Short Communication

Effect of different sowing dates of okra on occurrence of okra shoot and fruit borer, *Earias vittella* Fabricius

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 Received: 21.12.2016/Accepted: 25.2.2017

ABSTRACT

The present investigations on the effect of different sowing dates on okra shoot and fruit borer, *Earias vittella* Fabricius were carried out during summer season of 2014-15 at horticulture farm of the College of Agriculture, Dapoli, Ratnagiri, Maharashtra. The study revealed marked differences in fruit borer infestation due to changes in sowing dates. During cropping season the fruit damage varied from 49.66 to 59.07 per cent on number basis. Minimum (49.66 %) fruit borer damage was recorded in early sown (14 January) while maximum (59.07%) in late sown crop (13 February). The results showed that the infestation of the shoot and fruit borer increased with the delay in sowing of the crop.

Keywords: Sowing date; *Earias vittella*; shoot and fruit borer; okra; infestation

INTRODUCTION

Okra, *Abelmoschus esculentus* Linn (Moench) is an important vegetable crop of tropics and subtropics. It is the second most preferred vegetable (next to brinjal) in India. It is an important source of vitamin A, B and C and is also rich in protein, carbohydrates, fats and iron. It is also a rich source of dietary fibre, antioxidants, ascorbic acid and folate.

India ranks first in the world in production and about 70 per cent of total production of okra is found in India. Here it is grown over an area of 0.533 Mha with production of 6346 MT and productivity is 11.90 MT/ha. This crop contributes 5.80 per cent to the total vegetable area and 3.90 per cent to the total production of the country. It is mainly cultivated in states of Uttar Pradesh, Karnataka, Gujarat and Maharashtra. In Maharashtra area under this crop is 0.023 Mha with production of 241.50 MT and productivity of 10.50 MT/ha (Anon 2015). It is extensively grown in Ahmednagar, Amravati, Nagpur, Aurangabad, Dhule, Jalgaon, Nasik, Osmanabad, Parbhani and Pune districts in the state of Maharashtra.

The crop is attacked by a variety of pests throughout its growth stages (Rao et al 2002). Amongst them okra shoot and fruit borer (*Earias vittella* Fabricius, Lepidoptera: Noctuidae) is of much significance (Gautam et al 2014) and causes extensive damage to fruits resulting in 69 per cent yield loss (Atwal and Singh 1990) and 8.40 to 73.20 per cent variation in fruit infestation (Kumar and Urs 1988). It is an endemic pest and inflicts direct loss to the crop. It is an oligophagus pest and okra and cotton are its main host plants. It is also found feeding on a large number of malvaceous crop plants.

MATERIAL and METHODS

The okra crop cultivar Varsha Upahar was sown in gross plot area of 60 m^2 having net plot area of 50 m^2 under flat bed with a spacing of 45 x 15 cm on three different dates (14 Jan, 29 Jan and 13 Feb 2015) under randomized block design replicated thrice and the harvesting/picking was done on 14 March 25 March and 4 April 2015 respectively. Recommended dose of fertilizer (100:50:25 NPK kg/ha) was used and all recommended cultivation practices were followed.

All three blocks were kept unsprayed throughout the cropping season. The observations were recorded when incidence was noticed on all the plants. The number of healthy and infested fruits was counted at each picking to work out the percentage of fruits infested and weekly mean per cent fruit infestation was worked out as under:

$$\text{Fruit infestation (\%)} = \frac{\text{Number of fruits infested}}{\text{Total number of fruits}} \times 100$$

The data were analysed as per Panse and Sukhatme (1984).

RESULTS and DISCUSSION

The study revealed marked differences in fruit borer infestation with regard to dates of sowing as given in Table 1. During cropping season the fruit damage varied from 49.66 to 59.07 per cent on number basis. Minimum (49.66%) fruit borer damage was recorded in early sown (14 January) while maximum (59.07%) in late sown crop (13 February).

Hafeez and Rizvi (1994) reported that maximum fruit infestation of 41.57 per cent was recorded in crop sown on 15 July which showed that delayed sowing increased the pest infestation. Singh and Brar (1994) recorded the maximum (16.30%) damage by fruit borer in crop sown on 15 July and lowest (14.31%) on 30 July. Brar et al (1994) noticed that fruit infestation was lowest (15.90%) in crop sown on 15 May while highest (29.30%) on 15 June. Rai and Satpathy (1999) observed that with the advancement of sowing time the borer damage increased ie crop sown in second week of July recorded maximum (33.88%) fruit damage and was minimum (21.57%) in 25 May sown crop. Gautam et al (2013) also reported that early sown crop ie on 1 March had less infestation (27.80%) followed by crop sown on 17 March (31.20%) while highest infestation (44.40%) was recorded in the late sown (2 April) okra crop.

Table 1. Effect of different dates of sowing of okra on okra shoot and fruit borer, *Earias vittella* occurrence

Sowing date	Mean fruit infestation (%) after week							Overall mean
	I	II	III	IV	V	VI	VII	
14 January	43.19 (41.08)	49.02 (44.44)	49.13 (44.50)	47.72 (43.69)	50.66 (45.38)	53.11 (46.78)	54.76 (47.73)	49.66 (44.80)
29 January	47.43 (43.53)	51.13 (45.65)	59.27 (49.64)	55.67 (48.25)	56.43 (48.69)	54.73 (47.71)	56.15 (48.53)	54.40 (47.43)
13 February	62.63 (52.32)	58.07 (50.34)	60.95 (51.32)	59.78 (50.64)	57.09 (49.08)	57.50 (49.31)	57.47 (49.29)	59.07 (50.33)
SEm±								0.73
$CD_{0.05}$								2.26

Figures in parentheses are arc sine transformed values

CONCLUSION

The study revealed marked differences on the effect of sowing dates of okra on fruit borer infestation. Minimum (49.66 %) fruit borer damage was recorded in early sown (14 January) while maximum (59.07%) in late sown crop (13 February). Thus it is indicated that in okra borer incidence increases gradually with the advancement of sowing dates.

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