CONTROL OF GRASS-GRUB WITH LOW RATES OF HEPTACHLOR

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Summary

Good control of grass-grub (*Costelytra zealandica*) in pasture on alluvial soils was obtained by heptachlor granules at 2 to 8 oz. a.i./acre.

TRIALS were carried out with granular heptachlor on six farms where DDT was failing to control grass-grub (*Costelytra zealandica*) in order to find the lowest rate that would give satisfactory control. Trials were located on a variety of alluvial soils. Annual rainfall is approximately 30 in. at all sites except Mahakipawa (approximately 60 in.).

Heptachlor prills 1¼% a.i. by weight were prepared in conformity with Agricultural Chemical Board specification for DDT prills (approximately 16 mesh per inch with little passing 25 mesh). These were applied in calm weather by spinner spreader.

Table 1 gives estimates of grub numbers from soil samples in these trials. It is clear that the lowest effective rate of heptachlor varies with the soil. Two ounces (all rates in active ingredient per acre) gave excellent control in four out of six trials. This rate may fairly be considered the lowest which could be used commercially. Trials 4, 7 and 9 were used for residue studies on samples of pasture and animal fat conducted by Wallaceville Animal Research Centre. Trials 1, 2, 4 and 7 were assessed at intervals for number and vigour of surviving grubs. In Trial 2 half the grubs in the heptachlor plots were incapacitated in 5 weeks (i.e., could not burrow into loose soil in 1 hour) but grub numbers were not reduced in this time. Most grubs were dead within 3 months of application.

No reduction or incapacitation of grubs was observed in the other trials during the season of application. Heavy rain probably allowed heptachlor to work especially fast in Trial 2. If heptachlor is used at the lowest effective rate (judged on the result in the season following treatment), it may not act fast enough to control an infestation.

TABLE 1: RESULTS OF TEN TRIALS WITH GRANULAR HEPTACHLOR.

(Live grass-grubs per square foot)

TRIAL 1: Rapaura, Blenheim. Fertile medium silt. Treated 28/4/65.			
Assessed	20/5/66	28/4/67	
Heptachlor 8 oz ..	0	0	
DDT 4 lb ppi	16	13	
Untreated	18	12	
TRIAL 2: Mahakipawa between Picton and Havelock. Fertile medium silt. Treated 28/5/65.			
Assessed	1/7/65	29/5/66	8/5/67
Heptachlor 8 oz ..	2.5	0	0
Untreated	3.5	25	7

TABLE 1—Contd.

TRIAL 3: Marshlands, Blenheim. Heavy silt recently recovered from swamp. Treated 13/6/66.

Assessed	1/5/67
Heptachlor 2 oz ..	3
Untreated	10

TRIAL 4: Marshlands, Blenheim. Fertile heavy silt. Treated 13/6/66.

Assessed	1/5/67
Untreated	0.4
Heptachlor 2 oz ..	2.5

TRIAL 5: Marshlands, Blenheim. Stony silt. Treated 13/6/66.

Assessed	12/5/67
Heptachlor 2 oz ..	1
Untreated	15

TRIAL 6: Marshlands, Blenheim. Stony silt. Treated 13/6/66.

Assessed	13/5/67
Heptachlor 2 oz ..	1
Untreated	14

TRIAL 7: Rapaura, Blenheim. Fertile medium silt. Treated 15/6/66.

Assessed	28/4/67
Heptachlor 1 oz ..	5
Heptachlor 3 oz ..	0
Untreated	24

TRIAL 9: Spring Creek, Blenheim. Fertile medium to heavy silt. Treated 15/6/66.

Assessed	27/4/67
Heptachlor 2 oz ..	0
Untreated	14

TRIAL 10: Carew, Ashburton. Stony silt. Treated 1/7/66.

Assessed	19/5/67
Heptachlor 2 oz ..	9
Heptachlor 4 oz ..	3
Untreated	23