



## **Seasonal Incidence Of Insect Pests On Chrysanthemum In Maddur And Palgutta Villages of Ranga Reddy District**

**Saicharan M<sup>1</sup>, V. Anitha<sup>2</sup>, Dr. Lalitha Kameshwari<sup>3</sup> and D. Srilatha<sup>4</sup>**

<sup>1</sup>Department of Entomology, PJTSAU, Rajendranagar. <sup>2</sup>Principal Scientist & Head, AINP on Pesticide Residues, PJTSAU, Rajendranagar, Hyderabad. <sup>3</sup>Scientist, Department of Horticulture, FRS, SKLTHU, Hyderabad. <sup>4</sup>Associate Professor, Department of Entomology, PJTSAU, Rajendranagar, Hyderabad.

### **ABSTRACT**

*Roving survey is being carried out to determine seasonal incidence of various insect pests on Chrysanthemum crop commercially grown in the farmer fields (04) in Maddur village of Shabad mandal and Palgutta village (03) of Chevella mandal of Ranga Reddy district, Telangana. The incidence of leafminer, aphids and thrips fluctuated from field to field significantly. Field 1 of Maddur village and Field 5 of Palgutta showed higher incidence of insect pest as compared to other 5 fields. This can be explained by the fact that these are commercially cultivated fields and hence plant protection chemicals were used from time to time to keep pest under check. It is imperative to take all the pest management tactics in way of economically feasible, sustainable and ecologically sound.*

**KEY WORDS:** Chrysanthemum plant, roving survey, pest incidence, predators.

Received 30.07.2017

Revised 04.08.2017

Accepted 26.08.2017

### **INTRODUCTION**

Chrysanthemum (*Dendranthema grandiflora* Borkh) is one of the most beautiful flowering plant extolled to as Queen of the East. Also known as "Autumn flower", it has been recognized as one among the five commercially important flower crops in India (Janakiram *et al.*, 2006). The total area under chrysanthemum cultivation in Andhra Pradesh is 3198 ha with the production and productivity being 36777 metric tons and 11.50 tons/ha respectively (NHB, 2010). The production is high but productivity and marketability are decreasing considerably due to several factors, the most important being damage caused by insect pests such as aphids, caterpillars, mites, whiteflies, thrips and leafminer. Hence it is imperative to know something about the pests which despoil and damage these plants and methods to combat the same (Butani, 1974). The information on pest complex and seasonal incidence in a specific agroecosystem is very much essential in devising pest management strategies as it clearly reveals the insect peak activity as well as insect free periods during crop growth.

### **MATERIALS AND METHODS**

Roving surveys were conducted in chrysanthemum fields of Maddur village of Shabad mandal (Field 1-4) and Palgutta village of Chevella mandal (Field 5-7) to monitor the pest incidence in the farmers fields. The chrysanthemum plants sampled were all grown in red soils in an area of 0.5 acre/farmer protected by insecticide sprays. It was found that farmers took up insecticide sprays starting from bud initiation to end of flowering season at 10 – 15 days intervals. The most commonly used insecticide was imidacloprid 17.8 SL (Trade names- Confidor, Tatamida, Victor). Leafminers, aphids, thrips and leaf eating caterpillars were observed infesting the crop at various stages of crop growth. All the fields sampled were transplanted in the same time window of July 20<sup>th</sup> to 30<sup>th</sup>, 2013.

In each field 10 plants were selected randomly and total number of leaf mines present on each plant was counted. Average number of aphids present on randomly selected top, middle and bottom leaves of a plant was recorded and likewise readings for ten randomly selected plants were taken.

The selected branch was tapped over a white paper and number of thrips dropped from the flower was counted using 10x magnifying lens, likewise readings for ten flowers per plant in ten randomly selected plants was recorded. Data on leaf feeding caterpillars were also recorded on ten plants per field.

**RESULTS AND DISCUSSION**

The leafminer first appeared in the first fortnight of August, in the pre flowering stage and continued till the first fortnight of November. After a three month gap, the pest reoccurred in the month of February (Table.1). Peak infestation of leafminer was observed in the second fortnight of September (7.67 leafmines/plant) after which the population gradually declined to nil incidence from second fortnight of November to second fortnight of January. The leafminer reappeared in first fortnight of February and reached a peak in the first fortnight of March (5.03 leafmines/plant). Perusal of the data on leafmines/plant showed that it ranged from 1.45 to 3.27 mines/plant in Maddur village and 2.49 to 3.28 mines/plant in Palgutta village over the crop season (Table.2).

**Table.1. Incidence of insect pests at different stages of chrysanthemum in farmers' fields at Ranga Reddy (dist), Telangana, India**

Stage of crop	Date of sampling	No. of leafmines per plant	No. of aphids per plant	No. of thrips per plant	No. of caterpillars per plant
Nursery	16-Jul'13	0.00	0	0.00	0.00
Vegetative stage (Pre flowering)	1-Aug'13	1.37	0	0.00	0.00
	16-Aug'13	4.80	1.54	0.00	0.29
	1-Sep'13	5.36	11.78	0.00	2.14
	16-Sep'13	7.67	17.24	0.00	3.29
	1-Oct'13	6.61	24.78	0.27	5.43
Buds and flower formation stage (Flowering stage)	16-Oct'13	1.37	23.40	1.58	2.86
	1-Nov'13	0.14	15.88	2.52	4.43
	16-Nov'13	0.00	35.20	2.73	1.71
	1-Dec'13	0.00	34.00	3.44	1.57
	16-Dec'13	0.00	44.21	2.96	2.00
	1-Jan'14	0.00	45.17	3.60	7.57
	16-Jan'14	0.00	30.64	5.53	4.43
Senescence (Post flowering)	1-Feb'14	3.01	16.82	5.58	2.43
	16-Feb'14	3.76	4.47	5.43	3.00
	1-Mar'14	5.03	0.57	4.73	3.00
	16-Mar'14	1.93	0	3.38	1.43
Mean		2.41	17.98	2.45	2.68
S.D		2.63	15.78	2.12	1.98

**Table.2. Incidence of different insect pests on chrysanthemum in farmers' fields at Ranga Reddy (dist), Telangana, India**

	S.NO.	No. of leafmines per plant	No. of aphids per plant	No. of thrips per plant	No. of caterpillars per plant
Village Maddur	Field 1	3.27	29.27	3.37	4.53
	Field 2	1.71	9.59	2.14	3.12
	Field 3	1.94	19.41	2.35	3.71
	Field 4	1.45	10.89	2.28	0.24
Village Palgutta	Field 5	2.77	32.71	3.21	4.88
	Field 6	2.49	10.36	2.06	0.24
	Field 7	3.28	13.64	1.77	1.47
	Mean	2.41	17.98	2.45	2.68
	S.D	0.68	8.81	0.55	1.80

Aphid incidence was first observed in both villages in the second fortnight of August which reached a peak in the first fortnight of January (45.17 aphids/plant) and then gradually declined by March occurring both in pre flowering and flowering stage. Between the fields the aphid population per plant varied between 9.59 to 32.71 over the crop season. The incidence of aphids increased substantially from 2<sup>nd</sup> fortnight of November (35.20 aphids/plant) to first fortnight of January coinciding with peak bud and flower formation (Table.1)

The first appearance of thrips was observed in Maddur village in the first fortnight of October. The infestation suddenly rose from first fortnight of January (3.60 thrips/plant) to first fortnight of February (5.58 thrips/plant) coinciding with the peak flowering season. The mean population over the crop season ranged between 2.14 thrips / plant to 3.37 thrips/plant in Maddur village and 1.77 to 3.21 thrips/plant (Table.2) in Palgutta village.

The incidence of *Spodoptera litura* and *Helicoverpaarmigera* were recorded on 10 randomly selected plants and first infestation was observed during second fortnight of August in Maddur village (4.5 larvae/10 plants) (Table.1). Two peaks were observed in the first fortnight of October (5.43 larvae/10 plants) and first fortnight of January (7.57 larvae/10 plants) and the larvae were found on the stalks and flowers. The mean population of caterpillars observed in Maddur village was 0.24 to 4.53 larvae /plant and 0.24 to 4.88 larvae/plant in Palgutta village over the crop season (Table.2).

It can be observed from the roving survey data that the pest incidence in seven fields was not uniform and highly fluctuating. Field 1 of Maddur village and Field 5 of Palgutta showed higher incidence of insect pest as compared to other 5 fields (Table.2). This can be explained by the fact that these are commercially cultivated fields and hence plant protection chemicals were used from time to time to keep pest under check.

Two species of lady bird beetles were found predated on the aphids. They were identified as *Coccinella septumpunctata* (Linnaeus) and *Coccinella trifasciata* (Linnaeus), whereas the common predator of thrips found on the flowers was identified as *Orius insidiosus* (Say).

## REFERENCES

1. Butani, D.K. 1974. Pests damaging roses in India and their control. *Pesticides*. December : 40-42.
2. Janakiram, T., Mahantesh., Murgod, I and Prabhakar, B.S. 2006. Standardisation of agro techniques for production of chrysanthemum under low cost polyhouse. *Acta Horticulture*. 710: 321-328.
3. National Horticultural Board (NHB). Government of India. 2010. <http://nhb.gov.in>.

## CITATION OF THIS ARTICLE

Saicharan M, V. Anitha, Lalitha Kameshwari and D. Srilatha: Seasonal Incidence Of Insect Pests On Chrysanthemum In Maddur And Palgutta Villages of Ranga Reddy District. *Bull. Env. Pharmacol. Life Sci.*, Vol 6 Special issue [3] 2017: 563-565