

Efficacy of some New Chemicals for the Control of the Red Hairy Caterpillar

by

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Introduction : The red hairy caterpillar, *Amsacta albistriga* M., is a serious pest of rainfed groundnut crop in the Tamil Nadu. In the districts of South Arcot, North Arcot and Chingleput, the pest occurs immediately after the first monsoon showers in July–August, when plants are quite young and the damage caused to the plants is severe. With the object of assessing the efficacy of some recently introduced chemicals in killing the caterpillars of medium to grown up stage, field experiments were conducted during 1968 and 1969 in three different villages in South Arcot district and the results are presented in this paper.

Materials and Methods : Three trials were conducted in cultivator's fields, one at Akur village in 1968 and the other two at Salai and Edapattu villages in 1969. The trials were laid out in a randomised block design with three replications. Seven insecticidal spray formulations, of which six belong to the contact cum stomach and one to the contact cum fumigant group were compared with untreated control.

Plots of 7.0 m × 5.8 m were peg marked with 1.0 m inter space between plots and between replications. In each plot, one open polythene cage, (1.0 m × 1.0 m × 0.75 m) was fixed and the bottom portion of the cage tucked into the soil in order to prevent the escape of caterpillars. Before spraying the number of caterpillars in each cage was recorded, taking due effort to maintain almost equal number of caterpillars in each. The insecticides were sprayed with hand operated knapsack sprayer at the rate of 900 litres of the spray fluid per hectare. The number of live caterpillars in the cages were counted 24 and 48 hours after treatment. The percentage mortality of the pest was worked out and transformed into angles (inverse sine transformation) for statistical scrutiny.

Results : 1) *Pest reduction:* The results on pest reduction are given in table 1.

It could be seen from Table, that all the insecticides were consistent in their efficacy in all the three trials. In the first trial, Endosulfan, Endrin, Parathion and Dichlorvos were on par and superior to the other treatments and control. In the second, all the treatments except Prolate and control were found

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TABLE 1. *Pest reduction 48 hours of treatment*

Treatments	Pest reduction			Mean	S.E.	C.D.	Mean percentage
	1968	1969	1969				
	<i>Akur</i>	<i>Salai</i>	<i>Edapattu</i>				
	(transformed values)						
Endosulfan (Thiodan)-0.1%	90.0	85.9	86.7	87.53			99.8
Endrin - 0.04%	84.0	80.1	90.0	84.70			99.1
Dichlorvos (Nuvan)-0.1%	79.1	85.8	86.7	83.87			98.9
Parathion - 0.05%	80.6	79.6	87.7	82.63			98.4
Fenitrothion (Sumithion)-0.05%	56.6	80.7	80.9	72.73	5.69	17.21	91.2
Carbophenothion (Trithion)-0.1%	60.5	74.8	82.7	72.67			91.2
Prolate (Imidan)-0.1%	26.3	72.1	64.2	54.20			65.8
Control	15.5	25.2	18.7	19.80			11.5
Mean	61.58	73.02	74.70				

S.E. = 3.28 C.D. for interaction = 11.12

to be on par, but Endosulfan and Dichlorvos were superior to the others. In the third trial also the results were similar with all the treatments being superior to Prolate and control and on par with each other. Pooled analysis of the data showed that the treatment effect in killing the pest did not vary significantly in the three trials. The treatment × trial interaction showed that the relative efficacy of the insecticides varied with the trials and the performance of Endosulfan, Endrin, Dichlorvos and Parathion was uniform whereas those of Prolate, Carbophenothion and Fenitrothion varied.

2) *Economics of treatment*: The cost of treatments of Endosulfan, Endrin, Dichlorvos, Parathion, Fenitrothion and Carbophenothion worked out to Rs. 74.00, Rs. 31.70, Rs. 83.00, Rs. 34.75, Rs. 96.50 and Rs. 45.50 respectively for one round of spraying per ha.

Discussion: The present studies showed that Endrin 0.04% and Parathion 0.05% were very effective against the pest recording 99.1 and 98.4% mortality respectively. These treatments are also economical. This is in confirmity with the previous findings of Mukundan (1964), Vijayaraghavan *et al.*, (1964) and Kuppusamy and Ramasamy (1965). Though Endosulfan and Dichlorvos recorded 99.8% and 98.9% mortality, they are costlier than the other two chemicals. Because of its fumigant action, Dichlorvos has quick knock-down effect which is an advantage. The slight reduction in the control plots may be attributed due to the death of the caterpillars under natural conditions. In the case of severe

infestation with a high percentage of grown up caterpillars, Dichlorvos is preferable.

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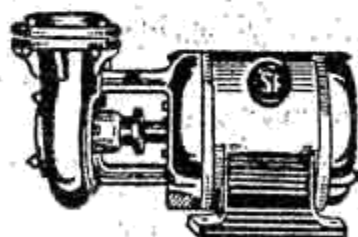
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