CHEMICAL CONTROL OF PERENNIAL NETTLE

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ABSTRACT

Herbicides were applied to discrete patches of perennial nettle (*Urtica dioica*) at different times of the year. All treatments reduced the size of the nettle patches but regrowth was usually vigorous. A single application of 2,4-D + picloram or picloram granules, or repeat applications of 2,4,5-T, eradicated most patches and there was very limited regrowth from others. Untreated nettle patches increased in size over two years of observations.

INTRODUCTION

Perennial nettle has an extensive system of large, tough roots and forms tall, dense clumps. It was first recorded in New Zealand in 1870 and occurs in many parts of the country (Webb 1981) although it is not common and is usually restricted to waste places (Matthews 1975). In the last few years it has spread into hill country pastures in parts of Taranaki, especially in the Morea Valley, north-east of Hawera, but also near Stratford and in the Waitotara Valley. Local farmers claim that it spread markedly after the serious drought of early 1978. Although cattle and, to a lesser extent, sheep sometimes graze the foliage, it reduces pasture area available for grazing for much of the year.

Perennial nettle is a common pasture weed in western Europe. Fryer and Makepeace (1978) suggested that regular cutting for silage or hay, systematic trampling by cattle or cultivation can give good control, but these methods would often be impractical on hill country farms. The same authors recommended a repeat application of mecoprop or 2,4,5-T for control in grassland but also claimed that several applications of MCPA or 2,4-D will lead to eradication.

Because of the rapid spread of perennial nettle in some areas, and the poor results obtained by farmers using 2,4-D + dicamba for its control, chemical control experiments were carried out between 1979 and 1981. This paper presents the results.

MATERIAL AND METHODS

The experiments were carried out on a west-facing hillside on the property of Mr J. Duthie, Morea Valley. The herbicides and rates used, and the dates of application are shown in Table 1. Each plot was a discrete nettle patch and there were 5 replicates of each treatment, arranged completely at random. In general each treatment was applied only once, but some of the nettle clumps which showed limited regrowth after 2,4-D + picloram application in 1979 or early 1980 were re-treated with the same herbicide mixture in December 1980. Nettle patches treated with 2,4,5-T or mecoprop in October 1980 were re-treated with the same rates, in February 1981.

Picloram granules were spread by hand. The other herbicides were applied with a precision knapsack sprayer and hand-held boom delivering 220 litres/ha at 200 kPa.

The condition of the nettles and the extent of regrowth were recorded at intervals, the last assessment date being 8 October 1981.

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TABLE 1: Visual assessment of green vegetation at 2-3 months after treatment, expressed as a percentage of untreated controls.

Herbicide	Rate (kg/ha)	Application date					
		23/10/79	9/1/10	10/3/80	9/10/80	17/12/80	16/2/81
glyphosate	1	38*	56	52*	-	-	-
	2	20*	30	20*	-	-	-
2,4-D ester	1	82	90	70	-	-	-
	2	78	96	74	-	-	-
2,4-D + dicamba	1 + 0.25	48	96	80	-	-	-
	2 + 0.5	34	98	56	-	-	-
2,4-D + picloram	1 + 0.25	0	4	0	0	2	0
	2 + 0.5	0	0	0	0	0	0
2,4,5-T	1	-	-	-	40	58	44
	2	-	-	-	10	46	36
mecoprop	1	-	-	-	52	80	72
	2	-	-	-	32	75	60
picloram (granules)	1	-	-	-	0	5	0
	2	-	-	-	0	0	0

* Stunted leaves and stems

TABLE 2: Numbers of clumps (out of 5) with no regrowth in the next spring after treatments.

Herbicide	Rate (kg/ha)	Application date					
		23/10/79	9/1/80	10/3/80	9/10/80	17/12/80	16/2/81
2,4-D + picloram	1 + 0.25	4	2	3	2	1	2
	2 + 0.5	4	4	3	4	3	3
picloram (granules)	1	-	-	-	4	5	5
	2	-	-	-	4	3	5
2,4,5-T	1	applied 9/10/80 + 16/2/81					0
	2	applied 9/10/80 + 16/2/81					3

All nettle patches regrew after other treatments.

RESULTS

At least some of the existing top growth was removed by all herbicide treatments but in most cases regrowth was rapid and vigorous (Table 1). In the next spring after treatment nettle patches appeared to be smaller than they had been originally but the new growth was strong and dense, except where 2,4-D + picloram or picloram granules had been applied. These were the only single treatments to eradicate any nettle patches, although a repeat application of the high rate of 2,4,5-T also gave a complete kill of some patches (Table 2). A nettle patch was regarded as dead if it did not show any regrowth in the next spring after treatment: patches counted as dead in October 1980 showed no regrowth at later dates.

Nettles not eradicated by 2,4-D + picloram or picloram granules showed very limited regrowth from only one or two shoots. Such regrowth from nettles first treated in 1979-80 was killed by a repeat application of 2,4-D + picloram in December 1980 and there was no sign of recovery in October 1981.

Glyphosate caused stunting of regrowth after application but new growth the following season was normal. Especially after the March application of glyphosate very dense stands of winged thistle (*Carduus tenuiflorus*) developed in and around the nettle patches.

Observations on untreated clumps of nettles (Table 3) showed that these tended to increase in size from year to year. A few flowers were present as early as October but the peak flowering season was in December and January. After flowering new vegetative growth appeared. Some nettle patches were grazed by sheep at flowering time and the centre of each patch was particularly heavily grazed. During the summer heavy infestations of Red Admiral (*Vanessa gonerilla*) caterpillars caused severe defoliation on some nettle plants but the level of infestation varied considerably from year to year.

TABLE 3: Mean size of 10 untreated nettle patches

Date	Length (m)	Width (m)	Area (m ²)
24 Oct 1979	3.6	2.1	6.2
9 Oct 1980	4.4	2.5	9.3
8 Oct 1981	5.4	3.0	13.3

DISCUSSION

Of the seven herbicides or herbicide mixtures tested, only 2,4-D + picloram and picloram granules gave complete control of any treated nettles after a single application. Where control was not complete regrowth was minimal and was eradicated by a repeat application. There was no advantage in using the high rate of either chemical because re-treatment of some patches was needed with both rates. There was little effect of date of treatment on effectiveness of control, although December-January treatments appeared slightly inferior.

2,4-D + picloram and picloram granules are very damaging to clovers so that spot treatment of individual nettle patches is preferable to an overall spray of pasture containing nettles.

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