

## Chemical Control of Pest Complex in Brinjal

By

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### ABSTRACT

Trials conducted in Agricultural College Farm, Bapatla, during 73-74 and 74-75 for the control of mealy bug and shoot and fruit borer of brinjal indicated that monocrotophos and quinalphos at 0.5 and 0.25 kg a.i./ha were most effective.

### INTRODUCTION

Brinjal is subjected to the attack of several insect pests. In recent years it is noticed that the incidence of mealy bug is severe in young plants resulting in the death of the plants completely. Shoot and fruit borer continues to be the most serious pest. For the control of shoot and fruit borer DDT, endrin and carbaryl were recommended. In the case of the mealy bug parathion, malathion and HETP have been reported to give effective control. There are no recorded reports of an effective chemical control schedule for early season sucking pests complex as well as for fruit and shoot borer. Hence studies were undertaken in A. P. Agricultural University at Bapatla with recent synthetic organic insecticides and the results of these studies are presented in this paper.

### MATERIAL AND METHODS

Experiments were conducted during 1973-74 and 1974-75 with granu-

lar and emulsifiable formulations. The experiment was laid in simple randomised block design with sixteen treatments replicated thrice. The size of the plot was 4M X 4M and the variety used was 'Pusa purple cluster'. Treatments tried are given in Table. Control I received carbaryl 0.15 per cent spray at 10 days interval starting from the initiation of fruiting, and in Control II no insecticide was applied to the crop at any stage. Granular formulations of insecticides were applied at 15 and 45 days after transplanting in two split doses whereas the spray formulations were applied at 15, 30 and 45 days after transplanting. Control I and Control II received water spray at these periods. Soon after the initiation of fruiting all treatments except control II received carbaryl 0.15 per cent spray at 10 days interval.

Fruit borer was serious during 1973-74, while in 1974-75 mealy bug and shoot and fruit borer were the pests observed to cause considerable damage

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to the crop. The pest incidence was recorded at fortnight interval from 5 labelled plants in each plot. Incidence of mealy bug was recorded by counting the number of infested leaves and total leaves in each labelled plant. Regarding the shoot borer, number of shoots borer and total number of shoots in the plant were recorded. Fruits were harvested periodically and at each harvest number of fruits bored and total number of

fruits, of each plot were recorded separately.

## RESULTS AND DISCUSSION

**Mealy Bug:** Table indicates that all the insecticidal treatments were found to be significantly superior over control I and control II. Among the treatments, monocrotophos E.C. and quinalphos E.C. at both the doses *v/z.*, 0.5 and 0.25 kg a.i./ha were found to be the most effective

TABLE. Degree of infestation of mealy bug and shoot and fruit borer on brinjal

Treatment (kg a.i./ha)	Mean % infestation of leaves by mealy bug		Mean % infestation of shoots by shoot borer		Mean % infestation of fruits by fruit borer			
	1974-75		1974-75		1973-74		1974-75	
Phorate G. 0.5 kg	(30.4)	33.31	(34.4)	35.93	(12.00)	20.29	(15.14)	22.84
.. 1.0 kg	(11.5)	19.66	(19.9)	26.28	(10.87)	19.24	(14.04)	21.88
Quinalphos G. 0.5 kg	(43.8)	41.45	(48.1)	43.91	(12.94)	21.38	(23.68)	29.01
.. 1.0 kg	(36.6)	37.17	(42.8)	40.86	(12.18)	20.44	(18.27)	25.29
Leptophos E.C. 0.25 kg	(40.0)	39.13	(32.5)	34.73	(18.90)	21.88	(18.27)	27.84
.. 0.50 kg	(34.1)	35.60	(25.2)	30.06	(13.13)	21.24	(18.67)	25.49
Phosphemidon E.C. 0.25kg	(22.3)	27.17	(24.3)	20.48	(13.26)	21.39	(19.87)	26.52
.. 0.50kg	(12.9)	21.00	(16.9)	24.09	(11.87)	20.40	(17.59)	24.59
Monocrotophos E.C. 0.25kg	(6.2)	14.29	(9.8)	18.06	(13.16)	21.24	(18.55)	25.50
.. 0.50kg	(3.2)	9.83	(6.4)	14.56	(12.11)	20.35	(17.31)	24.48
Quinalphos E.C. 0.25 kg	(6.2)	14.33	(7.6)	15.72	(13.36)	21.41	(19.77)	26.33
.. 0.50kg	(4.0)	11.35	(4.4)	11.80	(12.43)	20.64	(19.43)	26.16
Malathion E.C. 0.50kg	(63.5)	53.16	(49.9)	44.92	(14.31)	22.65	(17.59)	24.59
.. 0.75kg	(32.9)	38.32	(39.7)	39.02	(14.31)	22.65	(17.59)	24.59
Control I	(81.5)	64.52	(71.8)	58.00	(13.92)	23.52	(23.47)	28.94
Control II	(84.1)	66.58	(75.5)	60.47	(20.56)	26.98	(61.70)	51.75
C.D. at 5%	7.55		5.16		1.07		8.11	

Figures in the parantheses are percentages and those outside are angular values

chemicals and are on par with one another. The least effective chemical was malathion 0.5 kg a.i./ha.

**Shoot borer:** All the insecticidal treatments were superior over control I and II against the pest. Quinalphos E.C. 0.5 kg, monocrotophos E.C. 0.5 kg and quinalphos E.C. 0.25 kg were found to be the most effective treatments and are on par with one another, however the later two treatments are also on par with monocrotophos E.C. 0.25 kg a.i./ha. The least effective chemical was malathion 0.5 kg a.i./ha.

**Fruit borer:** A perusal of the data (Table) regarding the incidence of fruit borer during 1973-74 indicate that all the insecticidal treatments recorded less incidence of the pest over control II. Among the treatments phorate G 1.0 kg a.i./ha is observed to be the most effective chemical which is on par with the lower dose of 0.5 kg a.i./ha followed by monocrotophos 0.5 kg and phosphomidan 0.5 kg a.i./ha.

Results of 1974-75 trial show that all the insecticidal treatments recorded less incidence of the pest and are significantly superior over control II. Among the chemicals, the difference in the incidence of the pest is not statistically significant. However phorate G. at both the doses was found to record least incidence of the pest followed by monocrotophos 0.5 kg and phosphamidon 0.5 kg a.i./ha.

Even though all the treatments except control II received blanket spray of carbaryl 0.15 per cent uniformly commencing from the initiation of fruiting, there is a difference in fruit borer incidence which evidently shows that the residual toxicity of the chemicals given prior to fruiting has contributed in reducing the pest incidence at different levels.

As seen from the above phorate G. 0.5 kg a.i./ha applied in two split doses at 15 and 45 days after transplanting or monocrotophos or phosphamidon at 0.5 kg a.i./ha at 15, 30 and 45 days after transplanting followed by carbaryl 0.15 spray at 10 days interval, soon after the initiation of fruiting effectively controlled the fruit borer incidence consistently in both the years. This is in confirmation with the work of Somachoudhury (1973) who reported that carbaryl 0.1 and 0.2 per cent and phorate G at 18 and 24 kg/ha effectively controlled the fruit borer. Results of efficacy of phosphamidon in the present investigations is in agreement with the findings of Satpathy (1968) who reported that phosphamidon is one of the effective chemicals against fruit borer.

#### REFERENCES

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