** |
| Herbicide | | 0.222 | ** | | 0.242 | ** | | 0.292 | ** |
| Interactions | | | | | | | | | |
| Difference between means | | 0.314 | ** | | 0.343 | ** | | 0.413 | ** |

**significant at 1% probability

The yield of toadrush was reduced by 31% (P<0.01) and fog grass was completely removed by metolachlor. Red and white clovers were damaged by metalachlor. The use of metolachlor increased the yield of balansa clover, Phalaris and other weeds (mainly Poa annua) (P<0.01). Most sown seeds did not emerge for up to 8 weeks; it is not known whether metolachlor damage to them was consequently less than it otherwise might have been.

1. Hill, R.D. 1933. Australian Seed Science Newsletter No.9, 66-71. Active constituent: 720g metolachlor/litre (Ciba-Geigy Pty Ltd)