

Field Studies on the Comparative Efficacy of BHC, Dichlorvos and Trichlorphon for the Control of *Opisina arenosella* Wik. (*Nephantis serinopa* M.)

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The leaf eating caterpillar, *Opisina arenosella* Walker (*Nephantis serinopa* M.) is a serious pest of coconut palm in the coastal and backwater tracts, which recently is found to have spread to the interior also. The caterpillars live inside galleries on the lower surface of the leaflets and feed voraciously on the functional tissues. The damage thus caused by numerous larvae adversely affects the health of the palm and reduces the yield to a considerable extent.

Mechanical method of cutting and burning the very badly pest infested and damaged leaves in the outerwhorls prior to insecticidal application can bring in only immediate but palliative relief. In severe epidemic outbreaks chemical method of control may be resorted to for immediate relief.

MATERIALS AND METHODS

The experiment was laid out in a randomised block design (four treatments including one untreated control and six replications). Five rounds of spraying were carried out on forty eight

sample palms and on the border palms of the three treatments. Two to two and a half litres of insecticide suspension was sprayed on each palm, using a Gator Rocker sprayer, on the lower surface of the leaflets of all the infested leaves in order to get a

Spraying with DDT 0.2% gave a reduction of 80% of the caterpillars in two weeks (Nirula *et al.*, 1951). In dry areas BHC 0.2% spray also gives equally good results (Nirula, 1956). Experimental treatments with dieldrin 0.05% destroyed 77% of the caterpillars of *O. arenosella* (Pillai and Kurian, 1960). The results of a field experiment on the comparative efficacy of malathion 0.05% and DDT 0.2% revealed that malathion was equally effective as DDT for the control of the pest (Sathiamma and Kurian, 1970). The present study was made to assess the comparative efficacy of dichlorvos 0.02%, BHC 0.2% and trichlorphon 0.06%. The insecticides and doses were selected based on the laboratory trials carried out earlier (Sathiamma *et al.*, 1972).

thorough drenching of the larval galleries. Data were collected just prior to and seven days and one month after insecticidal application on the number of pests present on 20% of the attacked leaflets/leaf/palm from 48 sample palms

in each treatment/control. The data collected were statistically analysed.

RESULTS AND DISCUSSION

The results revealed significant reduction in pest population of the treated palms compared to control (Table 1). All the three chemicals were effective in reducing the pest population and there was no significant difference between them. However, BHC was found slightly more effective followed by trichlorphon and dichlorvos. After seven days and one month of insecticidal application, significant reduction in pest popu-

lation was noticed compared to pre-treatment observation. BHC after seven days gave maximum reduction in pest population. The percentage reduction in pest population, seven days and one month after insecticidal application, for individual spraying also supported the above results. (Table II and III).

In the light of the fact that DDT is now banned from agricultural use, an alternate insecticide has to be recommended as a stand by for malathion. Since chlorinated hydrocarbons are progressively being withdrawn from the group of commonly used plant protection chemicals

BHC may not be normally recommended. So considering the efficacy and less hazardousness to parasites (Chandrika *et al.*, 1968 and Saradamma *et al.*, 1968) it is found feasible to recommend trichlorphon at 0.06% and dichlorvos at 0.02% for the control of *Opisina arenosella*, the leaf eating caterpillar of coconut.

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TABLE 1. COMPARATIVE EFFICACY OF DICHLORVOS, BHC AND TRICHLORPHON FOR THE CONTROL OF *OPISINA ARENOSELLA*

Treatments and dosage		I ₁	I ₂	I ₃	Mean
1.	Dichlorvos (Nuvan 100 EC) 0.02%	39.30	7.86	7.48	18.21
2.	BHC (50% w. p.) 0.2%	32.42	3.90	5.56	13.96
3.	Trichlorphon (Dipterex 50 EC) 0.06%	31.78	7.13	10.38	16.43
4.	Control	39.23	65.11	29.50	44.61
Mean		35.68	20.99	13.23	

D. 5% for T = 12.11
 .. I = 10.48
 .. T x I = 20.97

- Treatment
- Pretreatment observation
- Posttreatment observation — seven days after insecticidal application.
- Posttreatment observation — one month after insecticidal application.

TABLE II PERCENTAGE REDUCTION IN PEST POPULATION SEVEN DAYS AFTER INSECTICIDAL APPLICATION

Serial No. of spraying	Dichlorvos 0.02%	BHC 0.2%	Trichlorphon 0.03%	Control
1	80.00	87.98	77.57	-65.95
2	35.90	-22.11	37.95	-16.81
3	87.53	52.34	61.46	64.54
4	-13.82	-9.62	-53.01	-186.16
5	-20.08	41.32	41.00	46.02
Mean	61.49	63.66	63.40	-18.72

TABLE III PERCENTAGE REDUCTION IN PEST POPULATION AFTER ONE MONTH OF SPRAYING

Serial No. of spraying	Dichlorvos 0.02%	BHC 0.2%	Trichlorphon 0.06%	Control
1	72.53	82.84	67.34	24.80
2	-71.96	-147.66	-51.96	-3.96
3	-70.19	37.23	48.29	72.50
4	-31.88	-69.85	-73.23	-155.22
5	-4.82	65.51	61.45	66.45
Mean	35.31	45.93	37.78	23.65