



TASAR TECHNOLOGY

PAPER- I

MORPHOLOGY, ANATOMY & PHYSIOLOGY OF TASAR SILKWORM & AGRONOMY

MM: 50

UNIT – I

1. History of Non-Mulberry Sericulture.
2. Outline classification of Non-Mulberry Silkworm, their distribution in India and other countries.
3. General organization and life-cycle of *Antherea mylitta*, & Morphology & Anatomy of Larva, pupa & moth.
4. Structure of EGG, fertilization, Embryogenesis, Incubation & Hatching.

UNIT – II

1. Reproduction – structure of re-productive system, oogenesis, spermatogenesis, development & growth.
2. Molting and volatise in tasar silkworm.
3. Endocrinology of tasar silkworm, Role of hormone in development & metamorphosis.
4. Silk glands, structure of silk glad, formation and biochemistry of silk.

UNIT-III

1. Rearing-rearing equipment, preparation for rearing, Environmental condition for rearing of tasar silkworm.
2. Rearing of large, young age and late age tasar silkworm.
3. Disinfection and disinfectants.
4. Mounting, spinning & harvesting of cocoon.

UNIT-IV

1. Diseases of tasar silkworm- protozoan, viral, Bacterial, Fungal, symptoms, causative agents, preventive & control Measures.
2. Morphology & Anatomy of primary food plants of Tasar silkworm (*Terminania arjuna*, *Terminania tomentosa*, *Shorea robusta* etc.) their culture methods.
3. Outline classification of primary & secondary food plants of tasar worm, their distribution in India (with the special references to Chhattisgarh and other states.)

UNIT-V

1. Farm Management: selection of soil & preparation of land for tasar plant cultivation.
2. Propagation of Tasar food plants-seedlings, saplings, crafting, layering.
3. Harvesting of Leaf.
4. Diseases of Non-mulberry food plants, Fungal, Bacterial, Viral, deficiency, Insect pest, control method.

List of Reference Books

1. Tasar Culture: By Dr. M.S. Jolly et. Al. CSB. 1974
2. Silkworm Rearing: And Diseases of Silkworms: By the Mysore Silk Asso. 1956.
3. Text Book of Tropical Sericulture: Japan Over Seas Corp. Volunteers, 1975.
4. Hand Book of Silkworm Rearing: Agricultural & Technical Manual - Fuzi Pub. Co. Ltd. Japan, 1972.
5. Improved Method Of Rearing Young Age Silkworm: By S. Krishna swami, Reprinted By CSB, Bangalore, 1986.
6. Silkworm Biology And Rearing - A.K. Dhole, NCERT, New Delhi, 1990
7. Diseases and Pests of Mulberry and Their Control (1990) Pub. by CSB & TI Mysore
8. Text Book of Soil Science, T.D. Biswas & S.K. Mukherjee (1990) TMH



TASAR TECHNOLOGY
PAPER-II
TASAR SILKWORM–GENETICS AND BREEDING

MM: 50

UNIT-I

1. Moth Emergence: pairing, ovi-position, moth examination.
2. Incubation of univoltine, bivoltine and multivoltine eggs.
3. Preparation of loose eggs-Advantages of loose eggs, handling of loose eggs.
4. Seed Technology: seed areas and importance of quality seed in tasar industry.

UNIT-II

1. Seed cocoon: Harvesting of cocoon, gradation and selection consignment for processing.
2. Storage & preservation of cocoon: Types of building, methods of storing-problems care in different season.
3. Grainage: Definition, model grainage house, location, orientation and grainage equipments, condition required in grainage work.
4. Hybridization – Inter-specific & Intra specific with special reference to tasar. Its impact & future prospects.

UNIT-III

1. Breeding-methods and its application, qualitative and quantitative improvement by breeding.
2. Breeding of Tasar silkworm: Aims, pre-requirements, variability selection for breeding.
3. Inbreeding: Advantage and dis-advantage, exploitation of inbreeding of non-mulberry silkworms, general and specific combining.
4. Selection: Methods of selection, criteria of selection, individual and batch selection.

UNIT-IV

1. Structure of typical animal cell, mitosis & meiosis, chromosome number of different Non-mulberry silkworm.
2. Hereditary traits, in tasar silkworm-Egg, Larvae and pupae.
3. Mutations: Type of mutation, spontaneous and induced, chemical mutagens, effect of radiation.

UNIT-V

1. Polyploidy: Nature and induction of polyploidy.
2. Genetics of larval and cocoon characters,
3. Silkworm races: Univoltine, bivoltine and multivoltine races of different tasar silkworm.
4. Maintenance of races and basic seed of different silkworm.

List of Reference Books

1. Silkworm Genetics: Illustrated By Tada Yakoyama.
2. The Genetics of The Silkworm : Byataro Tazima, 1964
3. Fundamentals of Genetics: Kalyani Pub. New Delhi. By B.D. Singh (1990)
4. Silkworm Breeding Stock : By Dr. P.A. Kovalov, CSB.-1970



बिलासपुर विश्वविद्यालय, बिलासपुर (छत्तीसगढ़)

SYLLABUS B.SC. PART-I

PRACTICAL

Morphology, Anatomy & Physiology of Tasar Silkworm & Agronomy.

Tasar Silkworm-Genetics and Breeding

1. Morphology: tasar silkworm egg. Larva, pupa & moth.
2. Embryology: identification of different stages in development,
3. Molting of embryo.
4. Whole mount of larva, mouth parts, spinneret, gonad and spiracle celli.
5. Model rearing house: preparation for teaser rearing plots.
6. Disinfection: disinfection of room plot and equipment. Spraying and fumigation, material required.
7. Harvesting of cocoon: assessment of cocoon.
8. Maintenance of rearing record.
9. Qualify test of cocoons for breeding.
10. Diseases: identification of diseases of teaser worms.
11. Microscopic examination: handling of dead and diseased worms and sample examination.
12. Preservation of diseased specimen of food plant of tasar.
13. Identification of different diseases of tasar food plant.
14. Morphological studies of food plants of tasar worms.
15. Anatomy: anatomy of root, stem, leaf of food plant of tasar worms.
16. Collection of herbarium of different food plants pf tasar silkworms.
17. Rearing appliances: estimation of rearing appliances. For 50 dfls.
18. Incubation of silkworm eggs: black boxing and hatching. Recording of temperature and humidity.
19. Molting: identification & care.
20. Montages & harvesting.
21. Mitotic & meiotic chromosome of non-mulberry silkworm.
22. Visits to the areas of districts of Chhattisgarh to study tasar industries.

Scheme of Practical Examination

S.No.	Practical	Marks
1	Morphology & Identification of Tasar Silkworm/ Anatomy of Tasar	10
2	Embryological Stages of Tasar Silkworm	8
3	Identification of Specific in Fee House	8
4	Morphology and Anatomy of Food Plants Of Tasar Silkworm	6
5	Assessment of Cocoon	5
6	Field Work	4
7	Viva	4
8	Sessional & Record	5
	Total	50