

## Population Build up of Mango Leaf Hoppers in Western Uttar Pradesh



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**Abstract :** Mango leaf hoppers are the most destructive pests of mangoes. These hoppers reduce mango production by causing non-setting of flowers and dropping of immature fruits. Hoppers were collected by Bag trap method from January to April and by Sweep method from May to December. Two species of mango leaf hoppers were found in the study areas. These were *Idioscopus clypealis* (Lethierry) and *Amritodus atkinsoni* (Lethierry). *Idioscopus clypealis* (Lethierry) was first appeared in February, earlier to *Amritodus atkinsoni* (Lethierry), which appeared firstly in March while maximum population of both the species was recorded in May. *Idioscopus clypealis* (Lethierry) vanished by the end of October and November, where as *Amritodus atkinsoni* (Lethierry) showed another peak of its population in August, after that it vanished by the end of December. Hence *Idioscopus clypealis* (Lethierry) had only one generation in a year because only one peak of population was recorded, while *Amritodus atkinsoni* had two generation in a year, because it showed two peaks of its population.

**Key words :** *Idioscopus clypealis*, *Amritodus atkinsoni*, Population buildup, Seasonal abundance.

### Introduction :

The Mango *Mangifera indica* (Linnaeus) is considered as king of all fruits in South Asia. In proportion to area of cultivation, its production is very low due to insect pests. Of all the mango pests, hopper is considered as the most serious and widespread pest throughout the country. *Idioscopus clypealis* Lethierry, *Idioscopus nitidulus* (Walker) and *Amritodus atkinsoni* Lethierry are the most common and destructive species of hoppers which cause heavy damage to mango crop. Large number of nymphs and adult insects puncture and suck the sap of tender parts, thereby reducing the vigour of the plants. Heavy puncturing and continuous draining of the sap cause curling and drying of the infested tissue. They also damage the crop by secreting a sweet sticky substance which

encourages the development of the fungus *Maliola mangiferae*, commonly known as sooty mould which affects adversely the photosynthetic activities of the leaves. A low population of hoppers has been recorded in mango orchards throughout the year but it shoots up during February-April and June-August. Shade and high humidity conditions are favourable for their multiplication. Such conditions usually prevail in old, neglected and closely planted orchards. The female hoppers lay 100-200 eggs on mid rib of tender leaves, buds and inflorescence. In summers the total life cycle occupies 2-3 weeks.

In North India two species of these mango leaf hoppers are found namely *Idioscopus clypealis* (Lethierry) and *Amritodus atkinsoni* (Lethierry). These hoppers cause non-setting of flowers and

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dropping of immature fruits. The present study is an attempt to determine the population buildup *i.e.* Seasonal abundance of these hoppers in various environmental conditions of Western Uttar Pradesh.

### Materials and Methods :

In the present study hoppers were collected from Mango orchards of four districts of Western Uttar Pradesh-Aligarh, Bulandshahar, Bareilly and Badaun. Bag trap method was adopted for recording the hopper population on the inflorescence from January to April in which each inflorescence was covered with a polythene bag (60 × 30 cm) provided with a cotton swab soaked in ethyl acetate. Both adults

and nymphs were trapped inside the bags. From May to December, sweep method was used for collecting the hoppers with the help of insect collecting net. Hoppers thus collected were taken to the laboratory and were identified on the basis of their morphological variations as *Idioscopus clypealis* (Lethierry) is smaller in size and light-brown in colour with creamish coloured scutellum having three dark spots on it (Fig. 1), while, *Amritodus atkinsoni* (Lethierry) is larger in size and dark-brown to blackish in colour with scutellum having arrow mark on it (Fig. 2). After identification hoppers of each species were separated and counted.

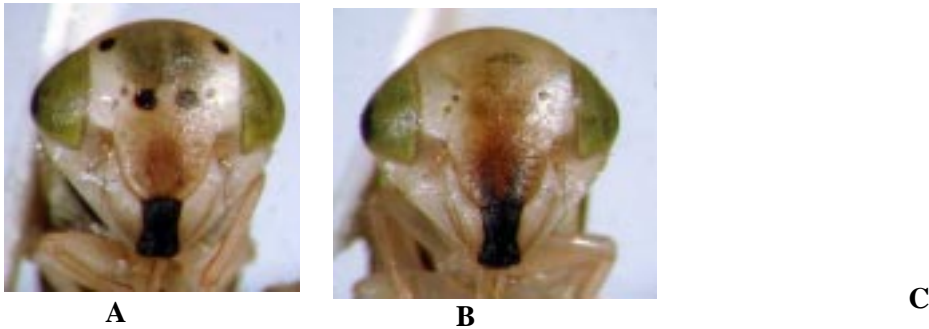


Fig. 1 : *Idioscopus* : A. Female; B. Male and C. Lateral View.

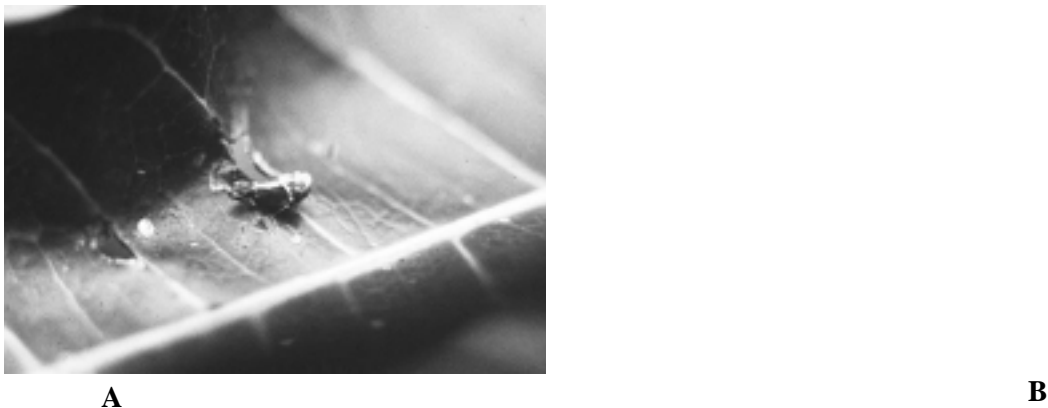


Fig. 2 : *Amritodus atkinsoni* : A. on leaf and B. Lateral view.

Fig. 3 : Seasonal abundance of *I. clypealis* in Western Uttar Pradesh.

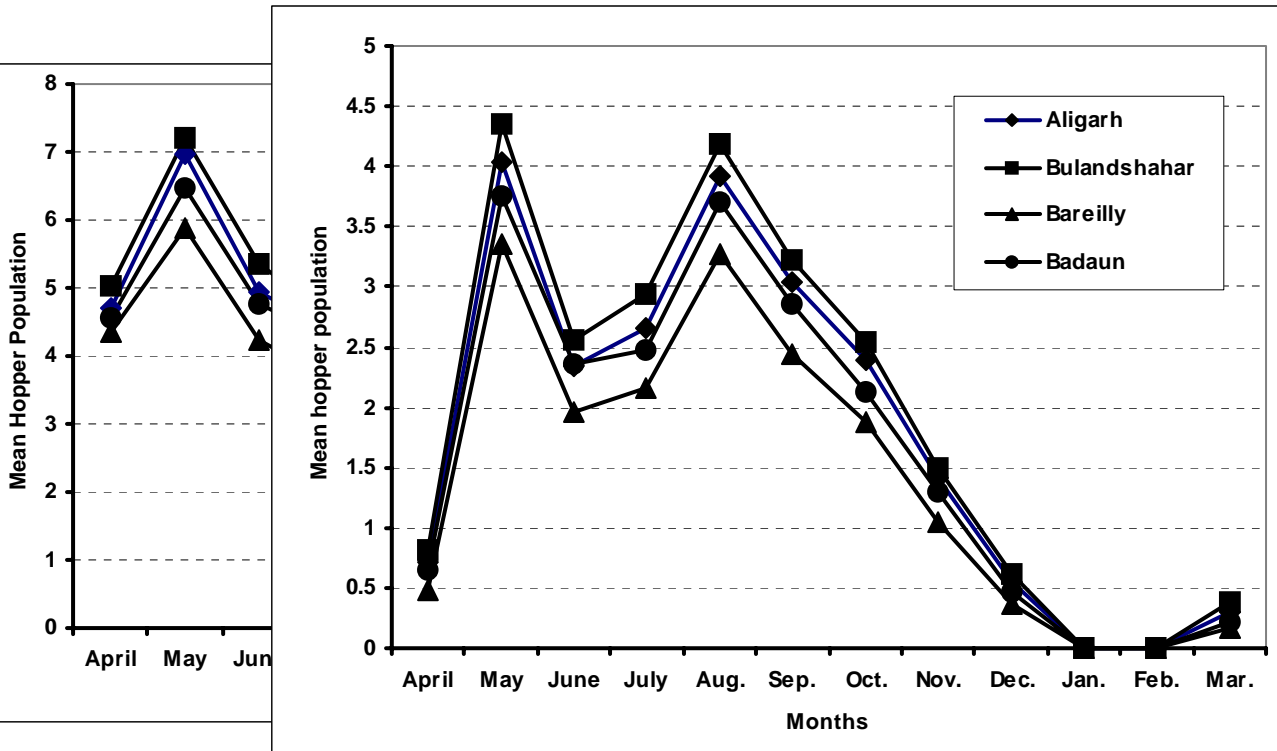


Fig. 4 : Seasonal abundance of *A. atkinsoni* in Western Uttar Pradesh.

### Results and Discussion :

Observed data are shown in Fig. 3 and 4. It was observed that first appearance of adults of *Idioscopus clypealis* (Lethierry) was recorded in February whereas maximum population (7.20 in Bulandshahar) was recorded in May. After May, *Idioscopus clypealis* (Lethierry) population showed a decline and vanished by the end of October in Bareilly and Badaun study areas, while by the end of November in Aligarh and Bulandshahar study areas. On the other hand, adults of *Amritodus atkinsoni* (Lethierry) firstly appeared in March and its maximum population (4.36 in Bulandshahar) was recorded in May, after which population started declining, but again it showed a second peak in August. After this, its population declined and hoppers vanished by the end of December.

From these observations it can be concluded that *Idioscopus clypealis* (Lethierry) was first seen in February and remained active till October in Bareilly and

Badaun study areas, and in Aligarh and Bulandshahar study areas up to November with its peak population in May, having one generation in a year, which is in accordance to the findings of Palo (1935) and Tandon *et al.* (1983). While, *Amritodus atkinsoni* (Lethierry) first appeared in March and showed two peaks in its population *i.e.* it has two generations in a year, which is in conformity with the findings of Srivastava and Butani (1972) and Butani (1993).

### References :

- Butani D.K. (1993) : Mango Pest Problems. Periodical Expert Book Agency, New Delhi **95**, 38-43.
- Palo M.A. (1935) : Anthracnose and important insect pests of Mango in Philippines with a report on blossom spraying experiments. *Phillipine J. Sci.*, **48(2)**, 209-235.
- Srivastava R.P. and Butani D.K. (1972) : Mango hopper menace. *Entomologist News letter*, **2(2)**, 10-11.
- Tandon P.L., Lal B. and Rao G.S.P. (1983) : Prediction of the Mango hoppers *Idioscopus clypealis* (Leth.) population in relation to physical environmental factors. *Entomon.* **8(3)**, 257-261.