

PORINA CONTROL IN CANTERBURY 1965

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Summary

Ten materials were tested, some of them as both sprays and granules. Diazinon and trichlorphon confirmed their position as reliable substitutes for DDT in porina (*Wiseana* spp.) control in Canterbury. The newer organophosphates S4400, fenitrothion, methidathion and fensulfothion were as good as diazinon and trichlorphon in protecting pasture. The same materials applied at the end of May and beginning of July resulted in no improvement in pasture cover under conditions of these tests, nor was high initial kill of larvae reflected in better population reductions over the full period of insecticide activity. None of the materials at dosages used adversely affected earthworm numbers.

PORINA CONTROL, METHVEN — SERIES I

Applied: March 30–31, 1965 *Sampled:* September 6, 1965
Pre-treatment sampling (20 spade square samples: Range, 3 to 11; average, 5.
Application by hand shaker for granules and knapsack sprayer for sprays; two ways at right-angles to 1 in. long, dry pasture in absence of stock. *Wind:* Range 0 to 2 m.p.h.; average, 1 m.p.h.
Replications: 5 *Plot size:* ¼ ch × ¼ ch.
Larval counts on basis of 6 spade square samples per plot and pasture cover was assessed by at least two officers working independently in absence of treatment plans.

SUMMARY

- (1) On porina counts all materials except DDT prills were better than controls.
- (2) On pasture cover all materials (except DDT prills which were at the 5% level) were better than controls at the 0.1% level.
- (3) No material adversely affected earthworms at these dosages and site.
- (4) There were no significant differences between S4400, diazinon, DDT emulsion, fenitrothion, methidathion, fensulfothion, or as far down the table opposite as "Cidial" on pasture cover.
- (5) S4400 at 1 lb was significantly better than trichlorphon at the 5% level on pasture cover.
- (6) Diazinon granules at 1 lb were significantly better at the 5% level than trichlorphon granules but not trichlorphon sprays on pasture cover.
- (7) All materials except DDT prills gave good pasture protection.

Materials	A		B		
	Dosage (lb a.i./acre)	Porina Stat. Means	Earthworms Stat. Means†	Pasture Cover % Stat. Means	Signif.
S4400 granules	1	1.20	58.8	84.85	***
Diazinon gran.	1	1.62	64.0	80.64	***
DDT emulsion	1	1.06	60.4	80.28	***
Fenitrothion spray	1	0.91	50.4	79.22	***
Methidathion spray	1/2	1.82	54.4	79.00	***
Fensulfothion gran.	1	0.99	66.8	78.44	***
Fensulfothion gran.	2	0.81	47.0	77.88	***
S4400 gran.	2	0.99	57.2	77.77	***
Fenthion spray	1/2	1.44	57.2	77.10	***
Diazinon spray	1	0.91	53.0	76.25	***
"Cidial" spray	2	1.90	55.2	74.63	***
Trichlorophon spray	1	1.78	47.6	71.48	***
Trichlorophon gran.	1	1.67	53.8	69.94	***
Methidathion gran.	1/2	1.86	68.6	69.66	***
DDT prills	1	2.31	63.6	48.55	*
Control	—	2.74	50.8	34.67	—

† All N.S.

Differences for significance:

A. Porina	5%	1%	0.1%
B. Pasture cover	0.71	0.94	1.23
	10.52	13.99	18.2

Notes:

- N.S. = Not significant
- * = Significant at 5% level
- *** = Significant at 0.1% level
- ** = Significant at 1% level

PORINA CONTROL, METHVEN — SERIES II

Applied: May 26, 1965 Sampled: September 6, 1965
 Same paddock and particulars as for Series I and including a similar range of chemicals.
 Replications: 4

Materials	Dosage (lb a.i./ acre)	Porina Stat. Means*	Earth- worms Stat. Means*	Pasture Cover Stat. Means*
Control	—	2.33	47.5	59.69
Trichlorphon granules	1	2.40	45.5	58.02
Diazinon spray	1	1.98	48.0	55.36
S4400 granules	1	2.39	54.8	54.04
Diazinon granules	1½	3.08	56.0	53.68
DDT prills	1	2.27	51.8	53.30
Fensulfothion granules	1	2.34	53.5	52.88
Methidathion	1	2.04	46.0	52.26
DDT (Stauffer)	1	2.42	44.5	52.12
Trichlorphon spray	1	2.28	45.0	51.20
Trichlorphon granules	1½	2.49	52.5	50.68
Diazinon granules	1	2.65	44.8	49.58

* All not significant.

RESULTS

- (1) No materials adversely affected earthworms at these dosages and site.
- (2) There were no significant differences between materials and controls by either porina caterpillar reduction or on pasture protection.

PORINA CONTROL, LADBROOKS — SERIES III

Applied: July 1, 1965 Sampled: September 2-3, 1965
 Dosage: All at 1 lb a.i./acre
 Replications: 5
 Treatment listed for 18-hour sampling after application.
 Samples: 8 per plot. Pre-treatment population average 6 per sq. sq.

Materials	Porina Stat. Means*	Grass-grubs Stat. Means*	Earthworms Stat. Means*
Diazinon granules	0.986	3.022	152.0
Diazinon spray	1.116	3.272	147.8
DDT emulsion	1.464	3.428	152.2
Trichlorphon granules	1.680	3.040	145.4
Trichlorphon spray	1.640	2.894	156.8
Methidathion spray	1.738	3.260	164.0
Fensulfothion granules	1.680	3.336	157.0
Bromophos granules	2.182	3.008	157.2
Control	1.762	3.510	165.0

* All not significant.

RESULTS

- (1) No materials adversely affected earthworms at this dosage level and site.
- (2) There were no significant differences between materials and controls, nor were there differences in pasture cover.

Compare this table with Series I and II and with A. D. Lowe's Springburn trials applied on October 20, 1965 (p. 259).

Series III was also assessed on dead larvae 18 hours after treatment; results were as follows (averages of 4 officers):

<i>Materials</i>	<i>Replicates</i>					<i>Total Caterpillars</i>
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	
Diazinon granules	4	31	48	42	47	172
Diazinon sprays	0	19	46	28	6	99
DDT emulsion	0	5	82	26	5	118
Trichlorphon granules	0	29	39	2	15	85
Trichlorphon spray	42	16	284	183	175	700
Methidathion spray	4	25	81	70	10	190
Fensulfothion granules	1	2	15	11	3	32
Bromophos granules ...	0	7	3	2	8	20
Control	0	0	0	3	0	3

Notes:

- (1) 23 of the 24 live porina larvae in Series III soil samples were in rep. 3.
- (2) 25 of the 26 live porina larvae in Series III soil samples were in rep. 4.
- (3) 24 of the 26 live porina larvae in Series III soil samples were in rep. 4.

Comparison of the 18-hour assessment with soil sampling data indicates that a high initial kill is not necessarily reflected in better larval reduction over the full period of action of materials.

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