A PRELIMINARY LOOK AT DPX-6376 FOR CONTROL OF MATURE BROOM

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ABSTRACT

DPX-6376 at 0.75 kg ai/ha with 0.5% V/V surfactant resulted in 80% control of mature broom stems in one trial in North Canterbury. This was considerably better than 4.4 kg ai/ha 2,4,5-T and 1.1 kg ai/ha picloram which resulted in only 64% control. Doubling the rate of DPX-6376 did not improve control, but application without surfactant resulted in poorer control.

INTRODUCTION

DPX-6376 contains 750 g/kg (75%) methyl 2-[[[(4-methoxy-6-methyl-1,3,5-triazin-2-yl) amino] carbonyl] amino] sulfonyl] benzoate in the form of a wettable powder. It is suggested that it be applied in water as a high volume spray to control gorse (*Ulex europaeus*), broom (*Cytisus scoparius*) and blackberry (*Rubus fruticosus*): addition of a non-ionic surfactant is recommended to improve activity.

In search for a herbicide that could control a range of weed species that may be present on any one site where exotic forests are to be established, or where second rotation plantings are taking place, DPX-6376 was tested on a variety of weed species, initially on mature plants. This note summarises initial results on broom.

METHOD

A randomised block designed trial was laid down on broom which had established following a burn in April 1978 and was up to 2.2 m tall, growing from closely spaced individual stems. The site was at Fernside, North Canterbury on a stony Lismore soil.

Treatments were applied in water in a total volume of 330 litres/ha on 7.12.81 when broom was in full leaf. Soil conditions were dry and at the time of spraying the ambient air temperature ranged from 16-18 °C and the relative humidity from 76-64%. Application was made in a double pass and four replications of each treatment were sprayed.

DPX-6376 was tested at 0.75 and 1.5 kg ai/ha both with and without an organosilicone surfactant (Silwet L-77) at 0.5% V/V. One rate, 4.4 kg ai/ha 2,4,5-T isooctyl ester and 1.1 kg ai/ha picloram (Tordon Brushkiller 520), was used for comparison.

Treatments were evaluated 14 months after application of chemicals by establishing two 3.6 m transects diagonally across each 3 x 2 m plot. Broom stems were harvested at 40 cm intervals (or nearest point) along the line to give 16 stems/replicate. The stems including root systems were carefully removed and each stem was cut into 20 cm lengths to determine the amount of stem kill by noting the presence, or absence of green cambial tissue. The roots of all stems were examined to determine whether they were alive by noting the presence of "live" tissue.

RESULTS AND DISCUSSION

In all cases, stems classed as dead also had a dead root system. This was unlike gorse (Balneaves 1982). Broom stems which were partially alive had a vigorous and healthy root system. Therefore the data presented in Table 1 summarises only the above ground stem material.

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TABLE 1: Percentage of stems dead, alive or regrowing 14 months after treatment.

Stems	DPX-6376 (kg ai/ha)				2,4,5-T/picloram 4.4 + 1.1 kg ai/ha
	0.75	0.75 + Surf.	1.5	1.5 + Surf.	
dead	67	80	76	80	64
alive	16	12	12	17	12
regrowing	17	8	12	3	24
CV %	30	18	29	16	28

Stems counted as "alive" had green cambial tissue but no regrowth at time of harvesting. The third category refers to the material which had recovered from the spray effects, was regrowing and was generally vigorous and healthy.

Analysis of data (Chi-square test) indicated that differences between the two rates of DPX-6376 alone and 2,4,5-T/picloram were not statistically significant. The results indicate that the low rate of DPX-6376 + surfactant was as good as the high + surfactant and was significantly better ($P < 0.01$ level) than the low rate alone or 2,4,5-T/picloram. It was noted during the assessments that shorter stems of broom (90-129 cm) were least affected by the spray treatments.

Other features were the similarity of results when comparing effectiveness of DPX-6376 (0.75 kg ai/ha without surfactant) and 2,4,5-T/picloram. A further observation to be noted was the difference between DPX-6376 with and without surfactant. The surfactant effect was more apparent with the low rate of DPX-6376.

It appears from this preliminary work that there is little to be gained from increasing the rate of DPX-6376 from 0.75-1.5 kg ai/ha and that a surfactant is essential to achieve greater effectiveness. Further work with this product is underway to evaluate its effectiveness against broom, gorse, blackberry, bracken (*Pteridium aquilinum* var *esculentum*) and flax (*Phormium tenax*).

ACKNOWLEDGEMENTS

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REFERENCE

- Balneaves, John M., 1982. Response of mature gorse to different esters of 2,4,5-T and fenoprop and picloram. *Proc. 35th N.Z. Weed and Pest Control Conf.*: 141-144