

Insecticidal Control of the *Bhendi* Leafhopper, *Empoasca devastans* D.

by
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Synopsis: Application of two rounds of thiometon 0.1% spray at fortnightly interval when the crop is a month old effectively controlled the (brinjal) leafhopper, *Empoasca devastans* D.

Introduction: Among the pests that contribute to loss in yield in *bhendi* (*Abelmoschus esculentus* L.), apart from the fruit borer, the leafhopper, *Empoasca devastans* D., is an important one. By feeding on the juice of the plant in the early stages of growth, it saps out the vitality of the plant. Many attempts have been made to control the insect by various insecticides and DDT has been found to be specific for its control (Sohi 1945, Anon. 1952). Recent work showed that parathion and endrin can also be employed with better results (Patel *et al.* 1957 and Srinivasan and Narayanaswamy 1960). With the object of testing these chemicals against the systemic insecticides now available in the market, two experiments were taken up on the summer and monsoon crops of 1961-'62 in the Agricultural College and Research Institute, Coimbatore.

Materials and Methods: The variety H. 127 was used in the summer trial and H. 483 (Pusa sawani a variety resistant to vein-clearing disease) in the monsoon trial. The experiments were laid out in randomised blocks with four replications in plots of 32' x 2' gross and 28' x 6' net area. The treatments in both were foliar sprays of parathion (Ekatox) 0.025%, thiometon (Ekatin) 0.1%, endrin (Endrex) 0.02% and DDT 0.1% with a control (No treatment). The insecticides were sprayed during the growth phase of the crop, i. e., about one month after sowing and repeated a fortnight later. The incidence of the leafhopper was assessed by noting the number of adults and nymphs on the 3rd, 4th and 5th leaves in eight plants marked out at random at the rate of one in each row. The counts of the insects were taken before and 3 days after treatment in the summer and 2 days after treatment on the monsoon trials. Fruits were picked periodically as they attained the vegetable stage and their weight recorded.

Results: The results obtained are summarized in tables 1 and 2. The summer crop suffered from the vein-clearing disease while the monsoon crop was healthy.

(i) *Incidence of leafhopper:* The leaf hopper was noted in larger numbers on the monsoon crop compared to the summer crop. All insecticidal treatments brought down the infestation of the leafhopper fairly well in both the crops. In the summer trial the results were significant while in the monsoon crop statistical analysis was not possible as there was no infestation in some plots after treatment due to complete control of the insect. The trends of the results were the same in both the trials. Thiometon proved to be the best in controlling the leafhopper with parathion coming next.

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TABLE 1.

Effect of insecticidal treatments on leafhoppers.

Serial No.	Treatments	Summer crop						Monsoon crop					
		24-4-61	28-4-61	% reduction	5-5-61	9-5-61	% reduction	16-9-61	18-9-61	% reduction	3-10-61	6-10-61	% reduction
A.	Parathion 0.025%	77	11	85.7	7	7	nil	153	3	98.0	25	4	84.0
B.	Thiometon 0.1%	89	9	80.0	16	3	81.2	157	2	98.7	37	3	91.8
C.	Endrin 0.02%	74	13	82.4	9	9	nil	78	4	94.8	50	5	90.0
D.	DDT 0.1%	86	12	86.0	25	9	64.0	99	9	90.9	57	0	89.4
E.	Control	67	21	68.7	123	13	89.4	167	349	nil	380	496	nil
	F. Test	** P = 0.01						Analysis was not possible since there were many cases of no infestation. Reduction in insecticidal treatments more than 80%.					
	S. E. of mean	1.20											
	C. D.	3.39 (P = 0.05)											

Conclusions:

E	D	C	A	B
14.00	7.63	7.66	6.75	6.06

TABLE 2.

Effects of insecticidal treatments on the yield of fruits.

Serial No.	Treatments	Summer crop				Monsoon crop			
		Acre yield in lb.	per cent over control	Average weight of fruit in oz.	per cent borer attack	Acre yield in lb.	per cent over control	Average weight of fruit in oz.	per cent borer attack
A.	Parathion 0.025%	4990	124.4	0.338	50.6	9623	125.6	0.512	5.7
B.	Thiometon 0.1%	5042	125.7	0.317	32.7	9901	128.2	0.531	3.9
C.	Endrin 0.02%	4796	118.7	0.308	35.3	9127	120.5	0.512	5.5
D.	DDT 0.1%	4840	120.6	0.301	42.0	8128	106.9	0.504	5.7
E.	Control	4011	100	0.300	47.0	7598	100	0.496	6.2
	F. Test	Not significant				Not significant.			

(ii) *Yield of fruits:* Since the summer crop was affected by the vein-clearing disease, the yield of fruits was somewhat low. The monsoon crop gave normal yield. All the insecticidal treatments registered better yields than control in both the experiments, but they were not statistically significant. Thiometon treatment proved to be the best in both experiments giving 25.7% and 28.2% more than control. Parathion came next with 24.4% and 25.6% respectively. The average weight of the fruit was also higher in these two cases compared to the other and the incidence of fruitborer was lower in thiometon than the others.

Conclusion: The results show that the leafhopper can be controlled effectively by the application of two rounds 0.1% thiometon at the growth phase of the crop with an interval of a fortnight between them. This has given about 25% more yield than control. The use of the poisonous insecticide in the early stages of the growth of the crop offsets the residue being encountered in the edible portions of the plant like the fruit when harvested about a fortnight after treatment.

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AWARD OF Ph. D. DEGREE

Sri P. Narayanasamy, M. sc. (Ag.), Assistant Lecturer in Mycology, has been awarded the Ph. D. Degree by the University of Madras for his thesis entitled "Studies on the sterility mosaic disease of redgram". Our hearty congratulations to him.