

Efficacy Of Quinalphos and Other Insecticide Sprays Against Insect Pests* (of Brinjal)

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ABSTRACT

Candidate insecticide sprays were compared for their efficacy against major insect pests of brinjal. Endosulfan 0.025 per cent was effective against leafhopper nymphs and valexon 0.037 per cent against adults. Dimethoate 0.025 per cent was effective against the grubs of spotted beetle and quinalphos 0.025 per cent against the adult beetles. Quinalphos 0.037 per cent was able to bring down hairy caterpillar population effectively. Effective control of *Leucinodes* as shoot borer was achieved with valexon while as fruit borer this species was effectively controlled by quinalphos at 0.05 per cent. Quinalphos treated plots yielded more than those of other chemicals.

INTRODUCTION

The pest problems in brinjal are exacerbated by insects like leafhoppers, spotted beetle and shoot and fruit borer warranting chemical control. Field studies by Uthamasamy *et al.*, (1973) and Kumaresan, (1974) have indicated the effectiveness of some of the soil applied systemic insecticides against brinjal insect pests. The present paper deals with the field testing of quinalphos (Ekalux) along with a number of other insecticides as sprays against the insect pests of brinjal.

MATERIALS AND METHODS

A field experiment was conducted at Annamalai University Orchard area

during 1974-75. Seven insecticidal treatments, replicated four times, were compared for their efficacy in a randomized block design. 35 days old seedlings of the brinjal variety, Annamalai were transplanted in plots of 3 x 3 m size. The crop received its first spraying on the 20th day after transplanting and five succeeding sprays were given at 10 days interval.

Weekly observations on the incidence of leafhopper (*Amrasca biguttula biguttula* Dist.), spotted beetle (*Henosepilachna vigintioctopunctata* F.), leaf feeder (*Selepa docilis* Btlr.) and shoot and fruit borer (*Leucinodes orbonalis*) in shoots were taken for seven weeks. All the 12 plants in each plot were individually

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observed and the number of insects found therein were recorded. For shoot and fruit borer, the number of affected shoots were recorded and the incidence in fruits was estimated by counting the number of affected fruits with bore holes at the time of harvest. Finally as the cumulative parameter on the efficacy of insecticides the number and weight of the fruits obtained in each treatment were recorded.

RESULTS AND DISCUSSION

It is evident that endosulfan was most effective in bringing about maximum percentage reduction of leafhopper nymphs and valexon in the case of adults (Table). Control of leafhopper

has been achieved to varying degrees by Sathpathy and Mishra (1969), Pal (1971), Uthamasamy *et al.* (1973) and Kumaresan (1974). In the present study, valexon reduced the adult population to about 62 per cent from control.

Among the various sprays tested against *H. vigintioctopunctata*, dimethoate proved more effective against the grubs and quinalphos 0.025 per cent against the adults. Dimethoate has been earlier reported to be effective against the grubs by Uthamasamy *et al.* (1973). At 2.0 kg a.i./ha, dimethoate has been found to be quite effective against the grubs and adults of *Epilachna* (Kumaresan, 1974). Quinalphos 0.037 was observed to

TABLE Effect of insecticide sprays on the population and yield of brinjal of various insects*

Treatments	Leaf-hopper Nymphs	Leaf-hopper Adults	Spotted beetle grubs	Spotted beetle adults	Hairy caterpillar	Shoot and fruit borer*		No. of fruits/plot	Weight of fruits (kg/plot)
						In shoot	In fruits		
Quinalphos 0.025%	7.4	7.1	7.4	3.8	2.5	4.8	31.5	22.9	10.1
—Do— 0.037%	7.2	7.3	6.9	4.4	3.2	4.0	32.5	20.2	10.3
—Do— 0.050%	7.5	6.9	5.9	4.6	3.8	4.4	28.1	24.8	12.3
Endosulfan 0.027%	6.2	6.2	7.6	4.8	4.3	4.5	38.0	18.3	7.7
Monocrotophos 0.057%	7.7	5.2	6.1	4.6	4.9	4.2	42.8	16.9	7.7
Valexon 0.037%	6.3	4.8	6.6	4.5	4.3	3.6	41.8	12.0	5.5
Dimethoate 0.025%	6.8	5.5	5.3	7.1	3.8	3.8	37.9	13.4	4.9
Control	14.4	12.6	15.0	11.9	10.4	10.3	56.6	6.4	2.4

* Mean of 7 weeks observations

be effective against *S. docilis* which reduced the population to 69 per cent from control. The efficacy of quinalphos against leaf eating caterpillars like *Heliothis armigera* has been pre-

viously reported by Chari and Patel (1973).

The incidence of *Leucinodes* as shoot borer was observed in a severe

form during the vegetative phase of the crop. It was observed that 65 per cent reduction from control could be achieved by treatment with valexon closely followed by that of dimethoate and quinalphos 0.037 per cent. However, valexon was not equally effective against *Leucinodes*, as fruit borer. Only quinalphos, at the maximum concentration of 0.05 per cent could result in 49.5 per cent reduction in fruit borer incidence (Table). The efficacy of quinalphos in the control of borer insects like *Earias* spp., *Pectinophora gossypiella* and *H. armigera* has been reported by Sundaramoorthy *et al.* (1973).

The insecticides varied significantly in their efficacy to result in more yield, both in number and in weight. Quinalphos at the concentrations of 0.05 per cent resulted in 287 per cent increase in the number of fruits over control (Table). However, all the three concentrations tested were on par. The same trend could also be seen in the total weight of fruits obtained. The overall efficacy of the various treatments in increasing the total weight of the fruits was in the order of quinalphos 0.05 > quinalphos 0.037 > quinalphos 0.025 > endo-

sulfan > monocrotophos > valexon > dimethoate.

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