

Section IV

Root-feeding Maggots, Soil Arthropods, and Other Problems

SOIL INSECTICIDES TO CONTROL THE TUBER FLEA BEETLE ON POTATOES IN S. W. BRITISH COLUMBIA

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The efficacy of several soil insecticides against the tuber flea beetle (TFB) was assessed in a sandy soil during a 2 year study begun in 1986.

At seeding, granular insecticides were applied in 4 in. wide bands alongside the seed in the opened furrows. When plants were about 3 in. tall, 5 'overwintered' generation tuber flea beetles were released on each plant in the plot and allowed to feed and oviposit for six days. To determine the mortality of beetles feeding on the leaves, plants were visually inspected for beetles periodically after the beetles were released. The subsequent emergence of first generation beetles from treatment plots was quantified through the use of emergence cages.

The results show that the systemic insecticides tested were more effective than the non-systemics, however, the Di-Syston treated plots had an emergence count greater than observed for the other systemics (see Table). Since Di-Syston also took longer to kill beetles feeding on the leaves, considerable oviposition likely occurred before the beetles died. In 1986, Furadan and Lance performed poorly in soil which had a history of Furadan use, whereas the same materials were highly effective in 1987 trials which were conducted in a soil never treated with Furadan (see Table). Dyfonate, a non-systemic considered effective in the past, did not provide adequate control.

Concurrent studies conducted in muck and clay soils tested Temik and Thimet at three rates and Dyfonate at one rate. The same protocol described above was used. The results showed that similar rates of Temik and Thimet were less effective in muck than in the clay or sandy (see Table) soils. Dyfonate was not effective in any soil type tested.

Efficacy of Insecticides Against the TFB in Sandy Soil, 1987

Treatment	lbs ai/A	Total Visual Count		Total Emergence
		1 ¹	6	
*Temik 15G	1.0	12 b ²	3 a	48 ab
	2.0	1 a	0 a	17 ab
*Thimet 15G	2.3	1 a	1 a	7 a
	3.2	1 a	1 a	2 a
*Counter 15G	1.0	17 b	1 a	32 ab
	2.0	4 a	0 a	19 ab
*Furadan 10G	1.0	2 a	0 a	17 ab
	2.0	3 a	0 a	3 a
*Lance 10G	2.0	0 a	0 a	4 a
	4.0	0 a	0 a	2 a
*Di-Syston 15G	2.0	35 c	0 a	101 b
	3.0	36 c	0 a	81 ab
Dyfonate 10G	1.0	62 d	42 b	207 cd
	2.0	54 d	38 b	198 c
Lorsban 15G	1.0	49 cd	57 c	284 de
	2.0	55 d	43 b	290 de
Control	-	54 d	39 b	376 f
	-	63 d	45 bc	357 e

¹Days after beetle release.

²Numbers followed by the same letter are not significantly different according to Duncan's multiple range test. Data were transformed (square root of $x \pm 0.5$) for analysis.

*Insecticide with systemic properties.