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ENTO. 321

MANAGEMENT OF BENEFICIAL INSECTS

2(1+1)

## Theory

### Part - I

Beekeeping- Importance, bee species and biology, commercial methods of rearing, equipment used, seasonal management, bee enemies and disease. Bee pasturage, bee foraging and communication. Sericulture- Importance, species of silkworm, voltinism and biology of silkworm. Mulberry cultivation, mulberry varieties and methods of harvesting and preservation of leaves. Rearing, mounting and harvesting of cocoons. Pest and diseases of silkworm. Lac culture- Importance, species of lac insect, morphology, biology, host plants, lac production- seed lac, button lac, shellac, lac-products.

### Part - II

Insect orders bearing parasitoids and predators used in pest control and their mass multiplication techniques. Important species of pollinators, weed killers and scavengers with their importance.

## Practical

Honey bee species, castes of bees. Beekeeping appliances and seasonal management, bee enemies and disease. Bee pasturage, bee foraging and communication. Species of silkworm, voltinism and biology of silkworm. Mulberry cultivation, mulberry varieties and methods of harvesting and preservation of leaves. Species of lac insect, host plant identification. Identification of other important pollinators, weed killers and scavengers. Visit to research and training institutions devoted to beekeeping, sericulture, lac culture and natural enemies. Identification and techniques for mass multiplication of natural enemies.

## Lecture Schedule: Theory

S.N.	Topic	No. of lectures
1.	Beekeeping- Importance, bee species and biology.	2
2.	Commercial methods of rearing, equipment used, seasonal management.	1
3.	Bee enemies and diseases.	1
4.	Bee pasturage, bee foraging and communication.	1
5.	Importance, species of silkworm, voltinism and biology.	1
6.	Mulberry cultivation, mulberry varieties and methods of harvesting and preservation of leaves.	1

7.	Rearing, mounting and harvesting of cocoons. Pest and diseases of silkworm.	1
8.	Importance, species of lac insect, morphology, biology, host plants, lac production- seed lac, button lac, shellac, lac- products.	2
9.	Insect orders bearing parasitoids and predators used in pest control.	2
10.	Mass multiplication techniques of parasitoids ( <i>Trichogramma chilonis</i> and <i>Campoletis chloridae</i> ) and predators (ladybird beetle).	3
11.	Important species of pollinators, weed killers and scavengers with their importance.	1

### Lecture Schedule:Practical

S.N.	Topic	No. of lectures
1.	Honey bee species, castes of bees.	1
2.	Beekeeping appliances and seasonal management, bee enemies and disease.	2
3.	Bee pasturage, bee foraging and communication.	1
4.	Types of silkworm, voltinism and biology of silkworm.	1
5.	Mulberry cultivation, mulberry varieties and methods of harvesting and preservation of leaves.	1
6.	Species of lac insect, host plant identification.	1
7.	Identification of important parasitoids, predators, pollinators, weed killers and scavengers.	1
8.	Collection of important parasitoids, predators, pollinators, weed killers and scavengers.	2
9.	Mass multiplication techniques of parasitoids ( <i>Trichogramma chilonis</i> and <i>Campoletis chloridae</i> ) and predators (ladybird beetle).	4
10.	Visit to research and training institutions devoted to beekeeping, sericulture, lac culture and natural enemies.	2

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