International Journal of Entomology Research
www.entomologyjournals.com
ISSN: 2455-4758
Received: 12-05-2025, Accepted: 11-06-2025, Published: 27-06-2025
Volume 10, Issue 6, 2025, Page No. 122-124

Studies on lepidopterous insect-pests of potato in Azamgarh District, Uttar Pradesh, India

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Abstract
During our study on order Lepidopterous Insect-Pests of 3 Potato crops seasons 2023-25 in district Azamgarh U.P.Ten Insect-Pests of order lepidotera were found attacking crop in many growth stages.Among them Agrotis ipsilon and Heliothis armigera were containd as the major ones causing 4 to 36 % tuber damage and 5 to 45 % foliage damage in many village of Azamgarh, Uttar Pradesh.The occurrence of Zanthorhoe saturata on potato crops found in the present survey has not reported previously so far.

Keywords: Lepidopterous insect-pests, potato, Azamgarh, U.P., India

Introduction

Potato crops (Solanum sp.) is attacked by more than 105 Insect-Pests (Gupta, 1990) [4]. Off these 82 have been reported from India (Pandey, 2002) [6]. Order Lepidoptera Insect-Pests contain a broad group and caused 3 to 74 % damage to the crops in many agroclimatic sites of the country (Anonymous, 1989, Dass, 2000, Lakra, 2002 [5], Pandey, 2002 [6], Sharma and Ramamurthy 2009, Sanjay C. Maish 2019 and Reddy et. al., 2020) [1, 3, 7, 8, 9]. Deatiled information about the nature of damage caused by each Insect-pest is required for control measures to be recommended to the famers., A systematic study of order Lepidoptera Insect-Pests was undertaken during Potao crops seasons in Azamgarh district, Uttar Pradesh, India during the years from 2023 to 2025.

Location of Study area: The district Azamgarh, Uttar Pradesh located 26.072067 latitude and longitude is 83. 185654.Azamgarh district in Uttar Pradesh, India is located on the banks of Tamsa River.Azamgarh is also located south of the Ghaghra (also known as Saryu) river. The district head quarters are also situated on the Lucknow-Baliya state highway (Map-1 &2).

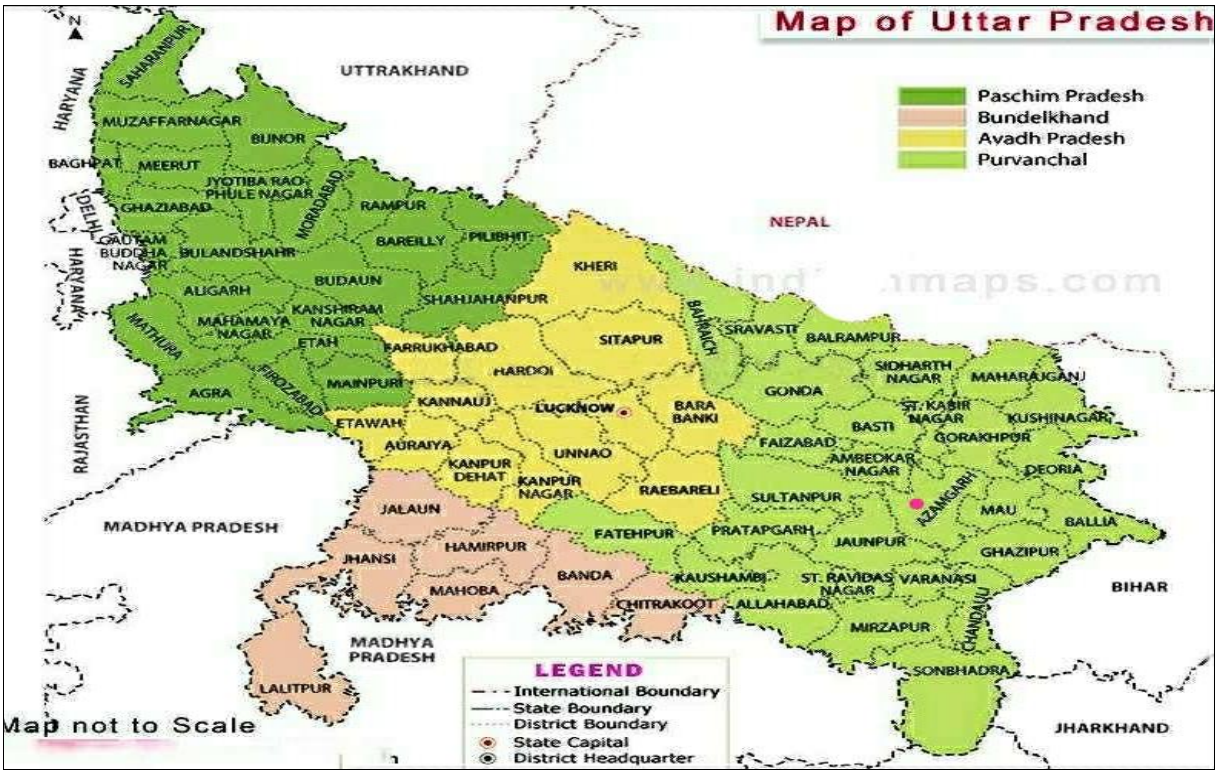

Fig 1: Location of study area in Uttar Pradesh

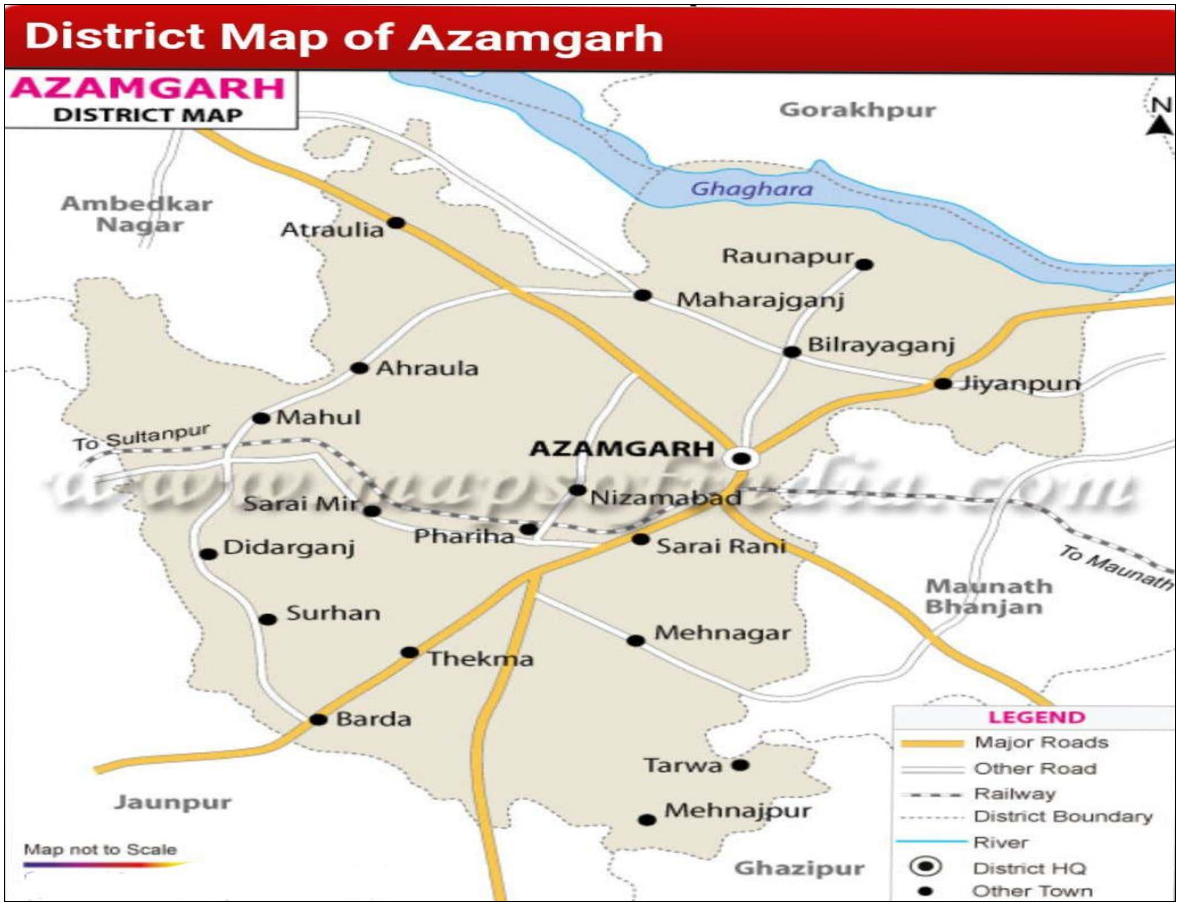

Fig 2: Location of study area of district Azamgarh

Materials and Methods

Order Lepidoptera Insect-Pests of many stages of Potato crops growth that is 35, 55 and 86 days after germination and harvest were undertaken in Azamgarh district during 2023-25.During field investigation,many larval stages feeding on crops of Potato were collected and reared in the Department of Zoology Lab.,D.A.V.P.G.College Azamgarh for identification of Potato Insect-Pests.Adults Insect-Pests of Potato crops were preserved properly and were got identified with the help of Dass (2000) [3], Pandey (2002) [6] and Chandel (2011) [2].

Results and Discussion

Order Lepidoptea Insect-Pests damage potato crops at many stages of crop growth in district Azamgarh, Uttar Pradesh is given in (Table-1). The Insect-Pests of Potao crops contain here:

Table 1: A list of Insect-Pests (Lepidoptera) recorded on Potato crops in Azamgarh, Uttar Pradesh, India (Data of January 2023 to April 2025)

S.No.	Insect-Pests	Family	Period	Plant Part affected
1	Agrotis ipsilon	Noctuidae	Nov-Feb	Stem, leaves and tubers
2	Agrotis flammatra	Noctuidae	Nov-Feb	Stem, leaves and tubers
3	Agrotis segetum	Noctuidae	Oct-Mar	Stem, foliage and tubers
4	Helicoverpa armigera	Noctuidae	Nov-Mar	Foliage
5	Spodoptera litura	Noctuidae	Dec-Feb	Foliage, some times tubers
6	Spodoptera exigua	Noctuidae	Nov-Feb	Foliage
7	Plusia orichalcea	Noctuidae	Nov-Mar	Foliage
8	Mythimna separata	Noctuidae	February	Foliage
9	Diacrisia obliqua	Arctiidae	Feb-Mar	Foliage
10	Xanthorhoe saturata	Geometridae	February	Foliage

A. Crop Cutworms: The cutworms damaging potato crops in Azamgarh district area:

1. **Agrotis ipsilon (Lepidoptera):** The moths are brown in colour measuring 22 mm in length and 7mm in breadth with a wingspan of 40-50 mm. Fore wings are dirty white in colour having dirty brown spots while hind wings are white. They are known as cutworms because these cut the plants and fell down to the ground either the whole plants like twigs. The damage is caused by the larvae which hide during the dayand come out in the evening to cause the damage. They destroy many plants than they actually feed upon and thus cause a very serious loss. The attack of cut worm in crops is confined from 2nd week of November to February. This species has also been reported from other parts of the country causing about 4 to 36 % loss in yield (Anonymous 1989) [1].

2. **Agrotis flammatra (Lepidoptera):** This species fore wings are characterstically marked and two third of costal area is pale, gery brown having a kidney shaped and a semicircular spot below the pale area and two black line near the base. The attack of Agrotis flammatra in crops is confined from 1st week of November to 3rd week of February.This Insect-Pest was reported to be very common in cropsbplants (Chandel et.al.2011) [2].

3. **Agrotis segetum:** This species colour of the body is brownish-orange. They are active October to March and less damage the crops.

The caterpillars feed on the epidermis of the fallen leaves and green leaves touching the ground (Gupta, 1990) [4].

B. Foliage

1. **Helicoverpa armigera:** The pest is active throughout the year but damage to crop plant is cause from November to March.The Foliage damage is caused by the larvae which feed on the leaves and destroy the crop plants. In severe infestation damage to crops 22% to 48 % (Sharma and Ramamurthy, 2009) [9].

2. **Spodoptera litura:** The damage is caused by freshly hatched larvae which feed gregariously on leaves but later these isolate and show hiding properties, feeding voraciously during the night on foliage. During our survey, its losses to foliage over night may occur from December to February (Dass, 2000) [3].

3. **Spodoptera exigua:** It damage to Foliage.During our survey also observed on potato crops during November to February (Lakra, 2002) [5].

4. **Plusia orichalcea:** During our survey, it also damages to crops plants foliage throughout the potato season. The attack of Plusia orichalcea in crop is confined from November to March (Chandel, 2011) [2].

5. **Mythimna separata:** It damage to Potato foliage and less damage to Potato crops. The attack of Mythimna separata in Potato crops confined from February (Gupta, 1990) [4].

6. **Diacrisia obliqua:** During our survey, damage is caused by the larvae which bore to stems, tunnel and feed on tissues. The larvae were observed in February to March (Pandey, 2002) [6].

7. **Xanthorhoe saturata:** During our survey, damage is caused by the larvae and observed in February.Similar work done by (Dass, 2000) [3].

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