

# 21ENTO332 PESTS OF HORTICULTURAL CROPS AND THEIR MANAGEMENT AND BENEFICIAL INSECTS

Hours Per Week :

L	T	P	C
2	-	2	3

Total Hours :

L	T	P
30	-	30

## Course Description and Objectives:

The course imparts knowledge to identify various insects, understand their biology, appreciate the importance of beneficial insects and skills in rearing honey bees, silkworm and lac insects

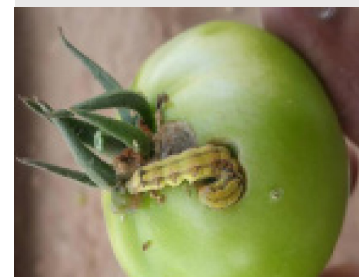
## Course Outcomes:

Upon completion of the course, the student will be able to achieve the following outcomes:

COs	Course Outcomes
1	To identify the insect pests on different horticultural crops
2	To assess the economic damage done by the insect pests in horticultural crops
3	To formulate eco-friendly and economically viable integrated pest management strategies of insect pests in various horticultural crops
4	To advocate on the importance of beneficial insects in the pest management
5	To advocate the entrepreneurs on the honeybees and production of honey
6	To advocate the entrepreneurs on silkworm and lac insect and the economic importance of their products

## SKILLS:

- ✓ *Identify insect pests of horticulture crops and beneficial insects*
- ✓ *Understand biology, nature of damage and symptoms of damage of insect pests of horticultural crops*
- ✓ *Suggest better management practices for insect pests of horticultural crops*
- ✓ *Prepare IPM modules for different insect pests*
- ✓ *Understand the role of pollinators in seed production*



Source:

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**ACTIVITIES:**

- o Rearing of different insect pests to understand their biology
- o Visit horticultural fields and observe nature of damage and symptoms of damage caused by different insect pests
- o Rearing of beneficial insects like predators and parasitoids
- o Visit to honey production units and sericulture units

**UNIT - 1**

General account on nature and type of damage by different arthropod pests. Scientific name, order, family, host range, distribution, biology and bionomics, nature of damage, and management of major pests and scientific names, order, family, host range, distribution, nature of damage and control practices for other important arthropod pests of various vegetable crops, fruit crops, plantation crops, ornamental crops, narcotics, spices and condiments

**UNIT - 2**

**Sericulture:** Types of silkworm, voltinism and biology of silkworm. Mulberry cultivation, mulberry varieties, methods of harvesting and preservation of leaves. Rearing of mulberry silkworm, rearing appliances, mounting and harvesting of cocoons. Pests and diseases of silkworm, management, and methods of disinfection

**UNIT - 3**

**Apiculture:** Importance of beneficial insects, bee keeping, pollinating plants and their cycle, bee biology, commercial methods of rearing, equipment used and seasonal management. Bee pasturage, bee foraging and communication. Insect pests and diseases of honey bee and their management

**UNIT - 4**

**Lac Culture:** Species of lac insect, morphology, biology, host plant and lac production – Processing of lac - seed lac, button lac, shellac and lac- products

**UNIT - 5**

**Beneficial Insects:** Identification of major parasitoids and predators commonly used in biological control. Insect orders bearing predators and parasitoids used in pest control and their mass multiplication techniques. Critical factors in the success of biological control program. Important species of pollinators, weed killers and scavengers and their importance. Requirements for setting up a commercial unit for producing silk, honey and biological control agents. Opportunities and challenges in marketing the bio products. Government schemes to support sericulture and apiculture

**LABORATORY EXPERIMENTS****LIST OF EXPERIMENTS**

1. Identification of insect pests of Solanaceous and Malvaceous vegetables and their damage symptoms
2. Identification of insect pests of Cruciferous and Cucurbitaceous vegetables and their damage symptoms
3. Identification of insect pests of leafy vegetables, potato, sweet potato, moringa and chilli and their damage symptoms (Potato and Chillies are Solanaceous crops)
4. Identification of insect pests of mango, cashew, citrus & banana and their damage symptoms
5. Identification of insect pests of grapevine, pomegranate, sapota, papaya, apple, custard apple, ber and guava and their damage symptoms
6. Identification of insect pests of coconut, arecanut, cocoa, cardamom, pepper, date palm &

oil palm, eucalyptus and neem and their damage symptoms

7. Identification of insect pests of spices, narcotics (turmeric, betel vine, onion, tobacco & ginger) and ornamental plants (jasmine, rose, chrysanthemum) and their damage symptoms
8. Identification of economically important mite, nematode (vegetables, citrus, banana and coconut), rodent (coconut) and bird pests of horticultural crops and their management
9. Acquaintance with silkworm species and small-scale rearing of mulberry silkworm
10. Acquaintance with different appliances of silkworm rearing, model rearing house and methods of disinfection
11. Acquaintance with handling of chawki and late age silkworm rearing - Feed change and spacing techniques
12. Acquaintance with important species of honeybees, caste system, structural adaptations, beekeeping appliances and different beehives
13. Seasonal management of honeybees and their enemies and diseases.
14. Identification of various lac products
15. Visit to nearby silkworm rearing and bee keeping centres. Prepare a project proposal to set up a sericulture or apiculture or biocontrol unit

## REFERENCES:

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