



## Full Length Research Article

### ECONOMICS OF SPOTTED BOLLWORM [*EARIAS VITTELLA* (FABRICIUS)] OF OKRA [*ABELMOSCHUS ESCULENTUS* (L.)]

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#### ABSTRACT

Among the treatments, Chlorpyrifos 20 EC @ 0.05%, Chlorpyrifos 20 EC + Neem oil (1%) and Chlorpyrifos 20 EC + N.S.K.E. (5%) were found to be most effective, the shoot damage percentage was 8.15, 11.98 and 12.87 respectively. Minimum percent of fruit infestation were observed in Chlorpyrifos 20 EC @ 0.05 with 3.90, which are followed by Chlorpyrifos 20 EC + Neem oil with 6.73, Chlorpyrifos 20 EC + NSKE with 7.22 respectively. The highest yield was registered with Chlorpyrifos 20 EC about 89.00 q/ha which is followed by Chlorpyrifos 20 EC + Neem oil 87.30 and Chlorpyrifos 20 EC + NSKE 84.65 respectively. The cost benefit ratio of Chlorpyrifos 20 EC @ 0.05, Chlorpyrifos 20 EC + Neem oil, Chlorpyrifos 20 EC + NSKE are 1:2.64, 1:2.57 and 1:2.49 respectively.

**Key words:** Economics, Okra, Shoot and fruit borer.

#### INTRODUCTION

Okra *Abelmoschus esculentus* L. (Monech), is an economically important vegetable crop grown in tropical and sub-tropical parts of the world (Anonymous, 2008). Okra belongs to malvaceae family which originated in Africa and being widely cultivated in Maharashtra, Bihar, Orissa, West Bengal, Andhra Pradesh, Madhya Pradesh, Karnataka, Gujarat and Assam. The area under this crop is about 0.36 M.ha. with production of 3.50 MT and productivity of 9.72 tonnes/ha. in India (Dabhi *et al*, 2012). It is nutritious vegetable which plays an important role to meet demand of vegetables of the country. It is rich source of vitamins, calcium and other minerals. Its tender pods are used as vegetables. Eleven insect pest species have been recorded in country among which shoot and fruit borer, aphid, jassids, and white fly are common destructive pests. The estimated loss in fruit yield of okra due to *Earias vittella* was recorded upto 45% in Karnataka and 22.5% in Uttar Pradesh (Moniruzzama *et al*, 2007).

#### MATERIALS AND METHODS

The field trial was carried out at University Farm in RBD with eight treatments including control with three replications, cultivars, Arka anamica of okra was sown in plot size of 4m<sup>2</sup> and the plant to plant distance is 45 cm. and row to row distance is 60 cm. When the pest population reached at above ETL level then 1<sup>st</sup> spraying done. The observation of shoot or fruit damaged by borer were recorded daily on 10 randomly

selected plants/ plot After 15 days interval 2<sup>nd</sup> and 3<sup>rd</sup> spraying respectively. The reading were recorded at before spray, 7 and 14 days after spraying. The economics of treatments was also determined through cost benefit ratio analysis. Seasonal incidence was also observed in separate three plots of 4 x 3 m at different places within university

#### RESULTS AND DISCUSSION

Among all the treatments Chlorpyrifos 20 EC @ 0.05% has got maximum return. The yield obtained from Chlorpyrifos 20 EC is 89q/ha. followed by Chlorpyrifos 20 EC + Neem oil (1%) and Chlorpyrifos 20 EC + N.S.K.E. (5%). The incurred agronomical cost is given in Table 1. The total cost of cultivation is given in Table 1.2

The highest yield recorded in T<sub>5</sub> Chlorpyrifos 20 EC (89.00q/ha), followed by T<sub>6</sub> Chlorpyrifos 20 EC + Neem oil (1%) (87.30 q/ha) T<sub>7</sub> Chlorpyrifos 20 EC + N.S.K.E. (5%) (81.56 q/ha), T<sub>1</sub> Neem oil (81.55 q/ha), T<sub>2</sub> N.S.K.E. (79.45 q/ha), T<sub>3</sub> *Beauveria bassiana* (74.30 q/ha) respectively. Among the treatment studied, the best and most economical treatment was T<sub>5</sub> Chlorpyrifos 20 EC (1:2.64), followed by T<sub>6</sub> (1:2.57), T<sub>7</sub> (1:2.49), T<sub>1</sub> (1:2.42), T<sub>2</sub> (1:2.35), T<sub>3</sub> (1:2.18), T<sub>4</sub> (1:2.07) as compared to control T<sub>0</sub> (1:1.82).

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S. No	Particular	Requirement	Rate/unit Rs.	Cost
(A)	Land preparation			
I.	Ploughing	3 hours	500 Rs/hr	1500
II.	Harrow	3 hours	500 Rs/hr	1500
III.	Layout of field	10 labours	150 Rs/lb	1500
(B)	Manures and fertilizer			
I.	FYM	20 tons	100 Rs/qtls.	20000
II.	Urea	109 Kg	10 Rs/Kg	1090
III.	SSP	156 Kg	8 Rs/Kg	1248
IV.	MOP	42 Kg	12 Rs/Kg	504
V.	Labour	6 labours	150	900
(C)	Seed sowing	8 kg	170 Rs/Kg	1360
I.	Seed material	12 labours	150	1800
II.	Sowing and leveling			
(E)	Weed Management	45 labour	150 Rs/labour	6750
(F)	Harvesting	30 labours	150 Rs/labour	4500
(G)	Total cost of Cultivation			42652

S. No.	Treatment	Yield of q/ha	Cost of yield / Rs/q	Total cost of yield	Common cost	Treatment cost	Total cost	C:B ratio
01	Neem oil	81.55	1300 Rs/q	106015	42652	1130	43782	1:2.42
02	NSKE(5%)	79.45	1300 Rs/q	103285	42652	1125	43777	1:2.35
03	<i>Beauveria bassiana</i>	74.30	1300 Rs/q	96590	42652	1485	44137	1:2.18
04	<i>Bacillus thuringensis</i>	70.50	1300 Rs/q	91650	42652	1530	44182	1:2.07
05	Chlorpyrifos 20EC	89.00	1300 Rs/q	115700	42652	1170	43822	1:2.64
06	Chlorpyrifos 20EC+ Neem oil	87.30	1300 Rs/q	113490	42652	1400	44052	1:2.57
07	Chlorpyrifos 20EC + NSKE	84.65	1300 Rs/q	110045	42652	1395	44047	1:2.49
08	Control	60.00	1300 Rs/q	78000	42652	00	42652	1:1.82

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