Tolerance of native grasses to Frenock® and Roundup®

M.H. Campbell and R. Van de Ven

NSW Agriculture, Agricultural Research and Veterinary Centre, Orange NSW 2800

Frenock® (flupropanate) is a herbicide used to kill serrated tussock (*Nassella trichotoma*), African lovegrass (*Eragrostis curvula*), Chilean needle grass (*Nassella neesiana*) and Giant Parramatta grass (*Sporobolus indicus*) and glyphosate (Roundup®, etc) a herbicide used to control poa tussock (*Poa labillardieri*) and a range of other weeds. The aim in applying these herbicides is to kill the weed without damaging native grasses growing amongst the weeds. To test the tolerance of native grasses, the above herbicides were applied to a Danthonia eriantha pasture in each season of the year at two commonly used rates.

Methods

Frenock® (75% a.i.) and Roundup CT® (45% a.i.) were applied to a native grass pasture in winter (27 July 1994), spring (11 October 1994), summer (17 January 1995) and autumn (11 April 1995) at 1 and 2 L/ha from a hand-held pneumatic sprayer in 400 L/ha water and 0.8 L/ha non-ionic wetting agent.

The pasture was dominated by a type of wallaby grass (*Danthonia eriantha*) but there were small amounts of weeping grass, (*Microlaena stipoides*), threeawn speargrass (*Aristida vagans*), redleg grass (*Bothriochloa macra*) and kangaroo grass (*Themeda australis*) present. Ground cover of grasses was visually estimated immediately before spraying and at the end of the experiment on 12 February 1996. Grazing animals were excluded during the experiment which was a randomised block design with four replications.

Results

Frenock® at both rates and at each time of application reduced the ground cover of wallaby grass whilst Roundup CT®, at 1 L/ha, reduced ground cover in spring and, at 2 L/ha, reduced ground cover in spring, summer and autumn (Table 1).

Frenock® also reduced the ground cover of weeping grass and threeawn spear grass but redleg grass and kangaroo grass were tolerant (Table 2). There were no significant interactions between rate of Frenock® and time of application. Roundup CT® had no significant effect on weeping grass and threeawn speargrass but reduced ground cover of redleg grass and kangaroo grass (Table 2).

Discussion

The results of this experiement show that wallaby grass, weeping grass and threeawn speargrass are severely damaged by even low rates of Frenock® applied at any time of the year. Keys and Simpson (1993) found Frenock® applied in May at 1 and 2 L/ha killed weeping grass and three types of wallaby grass (*D. pilosa*, *D. racemosa*, *D. duttoniana*). However, redleg grass can tolerate rates up to 2 L/ha (Campbell unpublished data) while kangaroo grass and poa tussock tolerate 3 L/ha (Campbell *et al.* 1987) but are severely damaged by 5 L/ha (Dellow and Campbell 1979; Campbell *et al.* 1986).

sites 1, 4 and 5 were poor, possibly reflecting the variable persistence of their predominant clover variety, Woogenellup, which is outclassed in persistence and production in this environment by cv. Junee (Dear and Jenkins 1992).

The work is continuing in order to obtain profiles of good, satisfactory and poor subterranean clover leys in terms of the parameters being measured. The eventual aim of the project is to recommend to farmers a protocol for pasture monitoring, and to provide them with management targets (benchmarks) based on seasonal indicators and pasture measurements.

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