SUNSHINE AGRICULTURE
e-Newsletter

ISSN (E): 2583 – 0821

Sun. Agri.:e- Newsletter, (2025) 5(12), 21-23

Article ID: 484

Impact of Delta Trap Against Fruit and Shoot Borer in Brinjal Production in Malda Under Old Alluvial Zone of West Bengal

Paramita Bhowmik, Suddhasuchi Das and Rakesh Roy

Malda Krishi Vigyan Kendra, Uttar Banga Krishi Viswavidyalaya, Ratua, Malda, 732205, West Bengal, India

Open Access

*Corresponding Author
Paramita Bhowmik*

Available online at
www.sunshineagriculture.vitalbiotech.org

Article History
Received: 30. 11.2025
Revised: 5. 12.2025
Accepted: 10. 12.2025

INTRODUCTION

Vegetable farming has an important place in Indian agriculture due to their nutritional, medicinal and commercial value. It occupies 2-5 per cent of the total cropped area in the country. Amongst the vegetables, brinjal or egg plant (*Solanum melongena* Linn.) is normally self-fertilized, solanaceous crop native to India. Brinjal is worldwide known as aubergine or guinea squash which is the most popular and principle vegetable crop hence regarded as "King of vegetables". Brinjal has ayurvedic medicinal properties and white brinjal is good for diabetic patients. It is also a source of vitamins A, C and minerals. In India, area under brinjal cultivation is estimated at 722.95 million ha with a production of 13888.42 million metric tons. The average yield of brinjal in India is reported to be around 200 to 350 quintals per hectare. As it is grown in all seasons which provides cumulative and continuous source of income to the farmers, it is most widely cultivated. Among various insects infesting brinjal, fruit and shoot borer is the main limiting factor for the successful production. The yield reduction recorded up to 70% due to the attack of this insect. The highest infestation on shoot was observed around 15.76% and on fruit around 31.67% (Mahore et. al., 2025). Keeping all the factors in mind, the present investigation was formulated to study the effect of delta traps against fruit and shoot in brinjal in Malda under old alluvial zone of West Bengal.

MATERIALS AND METHOD

Impact of Delta trap against fruit and shoot borer in brinjal (Pusa Kranti) were carried out through Front Line Demonstration with 24 farmers of Gopalpur village, Ratua-I Block, Malda, WB (25º13'1.51"N latitude and 87º55'29.02"E latitude), India during *kharif* season of 2022-23. The FLD was conducted with the objectives of (i) to reduce of unnecessary sprayings against brinjal fruit and shoot borer (ii) to reduce of residual toxicity in brinjal while harvesting and (iii) to increase the possibility of profit by reducing cost of cultivation.

The FLD was funded by the ICAR-ATARI, Zone-V, Kolkata. The inputs i.e. delta traps were provided by the KVK for conducting FLD to the farmers' field and they were trained to follow this new technology in brinjal cultivation as recommended by KVK. The Delta trap was made of yellow coloured board folded into triangular shape or delta-shaped cardboard tube with two holes on each side of the fold. There were three small holes near both ends of the board for attaching the ends with threads. The lure is hung in the top angled portion and the bottom surface is coated with glue. Male moths attracted to the lure enter inside the delta tube and while flying around the lure touch the lower sticky surface and become trapped in the glue from which they cannot escape. In demonstrated plots, the traps were put on the branch of the brinjal plant randomly in the field. On the other hand, sprayings of insecticides were done at 3-4 days interval starting from the fruit initiation stage to final harvesting stage by the farmers in control plot (i.e. farmer's practice). The data of infestation were recorded from 0.13 ha area per farmer at 10 days interval by observing the symptoms of infested fruits. The attractant was replaced at 2 weeks interval. Yield attributes were collected after every harvesting (starting from 45 days to 140 days after transplanting).

$$\text{Per cent yield over control} = \frac{(\text{Demonstration yield} - \text{Control yield})}{\text{Demonstration yield}} \times 100$$

The level of infestation per unit (0.13 ha) was calculated by this formula:

$$\text{Damage percentage} = \frac{\text{Number of damaged plants}}{\text{Number of total plants}} \times 100$$

RESULTS AND DISCUSSION:

The data incorporated in Table 1 revealed that 8.23% fruit damage was observed whereas the shoot damage was recorded 10.55% in demonstrated plots. The fruit and shoot damage recorded in farmers' plot were 39.87% and 35.88%, respectively. The percent yield increase over farmers' plot was 26.21% in demonstrated plots. The cost of cultivation was reduced by 16.42% and gross return, net return and benefit-cost ratio were increased by 26.21%, 70.68% and 51.53%, respectively in demonstration plots. The findings of Ghosh and Senapati (2009), who identified that fruit and shoot borer of brinjal caused 49.5–81.0% fruit damage which also support the current finding. Meena et. al. (2012) also studied that the peak infestation of fruit borer was 43.3%.

Table 1: Impact of Delta Trap on yield and economics of brinjal during *kharif* season of 2022-23

Technology	Yield (q/ha)	% yield increase over FP	% of Infestation		Cost of cultivation (Rs./ha)	Gross Return (Rs./ha)	Net Return (Rs/ha)	B:C Ratio
			Fruit	Shoot				
Installation of Delta Trap @ 10 traps/acre	519.28	26.21	8.23	10.55	122924/-	363497/-	240573/-	2.97
Farmers Practices Regular sprays of Imidacloprid, Lamda-cyhalothrin at 3-4 days interval	411.45	--	39.87	35.88	147065/-	288015/-	140950/-	1.96

Brinjal field during vegetative stage without showing any drooping symptom by fruit and shoot borer

ISSN (E): 2583 – 0821

REFERENCES

Mahore P., Bhardwaj N., Singh P., Makwana M., Mahor D., Naveen, Kumar N., Seervi S., Sharma S. (2025): Brinjal shoot and fruit borer (Leucinodes orbonalis Guenee) seasonal activity and association with abiotic factor. Plant Protection Science, DOI: https://doi.org/10.17221/3/2024-PPS

Ghosh S.K., Senapati S.K. (2009): Seasonal fluctuation in the population of Leucinodes orbonalis (Guen.) in the Sub-Himalayan Region of West Bengal, India and its control on eggplant (Solanum melongena L.). Precision Agriculture, 10: 443–449.

Meena G.S., Pachori R.K., Panse R. (2012): Extent of damageand seasonal incidence of Leucinodes orbonalis (Guen.) on brinjal. Annals of Plant Protection Science, 20: 114–116.