



E-ISSN: 2278-4136
P-ISSN: 2349-8234
JPP 2018; 7(5): 3261-3262
Received: 09-07-2018
Accepted: 11-08-2018

Venna Pushpa Latha
Msc. (Ag) Entomology Student,
Department of Entomology,
SHUATS, Allahabad, Uttar
Pradesh, India

Sasya Nagar
Assistant Professor
Department of Entomology,
SHUATS, Allahabad, Uttar
Pradesh, India

Chaitanya G
Msc.(Ag) Entomology Student,
Department of Entomology,
SHUATS, Allahabad, Uttar
Pradesh, India

Seasonal incidence of brinjal shoot and fruit borer, *leucinodes orbonalis* guenee, (Lepidoptera: Crambidae) during *Kharif* Season in 2017

Venna Pushpa Latha, Sasya Nagar and Chaitanya G

Abstract

The present field experiment was carried out to study seasonal incidence of Brinjal shoot and fruit Borer *Leucinodes orbonalis* Guenee, at Naini agricultural college, SHUATS, Allahabad during *kharif* season of 2017 from august last week to December. The experiment was laid out in a Randomized Block Design. The peak shoot and fruit infestation was noticed around 43rd standard week during *kharif* season. Similarly. The incidence of *Leucinodes orbonalis* on brinjal showed significant positive correlation with the maximum temperature, evening humidity and sunshine. Whereas, the minimum temperature, morning relative humidity rainfall, and wind velocity recorded non-significant negative correlation.

Keywords: Seasonal incidence, BSFB, temperature, rainfall, humidity.

1. Introduction

Brinjal (*Solanum melongena* L.) is one of the most important vegetables in South Asia which accounts for almost fifty percent of the world's area under cultivation and also popular in some parts of Africa and Central America (Harish *et al.*, 2011) [3]. The area under brinjal cultivation in India is estimated at 7.22 lakh ha under cultivation with a production of 134.43 metric tons and productivity of 18.60 tonnes per hectare. In Karnataka, brinjal is cultivated over an area of 16.10 thousand ha with a production of 421.40 thousand tonnes (Annon, 2014) [1]. Unripe fruits are used primarily as vegetable in the country due to its nutritive value, as fruits are consisting of minerals like iron, phosphorous, calcium and vitamins like A, B and C, (Singh *et al.*, 1963). It has been reported as Ayurvedic medicine for curing te diabetes. In addition it is used as a good appetizer, good aphrodisiac, cardi tonic, laxative and reliever of inflammation. Brinjal plants are very much susceptible to insect pests attack right from seedling stage to final harvesting stage. Brinjal is attacked by 53 species of insect pests of which 8 are considered as major pests causing enormous damage to crop in every season in every year (Chakraborti and Sarkar, 2011) [2]. Among the major insect pests, brinjal shoot and fruit borer (BSFB), *Leucinodes orbonalis* is considered the most destructive pest of brinjal in India. The yield loss due to the pest is to the extent of 70-92 percent (Jagginavar *et al.*, 2009) [4] is considered the most destructive pest of brinjal in India. The yield loss due to the pest is to the extent of 70-92 percent (Oomen and Kumar (2004) [7] the objective of present study was to study the seasonal incidence of brinjal shoot and fruit borer during *kharif* season 2017.

2. Materials and Methods

The present field experiment was conducted at Naini agricultural college, India situated at 98 meters above mean sea level on latitude 25.27^o and longitude 80.50^o on brinjal variety, Banaras round II in Randomized Block Design (RBD) during *kharif* season 2017 with three replications. The plot size was 2m × 2m. With 60cm and 60cm spacing. The incidence of brinjal shoot and fruit borer was recorded by counting total number of shoots and fruits with the damaged ones. Weekly data on different weather parameters were also recorded. Data so obtained were then subjected to statistical analysis for correlation and test of significance. correlation is calculated by using the software called wasp that was provide by ICAR. The results were expressed based on the percent infestation of brinjal shoot and fruit borer.

3. Results and Discussion

The incidence of BSFB on fruit was noticed during 35rd standard week i.e. in the month of September (4.87%). Thereafter, the infestation increased gradually and reached to its maximum (30.00%) during 43rd standard week (October month). The infestation persisted up to 51st standard week (December month) (Table 3.1) (Fig. 1) fruit and shoot borer showed

Correspondence

Venna Pushpa Latha
Msc. (Ag) Entomology Student,
Department of Entomology,
SHUATS, Allahabad, Uttar
Pradesh, India

significant positive correlation with maximum temperature ($r=0.528$), evening humidity (0.222), sunshine hr/day ($r=0.838$), negative correlation and non-significant with minimum temperature (-0.030) morning humidity (-0.0468) rainfall (-0.307) wind velocity (-0.405). Thereafter, declined trend was observed due to fall of maximum and minimum temperatures as optimum weather condition are decreasing. Therefore, the percent infestation was positively correlated with the maximum temperature. Hence decline of

temperature lead to the decline of the shoot and fruit borer population. The present results are in agreement with the results of Shukla and Khatri (2010)^[9] and Kumar and Sing (2012)^[6] who reported the infestation of fruit borer from October to December. Similarly, Sing *et al.*, (2006)^[8], Oomen and Kumar (2004)^[7] and Jat *et al.*, (2002)^[5] noticed the peak activity of pest on brinjal fruits in first, third and fourth week of October, respectively.

Table 1: Seasonal incidence of shoot and fruit borer of brinjal during Kharif 2017.

Standard week	% Infestation	Temperature (°C)		Humidity%		Rainfall(mm)	Wind velocity (k/hr)	Sunshine (hr/day)
		Max.	Min.	Max.	Min.			
35	4.87	35.14	29.00	89.43	49.57	2.43	1.95	7.11
36	13.28	36.77	30.31	83.43	45.14	0.00	1.64	7.21
37	19.73	34.72	30.40	83.14	44.00	0.00	1.37	7.51
38	22.08	36.00	28.60	89.71	56.57	3.31	1.22	7.89
39	23.05	36.40	29.86	86.14	48.86	0.14	0.96	8.21
40	24.31	36.53	30.23	71.00	49.57	0.00	0.99	8.63
41	26.14	36.64	22.69	78.00	43.57	0.00	1.12	8.79
42	28.22	37.83	22.77	80.57	42.29	0.00	0.91	8.87
43	30.78	39.86	18.86	81.71	34.57	0.00	1.07	8.91
44	29.10	39.46	18.83	84.29	39.14	0.00	0.76	8.97
45	26.37	39.90	17.83	86.57	35.57	0.00	0.75	8.99
46	24.44	32.14	15.97	90.00	42.29	0.00	0.82	8.83
47	22.86	31.40	11.71	92.00	43.00	0.00	0.74	8.90
48	20.44	28.89	8.89	92.43	40.14	0.00	0.59	8.21
49	19.99	27.89	8.97	92.43	39.43	0.00	0.70	7.99
50	16.35	28.79	9.51	92.14	39.14	0.00	0.74	7.45
51	6.44	28.29	10.83	93.00	42.86	0.00	0.48	7.21
	$r=$	0.528	-0.030	-0.468	0.222	-0.307	-0.405	0.838
	$t=$	2.218	0.136	1.897	2.828	1.138	1.573	5.46
	Results	S	NS	NS	S	NS	NS	S

S= significant, NS= nonsignificant

4. Conclusion

From the present study, it can be concluded that brinjal shoot and fruit borer incidence reduces with decrease in minimum temperature morning humidity, rainfall and wind speed.

5. Acknowledgement

I am very thankful to our advisor and head of department for providing facilities to conduct present research in a successful manner.

6. References

1. Anonymous, Indian Horticulture Database, NHB, 2014; 131-132.
2. Chakraborti S, Sarkar PK. Management of *Leucinodes orbonalis* Guenee on eggplant during the kharif season in India. J Pl. Protec. Res. 2011; 51(4):325-328.
3. Harish DK, Agasimani AK, Imamsaheb SJ, Patil Satish S. Growth and yield parameters in brinjal as influenced by organic nutrient management and plant protection conditions. Res. J Agri. Sci. 2011; 2(2) 221-225.
4. Jagginavar SB, Sunitha ND, Biradar AP. Bio efficacy of flubendiamide 480 SC against brinjal fruit and shoot borer, *Leucinodes orbonalis* Guene. Kar. J Agri. Sci. 2009; 22(3):712-713.
5. Jat KL, Pareek BL, Singh S. Seasonal incidence of shoot and fruit borer (*Leucinodes orbonalis* Guene.) on

eggplant (*Solanum melongena* L.) in Rajasthan. Annals Bio. 2002; 18(2):165-169.

6. Kumar S, Singh D. Seasonal incidence and economic losses of brinjal shoot fruit borer, *Leucinodes orbonalis* Guenee. Agric. Sci. Digest. 2013; 33(2):98-103
7. Oommen S, Kumar A. Seasonal incidence of insect pests of brinjal. Ind. J Appl. Ento. 2004; 18(1):65-66.
8. Singh S, Krishna kumar S, Katyal SL. Fruit culture in India. Indian Council of Agricultural Research, New Delhi, 1963, 412.
9. Shukla A, Khatri SN. Incidence and abundance of brinjal shoot and fruit borer *Leucinodes orbonalis* Guenee. *The Bioscan*. 2010; 5(2):305-30