Pasture Weeds

Research Note

CONTROL OF RAUTAHİ (CAREX GEMINATA) WITH GLYPHOSATE

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SUMMARY

Times and rates of application of glyphosate to a dense stand of rautahi were examined. Applications of 1 or 2 kg/ha in January or 2 kg/ha in February gave over 98% control lasting at least one year.

INTRODUCTION

The coastal Manawatu has extensive areas of sand country consisting of low lying wet peat and sand soils between grass covered sand dunes. In these low lying areas can be found dense patches of rautahi and scattered plants of another native sedge *Cyperus ustulatus*.

Rautahi produces a dense and vigorous rhizomatous root system which is the principle means of propagation. Foliage is tall (about 1m) and very dense, reducing the available summer grazing from the moist areas at a time when the dunes are drying out.

Meeklah and Mitchell (1979) reported good control of another species of rautahi (*Carex coriacea*) with 2 to 4 kg/ha of glyphosate. Best control was achieved at the time of flowering (December-January).

This trial work was initiated to investigate whether the South Island results are applicable to the Manawatu conditions and to the species of rautahi present.

MATERIAL AND METHODS

A single trial was carried out on a dense stand of rautahi on wet sand country (Pukepuke sand) near Santoft. Glyphosate was applied by a propane powered knapsack sprayer in 220 litres/ha at 200 kPa at two rates on four dates from early summer to autumn (Table 1). There were four replicates arranged in a randomised block design, each replicate containing two untreated plots. Plot size was 3 x 10 m. The area was lightly grazed by cattle throughout the summer of 1979/80.

Assessments were made on 4.11.80 and 10.3.81 by counting the number of rautahi plants surviving in a 10 x 1 m strip down the centre of each plot. In the untreated plots, the plants were counted in two 1 x 1 m quadrats near the middle.

RESULTS

All treatments reduced the number of plants considerable by comparison with the untreated plots, so for the purposes of statistical analysis, untreated plots were excluded. Analysis of variance was carried out on data transformed by $\ln(X + 1)$, where X was the number of plants per 10 m².

At the first date of assessment, 2 kg/ha of glyphosate applied in February gave significantly better control of the rautahi than either rate in December or April, but was not significantly different from the other January or February treatments (Table 1). By the second assessment date, plant numbers had increased in all treated plots. Three treatments (1 and 2 kg/ha in January and 2 kg/ha in February) showed significantly better control than all other treatments.

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TABLE 1: The effects of times and rates of glyphosate on rautahi plant numbers.

Application date	Rate of glyphosate	Plants/10 m ²	
		4.11.80	10.3.81
16.12.79	1	131 (4.3)	209 (5.0)
	2	12 (2.3)	24 (3.2)
30.1.80	1	3 (1.1)	7 (1.9)
	2	2 (1.0)	6 (1.6)
28.2.80	1	7 (1.8)	27 (3.3)
	2	2 (0.7)	9 (1.9)
8.4.80	1	22 (2.5)	132 (4.7)
	2	13 (2.4)	61 (4.1)
untreated		773	586
LSD (5% level) (untreated plots excluded)		(1.4)	(1.0)

Transformed data in brackets.

No oversowing was carried out, but natural establishment of Yorkshire fog, (*Holcus lanatus*) browntop (*Agrostis tenuis*) and white clover (*Trifolium repens*) was good in all plots.

CONCLUSION

This trial confirms the work by Meeklah and Mitchell (1979) that mid to late summer, when the rautahi seedheads are turning brown and ripening, is the best time to control rautahi. Spraying glyphosate in late January with 1 kg/ha gave results almost as good as 2 kg/ha. Comparable results with the January treatments were achieved by spraying at the end of February, but a rate of 2 kg/ha was necessary.

Although the control achieved was very good for at least twelve months, some spot treatment would be required to eliminate the few plants that survive.

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REFERENCES

Meeklah, F.A. and Mitchell, R.B., 1979. Evaluation of glyphosate for control of *Carex coriacea*. *Proc. 7th Asian-Pacific Weed Sci. Soc. Conf.*: 137-140.