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EVALUATION OF INSECTICIDES FOR THE CONTROL OF JASMINE BUDWORM

N. DHANDAPANI[1], M. GOPALAN[2] and P. C. SUNDARABABU[3]

Two field experiments were conducted for the control of jasmine (*Jasminum sambac* L.) budworm, *Hendecasis duplifascialis* (Hmpsn.), revealed that application of deltamethrin 25 g a. i./ha or cypermethrin 150 g a. i./ha reduced the infestation by 90.11 and 90.21 per cent in the first experiment and 87.29 and 86.89 per cent in the second experiment respectively. Application of FMC 35001, 480 g a. i./ha or monocrotophos 360 g a. i./ha were also equally effective in reducing the budworm damage.

Among the pests of jasmine the budworm, *Hendecasis duplifascialis* (Hmpsn.) (Pyraustidae : Lepidoptera) causes about 30 to 70 per cent loss in flower yield (Anon., 1984). The greenish larva with a black head bores into immature buds, feeds on the inner contents, makes a hole and move to another bud. A caterpillar attacks five to ten buds and the buds were webbed together by silken threads in which excreta are found attached. Srivastava (1986) recommended the use of DDT 0.1% for its control. The present study was undertaken to determine a suitable insecticide for effective control of budworm and the results are reported.

MATERIALS AND METHODS

Two field trials were laid out, one at Thimmampalayam Pudhur and the other at Kalappatti villages at Coimbatore district, Tamil Nadu where the budworm incidence was very heavy during 1985-86. Eight treatments were arranged in a randomized block with a plot size of 15 x 15 m and replicated thrice. Two applications of the insecticides were given at an interval of 15 days when the bushes were three years old. The variety used in both the experiments was Ramanathapuram local. The budworm infestatation was recorded from five selected bushes at random in each plot. The total and affected buds from five bushes were recorded prior to treatment, three, seven and fourteen days after applications of insecticides and percentage of infestation was worked out. The data were subjected to statistical scrutiny after transforming them into arcsin values.

RESULTS AND DISCUSSION

The results of the first experiment reveal that all the insecticidal treatments gave significant reduction in the bud damage from the untreated check. After first application, the lowest damage was observed in cypermethrin150 g a.i./ha applied plot followed by deltamethrin which were on par. Following the second application, the infestation of budworm in all the treatments on the third day decreased. The percentage of damage was not reduced much in the HCH treated plots and it

1, Associate Professor 2. Professor and Head 3. Professor Department of Agricultural Entomology, Centre for Plant Protection Studies, TNAU Coimbatore-641 003.

Table 1. Data on percentage of infestation of budworm on Jasmine at Thimmampalayam Pudhur

Treatments	Mean percentage of infestation						Mean	Percentage reduction of infestation over untreated check
	Days after I application			Days after II application				
	3	7	14	3	7	14		
Endosulfan 35 EC 700 g a.i./ha	21.46 (27.59)	23.27 [28.75]	27.49 [31.61]	10.69 (19.02)	9.50 [17.86]	12.10 [20.27]	17.41 [24.18]	73.90
Cypermethrin 10 EC 150 g a. i./ha.	11.18 [19.51]	10.89 [19.14]	12.34 [20.49]	2.22 [8.40]	1.62 [7.13]	0.94 [5.57]	6.53 [13.37]	90.21
Deltamethrin 2.5EC 25 g a.i./ha	10.42 [18.85]	9.36 [17.81]	14.19 [22.05]	2.34 [8.81]	1.64 [7.29]	1.66 [7.08]	6.60 [13.65]	90.11
HCH 10% Dust 2.5 kg a.i./ha	32.45 [34.71]	38.72 [38.38]	44.35 [41.75]	19.03 [25.85]	20.52 [26.85]	21.10 [27.28]	29.36 [32.47]	55.99
Monocrotophos 36 EC 360g a.i./ha	18.33 [25.33]	20.39 [26.83]	23.61 [29 03]	8.79 [17.22]	5.58 [13.46]	10 26 (18.66)	14.49 [21.75]	78.28
FMC 35001-24 EC 480 g a.i./ha	16.59 [24.00]	14.45 [22.30]	17.13 [24.39]	1.40 [7.51]	1.37 [6.59]	2 33 [8.72]	8.87 [15.59]	86.70
Phosphamidon 100 EC100 g a. i./ha	15.62 (23.20)	15.48 (23.08)	27.90 (31.83)	5.35 13.31)	6.69 (14.98)	12.49 (20.63)	13.92 (21.17)	79 13
Untreated check	63.59 (52.89)	64.48 (53.47)	68.68 (55.97)	69.10 (56.25)	67.63 (55.33)	66.82 (54.93)	66.71 (54.79)	
Mean	23.71 (28.26)	24.63 (28.72)	29.46 (32.14)	14.87 (19.55)	14.32 (18.69)	15.96 (20.38)		

C.D. (P=0 05) Between treatment . 1.41; Between periods . 1.22; Treatment x Period : 3.46
(Figures in Parenthesis are transformed values)

registered only 55.99 per cent reduction in infestation over control. The maximum reduction in damage of 90.21 and 90.11 per cent over control plots was registered in cypermethrin and deltamethrin treated plots respectively (Table 1).

The results of the second experiment indicated that the lowest budworm damage was observed in monocrotophos (8.41%) followed by deltamethrin (9.71%) on third day after first application. The infestation was increased 7 days after first application except in cypermethrin and deltamethrin treated plots. Due to second round of application given on 15th day, the budworm damage in all the treatments was decreased on the first day after treatment. The reduction in infestation over control was higher in deltamethrin (87.29%) followed by cypermethrin (86.89%) and monocrotophos (86.59%) applied plots (Table 2). The efficacy of monocrotophos in controlling the jasmine leaf webworm, *Nausinoe geometralis* G. was reported by Sandhu Shukla (1984).

Table 2. Data on percentage of infestation of budworm on Jasmine at Kalappatti

Treatment	Percentage of infestation						Mean	Percentage reduction over untreated check
	Days after I application			Days after II application				
	3	7	14	3	7	14		
Endosulfan 35 EC 700 g. a. i/ha	14.41 [22.30]	15.95 [23.58]	18.95 [25.84]	8.23 [16.64]	8.59 [17.05]	9.78 [18.24]	12.65 [20.59]	74.91
Cypermethrin 10 EC 150 g a. i./ha	10.13 [18.53]	9.89 [18.34]	10.48 [18.91]	1.94 [7.92]	2.67 [9.46]	5.29 [13.31]	6.43 [14.29]	86.89
Deltamethrin 2.5 EC 25 g a. i./ha	9.17 [18.15]	7.97 [16.43]	10.40 [18.81]	2.03 [8.13]	2.68 [9.46]	5.67 [13.81]	6.41 [14.84]	87.29
HCH 10% Dust 2.5 kg a. i./ha	23.85 [29.27]	33.52 [35.37]	39.91 [39.23]	14.26 [22.22]	21.38 [27.56]	22.29 [28.18]	25.87 [29.76]	48 69
Monocrotophos 36 WSC 360 g a. i./ha	8.41 [15.85]	8.80 [17.26]	10.83 [19.19]	3.64 [10.94]	3.06 [10.14]	5.84 [13.94]	6.76 [14 66]	86.59
Carbaryl 100 g a. i./ha	21.27 [27.49]	25.63 [30.40]	27.89 [31.85]	15.35 [23.11]	18.13 [25.10]	20.33 [26.78]	21.43 [27.45]	57.50
Phosphamidon 100 EC 100 g a. i./ha	12.44 [20.52]	14.41 [22.30]	19.18 [25.99]	8.45 [16.95]	8.05 [16.54]	11.95 [20.27]	12.42 [20.39]	75.37
Untreated check	43.24 [41.09]	47.88 [43.80]	50.39 [45.23]	52.19 [46.26]	53.43 [46.95]	55.40 [48.10]	50.42 [45.28]	
Mean	17.93 [24.27]	20.51 [25.93]	23.50 [27.69]	13.26 [18.98]	14.75 [20.20)	17.07 (22.78)		

C. D. (P=0.05) Between treatments . 1.12; Between periods . 0.96; Treatments x Periods : 2.72

(Figures in parentheses are transformed values)

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