



E-ISSN: 2278-4136
P-ISSN: 2349-8234
JPP 2019; 8(6): 1432-1434
Received: 07-09-2019
Accepted: 09-10-2019

Saurabh Gajanan Band
Department of Entomology,
School of Agriculture Science,
G H Rasoni University,
Chhindwara, Madhya Pradesh,
India

CM Bondre
Department of Entomology,
School of Agriculture Science,
G H Rasoni University,
Chhindwara, Madhya Pradesh,
India

KA Gawali
Department of Entomology,
School of Agriculture Science,
G H Rasoni University,
Chhindwara, Madhya Pradesh,
India

Corresponding Author:
Saurabh Gajanan Band
Department of Entomology,
School of Agriculture Science,
G H Rasoni University,
Chhindwara, Madhya Pradesh,
India

To study the succession of insect pests on chilli crop

Saurabh Gajanan Band, CM Bondre and KA Gawali

Abstract

Studies on insect pest complex revealed that the following three major insect pests were damaging chilli crop viz., *Aphis gossypii* (Glover) [Hemiptera, Aphididae,] *Scirtothrips dorsalis* (Hood) [Thysanoptera, Thripidae] and *Helicoverpa armigera* (Hubner) [Lepidoptera, Noctuidae]. First appearances of aphids were observed when the crop was about 39 days after transplanting i.e. vegetative stage and remained active upto the third week of February i.e. the vegetative stage of the crop. First appearance of chilli thrips were observed when the crop was about 109 days after transplanting i.e. vegetative stage and remained active upto the fourth week of May i.e. the maturity stage of the crop. First appearance of chilli fruit borer larvae was observed when the crop was about 114 days after transplanting i.e. the maturity stage and remained active up to the fourth week of May i.e. maturity stage of the crop.

Keywords: *Aphis gossypii*, chilli thrips, *Helicoverpa armigera*

Introduction

Chilli (*Capsicum annum*) is one of the most important economical and popular vegetable crops grown for its green fruits as vegetable and red as a spice. It is a native of tropical America and was introduced in India by the Portuguese in 19th century. Chilli (*Capsicum annum*) is one of the important vegetable and condiments crop having immense commercial dietary and therapeutic values and grown throughout the year. At present, India is the second largest producer of chillies in the world, which contributes about one fourth of the world's production. Chilli has been reported as a commercial spice crop in tropical and sub-tropical parts of the India with an annual production of 3.40 million tonnes from an area of 287 thousand hectares and productivity is 12 MT per hectare.

India has emerged today as the foremost producer and exporter of chillies contributing to almost one fourth of the world's production. In India, chilli is grown in an area of 7.43 L ha, with a production of 14.53 L tons. The important chilli growing states in India are MP, Orissa, Maharashtra, Karnataka and also in a number of other states as a round the year crop. In Madhya Pradesh, chilli is cultivated in an area of 1.89 L hectares with a production of 2.08 L tons. Guntur district in Andhra Pradesh alone contributes to over 35% in the area under chilli crop in India.

Material and Method

The experiment was conducted at experimental field of the department of entomology (GHRU) school of agricultural sciences, Saikheda, dist. Chhindawara Madhya Pradesh during 2018-19. Regular observations were carried out immediately after transplantation, to record different insect pests of chilli. A sample of plants were randomly selected and insects appearing on the crop from transplantation upto harvest were recorded. The crop was kept unprotected for this purpose. The sequence in which the insects appeared was also noted. The status of different insect pests recorded was determined on the basis of the damage caused by them.

Result and Discussion

It present investigation insect pest namely Aphid, chilli Thrips, fruit borer. Where observed during the crop season Peak of thrips, pod borer and aphids were observed peak activity of different insect pest appearing on chilli crop differ depending on the region where it is cultivated Raizada *et al.* (2013) [19] respected the activity of thrips throughout the year in Delhi with the peak during spring and early summer. The author also reported considerable variation in the abundance of *Scirtothrips dorsalis* in different years with heavy population on chilli during October in Andhra Pradesh, August to November in Delhi Mysore and Madhya Pradesh and also Maharashtra. While in present investigation the crop was transplanted in the month of November and activity *S. dorsalis* was observed to be high during SMW 10 and 12.

On the contrary to the present finding Ningappa *et al.* (2015) [18] reported visual decline in the population of *S. dorsalis* from November onwards reach in the lowest level.

To study the succession of insect pests on chilli crop

The Weekly were recorded from transplanting to maturity of the crop. Studies on pest succession were initiated from November 2018 and continued upto May 2019. Studies on insect pest succession and field incidence revealed that three

species of insect pests were observed to be associated with various stages of the chilli crop at Saikheda, Madhya Pradesh in Central India during 2018-19.

First major group was of sucking pests which were recorded in the vegetative stage were thrips and aphids, they were recorded up to maturity of the crop. The second major group was of Lepidoptera fruit borer which was observed during the reproductive stage to maturity of the crop.

Table 1: List of insect pests infesting chilli at during 2018-2019

Common Name	Scientific name	Order	Family
Chilli thrips	<i>Scirtothrips dorsalis</i>	Thysanoptera	Thripidae
Aphid	<i>Aphis gossypii</i>	Hemiptera	Aphididae
Fruit borer	<i>Helicoverpa armigera</i>	Lepidoptera	Noctuidae

Cotton aphid, *Aphis gossypii* (Glover) (Hemiptera, Aphididae)

First appear of aphids observed when the crop was about 39 days after transplanting i.e. vegetative stage (Table 2). From the figure it is evident that the pest was present on the crop during the vegetative stage and remained active upto the third week of February i.e. the vegetative stage of the crop.

Chilli thrips, *Scirtothrip sdorsalis* (Thysanoptera, Thripidae)

First appear of chilli thrips were when the crop was about 109 days after transplanting i.e. vegetative stage (Table 2). From

the figure it is evident that the pest was present on the crop during the vegetative stage and remained active upto the fourth week of May i.e. the maturity stage of the crop.

Chilli fruit borer borer, *Helicoverpa armigera* (Lepidoptera, Noctuidae)

First appearance of chilli fruit borer larvae was observed when the crop was about 114 days after transplanting i.e. the maturity stage (Table 2). From the figure it is evident that the pest was present on the crop during the maturity stage and remained active up to the fourth week of May i.e. maturity stage of the crop.

Table 2: Succession of insect pest on chilli at during 2018-2019

Standard Week	Common Name	Insects			Crop age	Crop stage
		Scientific name	Order	Family		
1 to 6	Aphid	<i>Aphis gossypii</i> (Glover)	Hemiptera	Aphididae	39-76	Vegetative
7	Aphid	<i>Aphis gossypii</i> (Glover)	Hemiptera	Aphididae	76-82	Vegetative & Flower initiation
11 to 12	Thrips	<i>Scirtothrips dorsalis</i> (Hood)	Thysanoptera	Thripidae	109-119	Flowering & initial Fruiting
12 to 21	Thrips	<i>Scirtothrips dorsalis</i> (Hood)	Thysanoptera	Thripidae	119-184	Fruiting
	Fruit borer	<i>Helicoverpa Armigera</i> (Hubner)	Lepidoptera	Noctuidae		

References

- Agricultural statistics at a glance, 2018. <http://www.agricoop.nic.in>
- Anonymous. Review committee meeting 2016-17 of area and production of horticulture crops, 11-12. 2.
- Baloch HB, Baloch LS, Rustamani MA, Hussain T, Talpur MA, Rao SA. Insect pests associated with *Capsicum annum* (Linn.) during summer season at Tandojam. 14th Pakistan Congress of Zoology held from 1-3 Ap.2001 at Uni. of Karachi, Pakistan. Proceeding of Pakistan Congress of Zoology. 2002; 14:243-247.
- Barot BV, Patel JJ, Shaikh AA. Population Dynamics of Chilli Thrips, *Scirtothrips dorsalis* (Hood) In Relation to weather. An International e-Journal. 2017; 1(4):480-485.
- Bhede BV, Suryawanshi DS, More DG. Population dynamics and bioefficacy of newer insecticide against chilli thrips, *Scirtothrips dorsalis* (Hood). Indian. J Ent. 2016; 70(3):223-226.
- Chintkuntalawar PS. Screening of some genotypes and efficacy of different pesticides against major pest complex on chilli (*Capsicum annum* Linn.) M.Sc.(Ag.) Thesis submitted to JNKVV, Jabalpur, 2016, 1-129.
- Dhal A, Tripathy L, Panda N, Dash SK. Efficacy of some insecticides in the management of chilli thrips (*Scirtothrips dorsalis*). Environment and Ecology. 2017; 27(2):838-840.
- Jadhav VR, Wadnerkar DW, Jayewar NE. Fipronil 5% SC:an effective insecticide against sucking pests of chilli (*Capsicum annum* L). Pestology. 2014; 28(10):84-87.
- Johari A. Population dynamics and thrips attack on chilli plant (*Capsicum annum*) in Jombi Province, Indonesia IORS Journal of agriculture and veterinary science. 2017; 9(2):68-71.
- Kadam RV, Deth MD. Fipronil formulations for effective control of chilli thrips, *Scirtothrips dorsalis* hood. Pestology. 2012; 26(04):36-38.
- Kumar KP, Reddy DJ, Narrendranath VV. Bioefficacy of selected insecticides against pest complex in chilli (*Capsicum annum* L). Pestic. Res. J. 2012; 13(1):36-41.
- Kumar S, Mani C, Singh RN. Field evaluation of omite and some other acaricides against broad mite, *Polyphagotarsonemus latus* (Banks) on chilli under Varanasi conditions of Eastern Uttar Pradesh. Pestology 2015; 29(11):61-63.
- Kumar V, Kakkar G, Seal DR, McKenzie CL, Colee J, Osborne LS. Temporal and spatial distribution of an invasivethrips species *Scirtothrips dorsalis* (Thysanoptera: Thripidae), Pestology. 2016; 55:80-90.
- Mahalingappa PB, Reddy KD, Reddy KN, Subbaratnam GV. Bio- efficacy of certain insecticides against thrips (*Scirtothrips dorsalis* Hood) and mite (*Polyphagotarsonemus latus* Banks) infesting chillies

- (*Capsicum annum* L.). Journal of Research ANGRAU. 2017; 36(1):11-15.
15. Mallapur CP, Balikai RA, Manjunath C, Nayaka P. Evaluation of new molecule, fenpyroximate 5EC against chilli sucking pests and fruit borer. International Journal of Agricultural and Statistical Sciences. 2018; 9(1):311-314.
 16. Manjunatha M, Hanchinal SG, Reddy GVP. Survey of yellow mite and thrips on chilli in North Karnataka. Insect- Environment. 2010; 6(4):178.
 17. Meena RS, Ameta OP, Meena BL. Population dynamics of sucking pests and their correlation with weather parameters in chilli, *Capsicum annum* L. crop. Zoological Record Bioscan. 2017; 8(1):177-180.
 18. Ningappa MS. Study on the role of *Scirtothrips dorsalis* and *Polyphagotarsonemus latus* in causing leaf curl and their control m. sc. (agri) thesis, University of Agricultural Sciences, Bangalore, 2015, 64.
 19. Raizada U. Life history of *Scirtothrips dorsalis* hood with detailed external morphology of the immature stage Bulletin of Entomology. 2013; 6:30-49.