A NEW ORGANO-PHOSPHORUS COMPOUND FOR GRASS GRUB CONTROL

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Summary

Following promising laboratory tests, CGA12223 was included in four field trials in 1973 to assess its effectiveness against grass grub (*Costelytra zealandica*) larvae. Assessment by grub counts indicated a high level of control at rates of 2.0 or 4.0 kg/ha. In each trial a significant amount of rain fell within seven days after treatment.

INTRODUCTION

WHILE there are a number of organo-phosphorus insecticides already in use for grass grub control, their acceptance is limited by a variety of factors including reliance on rain soon after treatment, toxicity to user and wildlife and cost. The level of activity shown by CGA12223 against grass grub larvae in laboratory tests, indications of stability on and in soil and an acute oral mammalian toxicity of 60 mgm/kg (rat) were sufficiently encouraging to justify preliminary field evaluation.

METHOD

CGA12223 was applied as a 5% granule at rates of 2.0 and 4.0 kg/ha in randomised, replicated trials and compared with the standard materials diazinon and fensulfothion at the recommended rate of 2.0 kg/ha and with untreated controls. Trial areas were sampled before and at a suitable period after treatment. In three trials an additional sampling was done approximately 12 months after treatment to obtain some assessment of a possible effect in the second season. While such assessments are of limited value in small plots they do give an indication of the effect on general population levels in the season following treatment.

RESULTS

The results are shown in Table 1. In each case the population at time of treatment was composed of second and third instar larvae.

CONCLUSION

Results with CGA12223 were at least comparable with those from established materials for grass grub control under generally favourable conditions. Further work is clearly justified and a further, more intensive, series of trials was laid down in Autumn 1974.

TABLE 1. NUMBER OF GRASS GRUBS PER SPADE SQUARE

<i>Trial</i>	<i>1</i>		<i>2</i>	<i>3</i>	<i>4</i>		
Date laid down	30/4/73		17/4/73	18/5/73	17/4/73		
Locality	Mangakino		Whakamaru	Akaroa	Canterbury		
Soil type	Taupo silty sand		Taupo silty sand	Volcanic silt loam	Lismore silt loam		
Soil moisture	Damp 0-10cm		Dry 0-5cm	32%	24%		
Rainfall 1 wk	22 mm		42 mm	24 mm+	18 mm+		
Pre t/ment P'lation	17		23	20	31		
Post t/ment P'lation	3	12	9 wks	3	11	4	12
kg/ha	mths	mths		mths	mths	mths	mths
CGA 12223 2.0	1.4	4.1	2.6	8.4	1.1	1.2	14.0
CGA 12223 4.0	—	—	0.8	—	—	—	—
Diazinon 2.0	—	—	2.8	9.3	2.8	5.4	46.0
fensulfothion 2.0	1.1	3.3	2.7	8.7	0.8	2.0	13.4
control	15.3	14.2	17.9	21.0	6.8	25.2	50.3

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