CONTROL OF LUCERNE STEM NEMATODE WITH CGA 12223

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Summary

The systemic organo-phosphorus insecticide CGA 12223 was applied to lucerne to evaluate its activity on the stem nematode (*Ditylenchus dipsaci*). Subsequent nematode counts showed significant control in plots treated with CGA 12223 at rates of 2, 4, or 8 kg/ha.

INTRODUCTION

The distribution of stem nematode (*Ditylenchus dipsaci*) described by Wood (1972) suggested that 30% of lucerne in Canterbury could be infested. Following the wet winter and spring of 1974, visible damage to lucerne in Canterbury was widespread and often severe (pers. comm. MAF Diagnostic Station and personal observation).

The endoparasitic habit of stem nematode necessitates the use of a systemic nematicide and technical data on CGA 12223 suggested that exploratory evaluation against this species was justified.

EXPERIMENTAL

CGA 12223 was applied as a 5% granule at rates of 2, 4, and 8 kg/ha, and as a 50% emulsifiable concentrate at 8 kg/ha to Wairau lucerne (*Medicago sativa*) at Lincoln. Treatments were applied on 7 October 1974 to visually damaged lucerne 3 to 10 cm in height. The granule formulation was applied by shaker jar and the EC formulation by a plot sprayer delivering 300 litres/ha at 220 kPa. The top 5 cm of soil was dry when treated but 15 mm of rain fell within 24 hours with no further rain before sampling. Soil type was Templeton medium alluvium. Treatments and untreated controls were replicated nine times in a randomised block design. No standard nematicide was used as a comparison as there is no product marketed in New Zealand for this purpose.

Sampling and extraction method:

Random samples of lucerne were taken from each plot, 17 days after treatment, — 10 samples per plot with a total weight of approximately 2 kg. The samples were cut just below ground level with a knife. In the laboratory each sample was very thoroughly mixed and then 10 stems removed for use in extraction of the nematode by the Baermann funnel method.

RESULTS

Nematode counts and degree of lucerne chlorosis are recorded in Table 1.

CGA 12223 50 EC, 8 kg/ha caused severe leaf and stem chlorosis at 15 days post treatment. In four of the nine replications of this

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Insect Pests

treatment, leaf drop was just detectable on odd plants, however no plant death was recorded and six weeks following treatment these plots were not visibly different from the untreated controls.

TABLE 1: NEMATODE COUNTS AND LUCERNE CHLOROSIS
17 DAYS AFTER TREATMENT. (Mean of 9 replications)

Treatment	Rate kg/ha	No. nematodes /10 stems	Chlorosis EWRC 1 to 9
CGA 12223 5G	2.0	57	1.0
	4.0	24	2.0
	8.0	3.7	3.6
CGA 12223 50EC	8.0	4.4	6.3
Untreated control		356	1.0

EWRC chlorosis ratings; 1 = no damage, 5 to 9 = unacceptable damage

CONCLUSIONS

CGA 12223 showed significant activity against lucerne stem nematode, effectiveness increasing with rate. The level of control necessary to prevent economic damage is not known, but subsequent observations of this trial site may give information on this point. Results from the granule formulation confirm the systemic activity of CGA 12223 through root uptake.

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REFERENCES

- Wood, F. H., 1972. Biology incidence, and general control of the lucerne stem nematode. *Proc. 25th N.Z. Weed and Pest Control Conf.*: 116-121.