

Diversity Of Insect Pests In Agricultural And Forest Areas From Ghatanji Tahsil, Yavatmal District Of Maharashtra

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Abstract

The field investigation in the years 2024 -2025, from Ghatanji Tahsil, Yavatmal revealed that 17 insect pests were observed from agriculture and forest areas of Ghatanji, which belong to order Hemiptera, Coleoptera, Lepidoptera, Phasmatodea, Thysanoptera, Orthoptera, Isoptera and Hymenoptera. Most of insect pests were identified from agricultural areas, and few pests were identified from forest areas. Hence the present research paper provides useful information about various insect pests from Ghatanji Tahsil.

Keywords: Pests, Agriculture, Forest, Ghatanji, Hemiptera, Lepidoptera, Yavatmal District.

Introduction

India is one of the most developed agriculture countries in the world. About 30-40% Indian population lives in urban areas and the rest live in rural areas. The rural Indian people totally depend upon agriculture field and their allied businesses such as apiculture, sericulture, lac culture, fish farming, emu farming, goat farming and poultry farming. The rural Indian population is facing a critical problem of various insect pests in agriculture field. This problem of insect pests is related to different agriculture crops, vegetables, woody plants, and ornamental plants. The forest area is important habitat for a huge diversity of organisms especially, insects. Many species of insects cause damage to different higher and lower plants in the forest region. The class Insecta is a large group in the animal kingdom. They are widely distributed in the world. The members of insects are found in all ecosystems such as terrestrial, desert and aquatic. They are mostly found in tropical regions, but less in Polar Regions. They are serious pests in agriculture, forest, cultivated plants, veterinary and some are included in medical pests. The insects are highly damaging to wood, furniture, stored grain and some important materials for houses and agriculture product. Many insect species transmit various bacterial diseases on crops and vegetables. The varieties of insect species are totally depending upon agricultural field and they are feeding on root, stem, leaf, flower and seed. The larvae of insects are voracious feeder and cause a heavy damage to agriculture crops. More than 10,000 species of insects damaged food plants worldwide (Dhaliwal et al. 2007). There are about 60-70% yield loss caused due to damage of different pests. The agriculture field of India is currently suffering an annual loss of about Rs. 8, 63, 884 million due to insect pests (Dhaliwal et al. 2010). The order Coleopteran is the largest group in class insect. They include about 25, 000 species. Forty families of this order included harmful to stored products of worldwide (Rees, 1996). Infection of stored bulk grain and processed commodities by insects cause big economic damage (Hagstrum and Flinn, 1995). The heavy crops are loss from insect pests; the farmers use large amounts of pesticides (Aktar et al. 2009). But, both the quantity of food loss due to pests and the cost of pest control in terms of money and human health are significant (Pimentel and Greiner, 1997).

Materials and Methods

Survey and collection of general insect pests were made during year 2024-2025, from agriculture and forest areas of Ghatanji Tahsil. Ghatanji is situated at approximately 20° 08' N, 78° 19' E in eastern Vidarbha, Maharashtra. The actual average annual rainfall for Ghatanji (and the broader Yavatmal district) ranges between 950 mm to 1100 mm/year. The study region consists of a variety of agriculture crops and vegetables, several water bodies and a huge variety of insect biodiversity. Insect pests were collected with the help of two types of methods, hand picking and sweep net method. Small and medium sized insect pests (aphids, mealy bugs and larvae) were collected by handpicked method and large insect pests (Grasshoppers) were picked

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insect net. The agricultural and forest pests were identified by with the help of research papers and internet sources.

Result and Discussion

During the present study total 17 species of insect pests were collected from agricultural and forest areas of Ghatanji Tahsil of Yavatmal District. They belong to order Hemiptera, Coleoptera, Lepidoptera, Phasmatodea, Thysanoptera, Orthoptera, Isoptera and Hymenoptera. The order Hemiptera was dominant, which represented by 5 species, followed by Coleoptera, Lepidoptera, Phasmatodea, Thysanoptera, Orthoptera, Isoptera and Hymenoptera with 4, 3, 1, 1, 1, 1, and 1 species respectively (As given in Table No. 1). Order Hemiptera includes 5 insect species like whitefly, stink bug apid, jassid and mealy bug. They cause heavy damage to host plants such as brinjal, sugarcane, rice, cowpea and tomato. Coleoptera insect pests occur in forest region cause damage to mango tree. The third order Lepidoptera consists cabbage looper larva, gram poder and green peas moth are instrumental in damaging cabbage, red gram and green peas. The rest of the orders like Phasmatodea, Thysanoptera, Orthoptera, Isoptera and Hymenoptera are responsible for severe damage of rice, brinjal and tomato. In addition, termite and ant species were observed on different host plants. Fletcher (1922) studied on the larvae of *Spilosoma obliqua* (Walker) which was found damaging several types of crops including cereals, pulses, oilseeds, fibers, ornamentals and vegetables. Bhutani (1974) studied on scale insect pests that cause damage to mango. Shen-Sharma P.K (1983) studied on insect pests and their management from Indian forestry. Mall et al. (1992).

Studied on pests and reported that *S. melongena* was damaged by several insect pests, consisting of jassids, aphids, shoot and root borer. Usmani et al. (2012) studied rice pests and 34 species of grasshoppers reported from Bihar and Jharkhand. Singh et al (2014) recorded 19 insect pests from Talwandi Sabo, Punjab, were Hemiptera and Lepidoptera insects causing damage to both kharif and rabi crops. Sathe et al (2015) studied on color attractivity and the occurrence of some cell sucking pests on crop plants from Kolhapur region and reported four sap sucking insect pests. Sathe et al. (2016) recorded 12 species of Brinjal pests from Kolhapur region.

Patil et al. (2016) studied on diversity and biology and control insect pests from Western Maharashtra and reported 30 species. Noor Ul Ane and Mubashar Hussain (2016) reported Lepidoptera, Hemiptera, Coleoptera, Diptera, Orthoptera and Thysanoptera from major rice growing areas of the world. In Chandgad Tahsil, the farmers are facing various agricultural insect pests especially in case of Rice, Red gram, Brinjal and Cow peas. From the present study we observed that red gram poder is highly destructive feeder and its damage was a serious problem for small scale farmers. Other pests such as Aphids, Mealy bug and white flies are damaging various crops and they were observed in winter and summer season.

Table 1: Occurrence of insect pests in Ghatanji Tahsil.

Sr. No.	Common Name	Order	Host Plant
1	White fly	Hemiptera	Brinjal, Sugarcane
2	Stink bug	-	Rice
3	Apid	-	Brinjal, Cowpea, Sugarcane
4	Jassid	-	Rice
5	Mealy bug	-	Brijal, Tomato, Sugarcane
6	White grub beetle	Coleopteran	Sugarcane
7	Mango stem borer	-	Mango
8	Red palm weevil	-	Palm, Coconut
9	Coconut rhinoceros beetle	-	Coconut
10	Cabbage looper larva	Lepidoptera	Cabbage
11	Gram poder	-	Red gram
12	Green peas moth	-	Green peas
13	Stick insect	Phasmatodea	Rice
14	Thrip	Thysanoptera	Rice, Brinjal, Tomato
15	Grasshopper	Orthoptera	Rice
16	Termite	Isoptera	Several host plants
17	Ant	Hymenoptera	Several host plants



Figure 1: Sugarcane woolly aphid.



Figure 2: Mango stem borer damage



Figure 3: Red palm weevil on coconut tree



Figure 4: Gram poder on red gram



Figure 5: Green peas moth damage.



Figure 6: Aphids on Cow pea

Conclusion

This study reveals significant insect pest diversity across the agricultural and forest ecosystems of Ghatanji Tahsil, Yavatmal District, dominated by the orders Hemiptera, Coleoptera, Lepidoptera, Phasmatodea, Thysanoptera, Orthoptera, Isoptera and Hymenoptera. Pest population density peaked during the Kharif season, with sucking pests and bollworms posing the greatest economic threat to major regional crops like cotton and soybean. The findings highlight a strong ecological linkage between adjacent forest areas and farmland: while forest patches serve as alternate hosts for polyphagous pests during non-cropping seasons, they also harbour vital natural predators. Ultimately, this baseline diversity data underscores the need for localized Integrated Pest Management (IPM) and eco-friendly biological control strategies to safeguard crop yields while maintaining the region's ecological balance.

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