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Short Communication

Effect of weather parameters on seasonal abundance of brinjal shoot and fruit borer in south Gujarat

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Brinjal is a major solanaceous vegetable crop of India. It contributes about 12.51 per cent of the total production of vegetables in India (Bochalya *et al*., 2012). The major risk to brinjal cultivation is the susceptible and wide spread attack by fruit and shoot borer. Among16 pest species attacking on brinjal crop, shoot and fruit borer (*Leucinodes orbonalis*) is most devastating pest in Gujarat (Patel *et al*., 1970). Weather play a vital role in the biology of any pest. The interaction between pest activity and abiotic factors helps in deriving a predictive model that aids in forecast of pest incidence.

To find out the role of weather parameters such on seasonal abundance of brinjal shoot and fruit borer, the experiment was carried out at College farm of N. M. College of Agriculture, Navsari Agricultural University, Navsari during the *rabi* season of 2012 and 2013. The experiment was laid out in randomized block design with gross plot area of 400 m^2 and spacing of 90 cm x 60 cm. Recommended dose of fertilizers (100: 50: 50 kg NPK ha^{-1}) were applied to the crop. The observations of brinjalshoot and fruit borer pest were taken at weekly interval up to harvest of the crop. For recording the observations, 30 plants were selected and tagged from experimental plot area and the observations of shoot and fruit borer were taken and obtained data were converted into per cent of damage. In order to find out the specific impact of different weather parameters on brinjal shoot and fruit borer, the data were correlated with the different meteorological parameters.

The averaged data of two years (2012 and 2013) of seasonal occurrence of shoot and fruit borer (Fig. 1) revealed that, the damage due to shoot borer satsted in 44th SMW and reached to its maximum (8%) during 48 and 49 SMW. The occurrence of fruit borer pest appearance was initiated from 46th SMW (1.6 %) till 21st SMW (5.3 %). The highest infestation was observed during 6th, 11th and 13th SMW for pest appearance with 34.7, 36.1 and 35.6 per cent fruit damage, respectively. The simple correlation on shoot damage due to shoot borer (Table_2) indicated highly

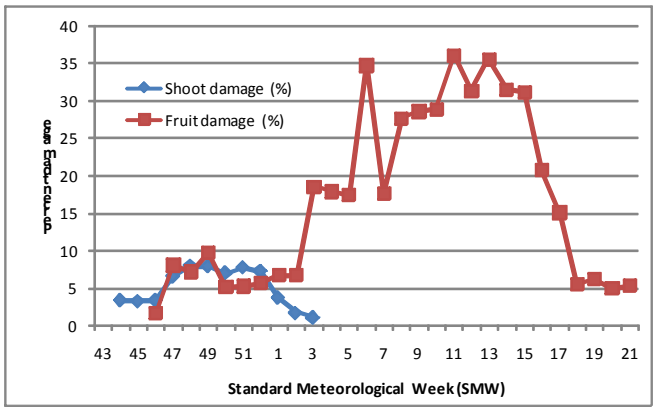

Fig. 1: Incidence of fruit and shoot borer, in brinjal at Navsari (mean of 2012 and 2013)

Table 1: Correlation between weather parameters and shoot and fruitdamage by *L.orbonalis*inbrinjal during *Rabi* 2012 and 2013

Weather parameters	Per cent shoot damage	Per cent fruit damage
Tmax	0.623**	0.480**
Tmin	0.458	0.291*
Tmean	0.581*	0.407**
RH 1	-0.382	0.168
RH 2	-0.523*	-0.162
RH mean	-0.517*	-0.035
Rainfall	-0.409	-0.190
BSH	0.124	0.394**
VP 1	-0.261	0.313*
VP 2	-0.289	0.005
VP mean	-0.153	0.174
Wind Speed	-0.174	0.145

*Significant at 5%, ** Significant at 1% level.

significant positive correlation (p=0.01) with maximum temperature (r= 0.623**) and mean temperature (r= 0.581*) whereas evening (r= -0.523*) and mean relative humidity (r= -0.517*) had significant negative effect on the shoot damage

in field. Other factors did not have significant impact on shoot damage during both the seasons.

The fruit borer damage (Table 1) correlated with weather parameters indicated highly significant positive correlation with maximum temperature (r= 0.480**), mean temperature (r= 0.407**) and bright sunshine hours (r= 0.394**) while the correlation with minimum temperature (r= 0.291*) and morning vapour pressure (r= 0.313*) was significant at 5% level. Other weather parameters did not have significant influence the fruit damage incidence. Meena and Bhatia (2014) reported that weather parameters like temperature and relative humidity have significant association with pest incidence.

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