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SUCCESSION OF MAJOR INSECT PEST INFESTING MAIZE

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ABSTRACT

The experiment on succession of insect pests in *Kharif*, sown maize was conducted at Agronomy Farm, RCA, Udaipur during 2018. The weekly observations were recorded after germinations. The major insect pests *viz.* maize stem borer, aphids, chafer beetle, Grasshopper and termite were recorded. The highest infestation of maize stem borer was found in third week of august; whereas, aphid's population reached on peak in third week of September. The chaffer beetle was observed from third week of September and reached to its peak in first week of October. The termite infestation was recorded during the last week of august and reached to peak in third week of September to though out crop season.

Key words: Maize stem borer, *Chilo partellus*, incidence, and Bio pesticides

INTRODUCTION

Maize (*Zea mays* L.) is the third most important staple food of India after wheat and rice, grown virtually in every suitable agro-ecological region of the world. Due to its highest yield, potential among all the cereals maize is referred as "Queen of cereals. Maize grains are used for human consumption, as feed for poultry birds and livestock, for extraction of edible oil and also for starch and glucose industry.

The countries with large maize growing areas include Argentina, Brazil, China, Hungary, India, Indonesia, Italy, Mexico, Philippines, South Africa, Rumania, United States and Yugoslavia. It was introduced to India from Central America in the beginning of seventeenth century. In India, the average area under maize cultivation is 9.43 million hectare with an average production and productivity of 22.23 million tonnes and 2.5 tonnes per hectare respectively (Anno, 2014). Important maize growing states in India are Andhra Pradesh, Bihar, Madhya Pradesh, Maharashtra, Karnataka, Punjab, Rajasthan, and West Bengal. Therefore, there is a need to explore the possibilities of increasing the productivity through better understanding of constraints in its production. Like other cereal crops, maize is also prone to a wide range of biotic and abiotic factors, the incidence of insect pests being one of them. In India, maize crop is attacked by 139 species of insect pests causing varying degree of damage. However, only about a dozen of these are quite serious and cause damage from sowing till storage (Siddiqui *et. al.* 1993).

Rajasthan is one of the biodiversity rich state of India in terms of flora and fauna. Varied altitude, topography, status of soil and climatic conditions favors high species richness and support different types of vegetation. The region is highly dynamic in case of weather, thus very suitable for multiplication of insect pests and their natural enemies. Furthermore, status of insect pest of a particular crop is shifting under changing climate scenario. Keeping these views in mind, the present study was conducted for periodical assessment on pest composite for maize crop may help to know the relative economic importance of different pests on maize crop.

MATERIALS AND METHODS

The experiment on pest succession of insect pests in *Kharif*, sown maize was conducted at Agronomy Farm, RCA, Udaipur during 2018. The maize crop was sown during third week of July in 3.0 × 7.5 m sized three plots with spacing of 75 × 20 cm and replicated thrice. Recommended management practices except plant protection

measures were followed for raising the crop. Weekly observations were taken from two alternate middle rows out of ten rows in each plot since seedling to maturity of the crop. The observation on maize stem borer was recorded in terms of number of dead hearts caused by stem borer. The termite infestation was observed in terms of number of infested plants in two alternate middle rows out of ten rows in each plot. The observations on other insect pests were recorded in terms of number of insect pests through visual counting.

RESULTS AND DISCUSSION

The Study revealed that four insect pests were observed at different growth stages of the crop. Insect pests recorded belong to five orders *i.e*., one Lepidopteran, one Hemipteran, one Coleopteran, one Orthopteran and one Isopteran. After the 30 days of sowing at knee height stage, crop was attacked by *Chilo partellus* and it remained till late vegetative stage of the crop. The short horned grasshopper was also observed during vegetative stage on first week of September and reached at the peak pupation during first week of October. The chaffer beetle and aphids infested the crop during silking stage and continued their damage till maturity of the crop. The chaffer beetle's infestation started from the third week of September and it reached at peak population during first week of October. However, the aphid infestation was observed from the second week of September and it reached to peak population during last week of September. The infestation of termite was observed during the last week of august and reached to peak population in first week of October and remained till maturity stage. Present findings are falling in line of very earlier study by Butani (1961) who reported maize stem borer, as important pests of maize whereas minor ones were termites, aphids and grasshopper. Rajagopal and Channabasavanna (1975) recorded 55 species of insects in maize belonging to nine orders and 29 families. The higher number of pin holes due to stem borer was noticed during the months of August and lower during the months of December and June. Similarly, maximum dead hearts due to stem borer were noticed during the month of July and minimum during the month of June, December and

Table 1. Pest succession of insect pests in *Kharif*, sown maize during 2018

Date of observation (weekly intervals from date of germination)	Maize stem borer		No. of Aphids per plant	No. of Grasshoper per plant	No. of Chafer beetle, *Chiloloba*	No. of Termite infested plant
	Total no. of infested plants	No. of dead hearts				
30.07.2018	2	2	–	–	–	–
06.08.2018	6	4	–	–	–	–
13.08.2018	9	5	–	–	–	–
20.08.2018	10	7	–	–	–	–
27.08.2018	12	7	–	–	–	2
03.09.2018	12	7	–	2	–	3
10.09.2018	12	7	97	2	–	4
17.09.2018	12	7	112	3	7	5
24.09.2018	12	7	104	4	5	5
01.10.2018	12	7	78	5	11	5
08.10.2018	12	7	70	2	8	5

January. The peak population of aphids was observed during the month of April, but least activity of aphids was recorded during the months of November and December by Biradar *et al.* (2011). Sharwan *et al.* (2017) also observed that the sap feeding insect pests like aphids, jassids and whiteflies from first week of August till the harvest of crop in Udaipur region.

REFERENCES

Anonymous. Agriculture statistics at a glance. 2014; Govt. of India.

Biradar, S.R., Kotikal, Y.K. and Balikai, R.A. (2011). Seasonal incidence of insect pests and their natural enemies on maize. *Internat. J. Plant Protec.*, 4: 402-405.

Butani, D. K. (1961). Insect pests of maize and their control. *Indian Fmg*. pp. 7-10.

Rajagopal, D. and Channabasavanna, G. P. (1975). Insects pest of maize in Karnataka. *Mysore J. Agric. Sci.* 9: 110-121.

Shrawan L., Meena A.K., Swaminathan R. and Naga K.C. (2017). Seasonal incidence of major insect pests in maize with intercrops under marigold farmscaping. *J. Ento.Research,* 1: 0378-9519

Siddiqui K.H., Marwaha K.K. (1993). The vistas of maize entomology in India. Kalyani Publishers, New Delhi, India. pp.184.

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