

SCRUB WEED CONTROL WITH THIAZAFLURON

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Summary

Thiazafluron was applied to a range of commonly occurring scrub weeds. Satisfactory results were obtained where the higher rates (8 to 10 kg/ha) were applied and a minimum of 200 mm of rain fell within three months. Residues of thiazafluron (5 to 10 kg/ha) in the soil were toxic to plantings of radiata pine (*Pinus radiata*), maize (*Zea mays*) and pasture species 12 months following application. Bracken (*Pteridium aquilinum* var. *esculentum*.) was not killed by thiazafluron.

INTRODUCTION

Patterson *et al* (1974) showed that thiazafluron (then GS 29696) as a non-selective herbicide controlled a wide range of annual and perennial broadleaf species.

To determine its effect on scrub species a series of 40 trials with diverse soil and climatic differences were carried out in the period 1972 to 1975 on gorse (*Ulex europaeus*), blackberry (*Rubus fruticosus* agg.), broom (*Cytisus scoparius*), bracken (*Pteridium aquilinum* var. *esculentum*), contorta pine (*Pinus contorta*), toetoe (*Cortaderia* spp.) and Himalaya honeysuckle (*Leycesteria formosa*).

EXPERIMENTAL

Thiazafluron is formulated as a 80% wettable powder and a 10% granule. The WP formulation was applied by motorised knapsack sprayer in 1500 to 2000 litres of water/ha, the granule formulation by shaker jar or by broadcasting using dry sand as a carrier. Treatments were randomised and replicated twice.

Karbutilate and 2,4,5-T were used as comparative treatments in early trials and 2,4,5-T as an additive to thiazafluron in later trials. Rates of application are included under the headings on individual species.

Radiata pine (*Pinus radiata*) was planted in some of the treated areas at varying periods following application, and in one trial the area was cultivated and planted in maize (*Zea mays*) 12 months following chemical application.

RESULTS AND DISCUSSION

Trials were located in the Waikato, Central Plateau, Banks Peninsula, the foothills of Canterbury and the West Coast of the South Island. Soil types included sandy, silt and clay loams; alluviums; pakehe and sand.

Range of rainfall was from 73-1180 mm at 3 months, 270-1858 mm at 6 months and 728-3315 mm at 12 months.

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Scrub Weeds

Gorse (19 trials)

Thiazafurion (10 kg/ha) killed gorse in all areas where 200 + mm of rain fell within three months of treatment. The WP formulation provided a marked foliar effect three weeks following application and plant death occurred more quickly than with the granular formulation. Results from 5 kg/ha of either formulation were initially similar to the 10 kg/ha rates but regrowth was detectable at 12 months post treatment.

The addition of 2 kg/ha 2,4,5-T to thiazafurion (5 kg/ha) resulted in a more spectacular foliar effect than from the individually applied chemicals but the result in terms of plant death are doubtful at four months. Karbutilate (10 kg/ha) was inferior to thiazafurion at comparable rates.

Blackberry (10 trials)

In all trials 8 and 10 kg/ha thiazafurion provided complete control of blackberry. Results from 4 and 5 kg/ha treatments were initially encouraging but 4 to 6 months following treatment signs of regrowth were detectable and although at 18 months these treatments were still good individual live plants remained. At comparable rates the 80% WP formulation gave a quicker knockdown than did the 10% granule but at six months this difference was not detectable.

Recently trials have been laid down with mixtures of 2,4,5-T and thiazafurion. At the time of writing the combination of thiazafurion (5 kg/ha) and 2,4,5-T (2 kg/ha) is most impressive but at four months post treatment it is too early to draw any definite conclusions.

Reliability of rainfall in the first three months does not appear to be as important as in gorse control.

Karbutilate (10 kg/ha) was considerably inferior to thiazafurion at the 10 kg/ha rate.

Bracken (9 trials)

Thiazafurion at rates up to 18 kg/ha did not kill bracken. Considerable chlorosis/necrosis occurred on areas treated with rates of 10 and 18 kg/ha but at 12 months no plant death resulted. Karbutilate gave excellent control of bracken at 10 kg/ha.

Himalaya honeysuckle (2 trials)

Results from two trials show 100% kill by thiazafurion (10 kg/ha) at 12 months post treatment on mature Himalaya honeysuckle. The 5 kg/ha rate showed little effect.

Toetoe and Broom (1 trial each)

Results on each species show 100% kill by thiazafurion (10 kg/ha) at four months post treatment and a 70% kill by 5 kg/ha.

Contorta pine (1 trial)

Trees of varying heights were treated with 5 and 10 kg/ha thiazafurion as granule and the WP formulations and by injection into the trunk.

Both formulations at 10 kg/ha killed contorta less than 2 m high when applied to an area of 4 m² at the base of the tree. As tree height increased above 2 m so chemical effect lessened to be barely detectable on 4 m trees. The 5 kg/ha rates and the trunk injection method were ineffective.

RESIDUES

Radiata pine, maize and pasture species planted 12 months following treatment did not survive the still active thiazafluron residues in the soil.

CONCLUSIONS

1. Ten kg/ha thiazafluron controlled gorse, blackberry, broom, honeysuckle and toetoe adequately when 200 mm of rain fell within three months.
2. If + 200 mm of rain falls in the three months following treatment timing of application is not important.
3. Similar results are achieved from the 80% WP and 10% granular formulations.
4. Significant residues of thiazafluron remained active in the soil at 12 months post treatment.

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REFERENCE

- Patterson, T. M., and Rae, S. J., 1974. GS 29696 — A new herbicide for non-selective weed control. *Proc. 27th N.Z. Weed and Pest Control Conf.*: 162-66.