

Short Communication

Population dynamics of shoot and fruit borer of okra in relation to abiotic factor at Pantnagar

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India is the second largest producer of vegetables in the world. During 2012-2013 the okra production was about 6350 thousand metric tones from 530.79 thousand hectares of area (Annon, 2013). Important limiting factors in the successful cultivation of okra is the damage due to insect pest, mainly fruit borers and sucking insects which are greatly influenced by weather parameters. Gupta *et al.* (1998) reported a positive correlation of *E. vittella* with minimum temperature, morning relative humidity and total rainfall and negative correlation with maximum temperature in okra. An attempt has been made to study the population dynamics of okra fruit and shoot borer in relation to prevailing weather conditions at Pantnagar Uttarakhand.

Population dynamics of okra shoot and fruit borer was recorded at VRC Pantnagar during *kharif* crop season 2014. Okra variety Parbhani Kranti was sown 10-7-2014 in plot of 5x3 m with three replications maintaining 60 cm row to row and plant to plant 45 cm distance. The observations on healthy and infested shoots/fruits was taken to compute

the per cent of infested fruit. The presence of hole/holes was the criteria for separating damaged fruits from healthy ones. The percentage of fruit shoot infestation was calculated by the following formula as adopted by Karmakar *et al.* (2007):

Per cent fruit and shoot infestation =

$$\frac{\text{Infested fruit/shoot}}{\text{Infested fruit/shoot} + \text{Healthy fruit/shoot}} \times 100$$

Larval population of *E. vittella* was recorded 30 days after sowing at weekly interval from five plants per plots selected at random.

Percent shoot and fruit infestation

In *kharif* 2014, the percent infestation of shoot and fruit by *E. vittella* was observed highest in 36th standard meteorological week (Table 1). The 1st week of September was found to be the most favourable period for the shoot and fruit infestation, when the ecological factors (maximum-minimum temperature, morning-evening relative humidity,

Table 1: Per cent fruit infestation by shoot and fruit borer in relation to weather parameters at Pantnagar, during *kharif*, 2014

Standard meteorological week	Temperature (°C)		Relative humidity (%)		Rainfall (mm)	Sunshine (Hrs.)	Wind speed (kmh ⁻¹)	Fruit in festation(%)	Shoot infestation (%)
	Max.	Min.	0712	1412					
34	34.3	25.8	90	64	0	7.5	4.5	27.3	15.4
35	33.8	25.7	86	62	1.2	7.6	5.9	35.3	27.8
36	32.8	25.1	85	63	1.8	7.8	6.7	38.5	31.6
37	32.3	23.5	92	67	4.8	7.8	4.4	31.5	28.6
38	33.2	30.4	89	63	29.4	8	4.4	26.7	25.0
39	32.5	21.3	89	58	1	8.4	5.1	23.1	20.0
Correlation with Fruit infestation	.018	.081	-.625	.390	-.275	-.557	.747	-	-

rainfall, sunshine hrs, wind velocity) were 32.8°C, 25.1°C, 85 per cent (0712am), 63 per cent, 1412pm, 1.8 mm, 7.8 hrs, 6.7 kmh⁻¹, respectively. These ecological factors, therefore, may be considered as the favourable parameters for the infestation of shoot and fruit borer. Shah *et al.* (2001) reported fruit damage ranging from 8.3 to 91.6 per cent with peak in 13 weeks old crop. Das *et al.* (2011) reported curvilinear relation between weather parameters and pest-diseases of okra in Gujarat. Relative humidity and rainfall had significant negative and modest (below 0.69) correlation with fruit and shoot infestation in present studies, which may be attributed to the above mentioned hypothesis, while Dabhi *et al.* (2013) have reported highly significant correlations with temperature and vapour pressure.

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