

SEMESTER 2nd
MINOR COURSE

SER222N SRICULTURE (SILKWORM BIOLOGY AND REARING TECHNOLOGY)

CREDITS: THEORY: 04; PRACTICAL: 02

LEARNING OBJECTIVES

To know about the biology of mulberry and non-mulberry silkworms and their rearing techniques'

LEARNING OUTCOME

Silkworm rearing know how on scientific lines and to take sericulture as an enterprise

THEORY (4 CREDITS)

UNIT 1: SILKWORM TAXONOMY AND DISTRIBUTION

- 1.1. Systematic position of silkworm and salient features of the order Lepidoptera and family Bombycidae and Saturniidae
- 1.2. Life cycle of the mulberry silkworm, *Bombyx mori* – Stages of development (egg, larva, pupa and adult)
- 1.3. Life cycle of non-mulberry silkworms – stages of development (egg, larva, pupa and adult)
- 1.4. Moulting – characteristic features of different moults
- 1.5. Voltinism – univoltine, bivoltine and multivoltine races

UNIT 2: MORPHOLOGY OF SILKWORM

- 2.1. Morphology of egg: external & internal and colour change
- 2.2. Morphology of larva: mouth parts, legs, prolegs, spiracles, eyes, claspers and integumentary hair and sexual markings
- 2.3. Morphology of pupa and sexual dimorphism
- 2.4. Morphology of adult: mouth parts, antennae, wings
- 2.5. Sexual dimorphism in adults

UNIT 3: REARING TECHNOLOGY-I

- 3.1. Disinfection: importance and types of disinfection, methods of preparation of different disinfectants
- 3.2. Incubation: definition, environmental conditions required for incubation and their influence on egg development; methods of incubation
- 3.3. Black boxing and its importance
- 3.4. Brushing: definition, methods-brushing from loose eggs and sheet eggs-advantage and disadvantage of different types of brushing
- 3.5. Rearing house: model rearing house, different types of rearing houses

UNIT 4: REARING TECHNOLOGY-II

- 4.1. Rearing appliances and their uses.
- 4.2. Young age/chawki rearing - methods, environmental conditions required, leaf requirement and selection.
- 4.3. Late age rearing - methods, environmental conditions required, leaf requirement and selection.
- 4.4. Moulting: definition, importance, duration and schedule
- 4.5. Mounting -types of mountages, transfer of spinning worms, spinning and harvesting of cocoons.

PRACTICALS: (2 CREDITS)

1. Morphology of egg, fifth instar larva
2. Morphology of pupa and pupal sex separation
3. Morphology of adult and sexual dimorphism
4. Disinfection of rearing house and appliances
5. Conducting of silkworm rearing
6. Anatomy-dissection of alimentary canal, silk gland of larva and reproductive system of adult.
7. Study of rearing appliances
8. Visit to various sericulture institutes of the UT.

BOOKS RECOMMENDED

1. Hand book of Sericulture Technologies by Dandin, S.B. et al.
2. Silkworm Rearing Technology, Central Silk Board, Bangalore *Dr. R. K. Rajan & Dr. M. T. Himantharaj* Text Book Planning for silkworm rearing, incubation of silkworm eggs mounting and harvesting
3. Silkworm physiology by Shamuiddin Mohd
4. Sericulture by R. K. Shah
5. Hand Book of Practical Sericulture. S. R. Ullal and M. N. Narasimhanna. C. S. B Bangalore
6. An Introduction to Sericulture. G. Gorge, J. Sulochana Chetty.
7. Package of Practice for Silkworm and Mulberry Cultivation in Kashmir, SKUAST-K Mirgund, Directorate of Extension Education.
8. Principle of Temperate Sericulture by Kamli and M. Masoodi.
9. Manual on Sericulture. Food and Agriculture Organization Rome 1976
10. Objective book on sericulture by F.A. Malik, Awquib Sabahat and M. A. Malik
11. A text book on introduction to sericulture and soil science by Dr. M. A. Bhat et al.