RESULTS OF SCREENING INSECTICIDES AGAINST SOLDIER FLY LARVAE IN PASTURE

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Summary

Of 16 chemicals screened in trials conducted over 2 years only fenamiphos gave consistent results. Fenamiphos 4.48 kg/ha (5 trials) and 5.72 kg/ha (3 trials) averaged 78 and 84% reduction of larvae respectively.

INTRODUCTION

THE pest status of soldier fly (*Inopus rubriceps*) has been described by Hewitt (1964, 1969) and Timlin (1969), and control measures have been reviewed by Wilcocks (1971). Hewitt (1964) reported the results of 11 chemicals (mostly organachlorines) applied to pasture. He considered that chemical control was extremely unlikely at rates acceptable to normal field practice.

Since that time there has been no published information on the activity of chemicals against soldier fly larvae in N.Z. pastures.

The following trials were begun in 1971 to evaluate the range of chemicals available to the author. The single criterion used for screening was reduction of number of larvae in the soil.

METHODS

All the trials reported were located in the South Auckland area.

Plot size was 3 m x 3 m or 3 m x 6 m and treatments were arranged in a randomised block design with up to five replicates.

TABLE 1: SITE DETAILS

TRIAL No.	A 5016	A 5050	A 5051	A 5053	A 5054
Soil	Sandy loam	silt loam	silt loam	sandy loam	clay loam
Applied	9/8/71	6/7/72	7/7/72	29/7/72	23/8/72
Sampled	30/10/71	18/10/72	19/10/72	9/11/72	19/10/72
Reps	5	3	3	2	3
*rain (mm)					
7 days	37	44	42	—	11
14 days	38	70	65	34	52
21 days	102	106	101	89	59

* cumulative

Soldier Fly

Granule formulations were applied by pepper-pot hand shaker. Liquid formulations were applied through a hand held boom using fan nozzles delivering 337 litres/ha.

Alkylaryl polyglycol ether was added to the spray mixtures at 0.075%.

Treatments were assessed 8 to 14 weeks after application. Samples 2.5 cm diameter x 5 cm deep were taken, 9 from each plot. Larvae were extracted by hand. Sampling was abandoned if there was no obvious reduction over the control.

RESULTS

TABLE 2:

<i>Treatment</i>	<i>Formulation</i>	<i>Rate kg/ha</i>	<i>Total No. Larvae</i>	<i>% Reduction Over Untreated</i>
A 5016 (Aug 1971)				
control			100	
fenamiphos	10GR	5.6	17	83
fensulfothion	5GR	11.2	33*	67
KLN 1043	5GR	5.6	62*	38
KLN 1573	5GR	5.6	62*	38
HOX 2206	5GR	5.6	90*	10
SMS 1404	5GR	5.6	92*	8
trichloronat	10GR	11.2	120*	—
* sampling not completed; total estimated from mean.				
A 5050 (July 1972)				
control			97	
fenamiphos	10GR	6.72	13	87
fenamiphos	10GR	4.48	14	85
Tirpate	10GR	6.72	21	78
methamidophos	5GR	4.48	27	72
Tirpate	10GR	4.48	40	59
A 5051 (July 1972)				
control			75	
fenamiphos	400 EC	4.48	19	75
omethoate	1000 LC	5.6	28	63
propoxur	200 EC	5.6	55	27
fenthion	500 EC	5.6	57	24
methamidophos	600 LC	6.72	75	
A 5053 (July 1972)				
control	—	—	40	—
fenamiphos	400 EC	4.48	6	85
fenamiphos	400 EC	6.72	7	82
fenamiphos	10 GR	6.72	7	82
fenamiphos	10 GR	4.48	9	77
Tirpate	10 GR	6.72	32	20
omethoate	1000 LC	5.6	43	—
A 5054 (August 1972)				
control	—	—	59	—
fenamiphos	400 EC	4.48	19	68
BAY 6435	500 EC	5.6	29	51
phoxim	500 EC	5.6	89	—

NOTE: L.C. — water soluble concentrate.

Liquid concentrations are expressed in gm/litre, i.e.
500 EC = 500 gm/litre emulsifiable concentrate.

DISCUSSION

The primary objective of these trials was to detect large differences (greater than 80%) in the number of larvae remaining after treatment. The consistent results obtained from fenamiphos have satisfied the author that the design and methods used are adequate to meet the objective. On the other hand it appears that more sensitive sampling and analysis would be necessary to define any difference between the rates of fenamiphos used.

It is likely that some variation in results is due to soil type, rainfall and the length of time between application and assessment. Insufficient results are reported here to indicate any correlation with these factors.

Finally it must be stated that the results presented are from screening trials only, and that no attempt has been made here to evaluate or discuss the ramifications of using such treatments for practical control.

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