

## Some insect-pests survey on vegetables in agricultural fields of district Azamgarh, Uttar Pradesh, India

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### Abstract

Field survey were conducted for one year July 2022 to June 2023 to record the Insect-pests on vegetables in agricultural fields of district-Azamgarh (U.P.), India. Among insect-pests Order-Coleoptera, Diptera, Hemiptera and Lepidoptera were damage of vegetables crops; *Aphis gossypii*, *Bagrada cruciferarum*, *Bemisia tabaci*, *Dacus cucurbitae*, *Dysdercus cingulatus*, *Etiella zinckenella*, *Euzophera perticella*, *Heliothis armigera*, *Leucinodes orbonalis*, *Lipaphis erysimi* and *Raphidopalpa foveicollis* were the serious Insect-Pests in different vegetables of agricultural fields in this region.

**Keywords:** Vegetables, agricultural fields, insect-pests, Azamgarh

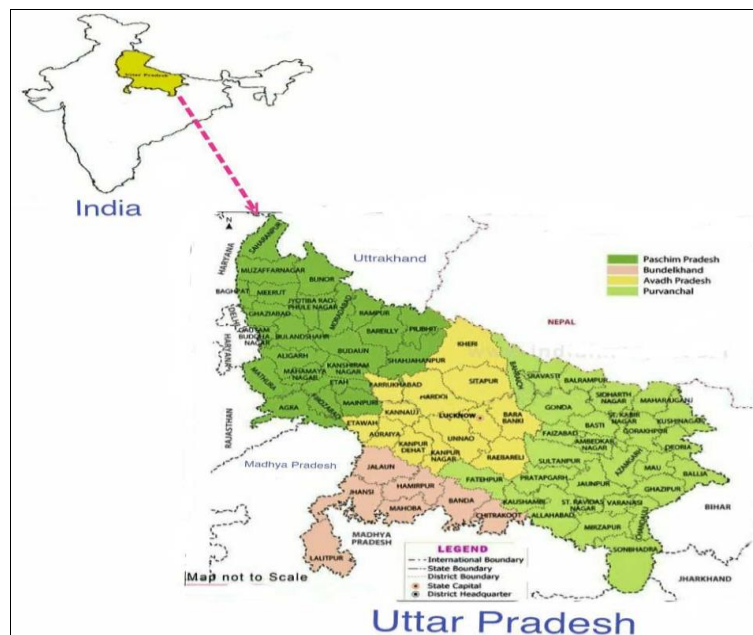
### Introduction

A vegetables is an edible herbaceous plant or part there of commonly used for culinary purposes. Edible portions of vegetables may be fruits, buds, foliage, stems, tubers, roots or various other parts of the plants. Vegetables are our most important natural sources of vitamin-A, C, B<sub>1</sub>, B<sub>2</sub> and minerals including Calcium, Phosphate and Iron. All vegetables except corn are alkaline in reaction in the body. They correct excess acidity produced by some other fruits. They are also excellent source of carbohydrate and proteins. For normal maintenance of health and daily minimum requirement of vegetables is 10 ounce per head that is 20% of the daily requirement of the total food of an adult. Vegetables can be produced in succession on the same plot of land because they are of short duration crops and all the family members can usefully be employed throughout the year. The actual production of vegetables is not even half

the required quantity. In order to improve the diet of the people, it is essential that the production of the vegetables should be increased at least 100%.The Insect-Pests associated for vegetables crops need to be thoroughly survey and controlled which is one of the limiting factors in lower production. Present Investigation some Insect-Pests survey on vegetables in Agricultural fields of district Azamgarh (U.P.), India.

### Location of study area

Azamgarh is situated between 25°38" and 26°27' north latitude and 82°40' and 83°52' east of longitude. Azamgarh is bounded by Mau on the east, Gorakhpur on the North, Ghazipur on the South East, Jaunpur on the South-West, Sultanpur on the West and Ambedkar Nagar on the North-West. The total area of Azamgarh district is 4234 sq km and situated 267 km from state capital Lucknow (Map-1).



Map 1: Study area Location in Uttar Pradesh

## Material and Method

Investigation was undertaken over a period of one years that is from July 2022 to June 2023. Insect-Pests on vegetables were collected by the use of hand nets, light traps, aspirators and use of attractants.

The Insect-Pests when occurred on vegetables (from the date of planting to harvesting) were collecting using suitable

techniques (Kumar and Nigam, 1997) [6]. During survey, Insect-Pests are obtained by collecting immature Insect-Pests stages (eggs, nymph or eggs, larva and pupa) and reared them to adult in laboratory. Insect-Pests on vegetables were identified up to order, family and genus level (Butani and Jotwani, 1984, Mathur and Upadhayay, 1996, Muhammad Sarwar, 2014) [5, 8, 9].

**Table 1:** Some Insect-pests on Vegetables in agricultural fields of district-Azamgar (U.P.), India (Data of July 2022 to June 2023)

S.N.	Scientific Name	Common Name	Vegetable Crops	Occurrence	Order	Family
1.	<i>Bemisia tabaci</i> (Gennadius, 1889)	White fly	Bhindi, Brinjal & Tomato	Regular	Hemiptera	Aleyrodidae
2.	<i>Dysdercus cingulatus</i> (Fabricius, 1775)	Red cotton bug	Okra	Regular	Hemiptera	Pyrrhocoridae
3.	<i>Aphis gossypii</i> (Glover, 1877)	Cotton aphid,	Brinjal, Bhindi & Chillies	Regular	Hemiptera	Aphididae
4.	<i>Lipaphis erysimi</i> (Kaltenbach, 1843)	Mustard aphid	Cole crops	Regular	Hemiptera	Aphididae
5.	<i>Bagrada cruciferarum</i> (Kirkaldy, 1909)	Painted bug	Cabbage and Cauliflower	Occasional	Hemiptera	Pentatomidae
6.	<i>Leucinodes orbonalis</i> (Guenee, 1854)	Brinjal Shoot and fruit borer	Brinjal, Potato and other Solanaceous plants	Regular	Lepidoptera	Grambidae
7.	<i>Etiella zinckenella</i> (Treitschke, 1832)	Pod borer	Pea	Regular	Lepidoptera	Pyralidae
8.	<i>Helicoverpa Or Heliiothis armigera</i> (Hubner, 1808)	Pod borer, Fruit borer	Gram, Chillies and Tomato	Occasional	Lepidoptera	Noctuidae
9.	<i>Dacus cucurbitae</i> (Coquillett, 1849)	Fruit fly	Cucurbits	Regular	Diptera	Tephritidae
10.	<i>Euzophera pericella</i> (Ragonot, 1888)	Brinjal stem borer	Brinjal, tomato, Cucurbits	Regular	Lepidoptera	Pyralidae
11.	<i>Raphidopalpa foveicollis</i> (Lucas, 1849)	Red pumpkin beetle	Cucurbits	Regular	Coleoptera	Chrysomelidae

## Results and Discussion

In agricultural fields surveys showed that 11 species of insect-pests were found on vegetable crops (Table-1). Insect-pests were found order-Coleoptera contains 1 species, order-Diptera contains 1 species, order-Hemiptera contains 4 species and order-Lepidoptera contains 5 species which attacking on Vegetables in agricultural fields in this region.

Insect-pests found on vegetables contains *Bemisia tabaci*; damage is caused by both nymphs and adults which are found in large numbers. They suck plant sap on bhindi, brinjal and tomato, lower its vitality. Severe infestation results in premature defoliation, development of sooty mould or honey dew and shedding of buds and bolls. It is a polyphagous pest. Ahmad *et al.* (1981) [1] also having similar observation.

*Dysdercus cingulatus*, damage is caused by both nymph and adults by sucking the sap of the plants as well as that of bolls and stain the tint. They are also therefore termed cotton boll stainers. The vegetable bugs are gregarious in habit, attacked seeds become worthless for sowing and oil extraction. Similar observation was reported by Prasad *et al.* (1984) [11].

*Aphis gossypii*, damage is caused by both nymphs and adults which are found in large numbers sucking the cell sap from leaves and tender apical shoots (Brinjal, Bhindi and Chillies). The affected parts turn yellow, get deformed and dry away. Aphids also secrete honey dew on which fungus develop covering the entire leaf surface and some shoots with black shooty mould. As compared to earlier reports affected plant parts of brinjal turn yellow and dry (Nair, 1986) [10].

*Lipaphis erysimi*, damage is caused by both nymphs and adults (last week of November or early December in Azamgarh and reaches its peak in the month of February) suck the sap from the tender portion of the plants. Hundreds and thousands of these may be seen on leaves or tender shoot. In mild case, the shoot wilts and in severe cases it completely gets killed. The honey-dew produced by such a large number of individuals covers practically the whole

surface of the tender leaves, shoot and a kind of black mould develops which interferes the photosynthetic activities plant. Honey dew secreted by Aphid is liked by a number of other insects. The cloudy and humid atmosphere is most suitable for its multiplication and attack. As compared to earlier reports which indicated the cloudy and humid atmosphere is suitable for attack this pod borer pests (Mahobe, 1986) [7].

*Bagrada cruciferarum*, damage is caused by both nymphs and adults by sucking sap from the plants (Cabbage and Cauliflower) on which they are often seen clustering on the stems and leaves. The attacked plants look very sickly and dry up or stunted in growth. Anonymous (2000) [2] reported Pests on vegetables in agricultural crops.

*Leucinodes orbonalis*, damage is caused by the larvae which bore in to particles and mid ribs of large leaves of young growing shoots. They attack generally start a week after transplanting. This is a most destructive pest of brinjal found throughout in Azamgarh (U.P.). In case of young tender shoots the growing point is killed and witted drooping shoot is the typical system of damage which ultimately withers and dries away. The fruiting beads drop down while the fruits shows circular holes which are exist holes. Such brinjal fruits loose their market value and in affected fruits Vitamin C is considerably reduced. Long and narrow fruits are less susceptible to attack by this borer. The pest is active throughout the year except during severe winter; *Etiella zinckenella*, damage is caused by the tiny greenish caterpillars which on hatching from the eggs, bore in to pods and eat the seeds inside when the pods are green. The damage grain become unfit for consumption and germination; *Heliiothis armigera*, damage is caused by the caterpillars which feed on the tender foliage. The newly hatched larvae feed on leaves for a short time as leaf scrapper and then attack the pods, bores in to these and feeds on developing seeds with its head inside and half of its body outside; *Dacus cucurbitae*, the damage is caused by larvae which feed on the pulp of fruits of lauki, karela, taroi, kaddu, kakri, kheera, brinjal and papaya. The infested fruit

starts rotting and ultimately drop down; *Euzophera perticella*, damage is caused by the larvae which enter stem and bores downward in Brinjal, chillies, tomato and even Potato. The infested plants wither growth is stunted and fruit yield is adversely affected; *Rapidopalpa foveicollis*, damage is caused by both grubs and adults. On grubs bore in to the roots, underground portion of stem and fruits that come in contact with the soil ( kaddu, lauki, taroi, karela).Adult beetle eat leaf lamina making irregular holes causing retardation and eventually death of the plants(Table-1). Similar observation of Insect-pests on Vegetables in agricultural fields reported by workers Bhatia *et al.* (1995)<sup>[4]</sup>, Anonymous (2000)<sup>[2]</sup>, Muhammad Sarwar (2014)<sup>[9]</sup>, Tripathi(2021)<sup>[12]</sup> and Tripathi (2023)<sup>[13]</sup>.

### Conclusion

Insect-Pests recovered during study period order-Coleoptera, Diptera, Hemiptera and Lepidoptera in this region. The result obtained could be useful as a baseline for further research on control of Insect-Pests in the affected area in order to have an informed decision which might be of great benefits to the farmers and for the purpose of food security.

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