

Certificate Course in Sericulture



SADAKATHULLAH APPA COLLEGE (AUTONOMOUS)
Rahmath Nagar, Tirunelveli - 627 011

Certificate in Sericulture

About the Course

The Course is designed to develop an understanding on Sericulture.

It is imparted to enhance the skills in Mulberry Cultivation and
Silkworm Rearing

Instructional Design

This Course is of twelve months duration which includes Theory
classes and Practical sessions, Assignment and Project Work.

Eligibility

All students who have passed Higher Secondary are
eligible to enroll for the course.

Scope of the course

The course paves way for Entrepreneurship and career opportunities
in Central Government and State
Government organizations.



DEPARTMENT OF ZOOLOGY

Certificate Course in Sericulture			
Paper - I	General Sericulture	18NZOC11	
Total Hrs : 45	Hrs. / Week:2	Hrs / Unit : 9	Credits: 3

Unit – I Introduction to Sericulture

Introduction - Definition - Scope - Present Global and Indian Scenario of Silk – Special focus on Tamil Nadu - Characteristics of Sericulture industry - Origin and history of sericulture industry - Silk worm rearing as cottage Industry.

Unit – II Biology of *Bombyx mori* and Moriculture

Types of silkworm-mulberry and non-mulberry-habit and habitat-Races of *Bombyx mori*: voltinism - life cycle of *Bombyx mori*: morphology of silkworm, egg, larva, pupa and adult – silk glands. Moriculture-Biology of Mulberry- Taxonomy – morphology.

Unit – III Common diseases affecting Moriculture

Fungal diseases of Mulberry - occurrence - symptoms and control. a) Leaf spot b) Leaf rust c) Powdery mildew d) Leaf blight e) Root rot & Scales f) Dogare blight g) Twig blight-Bacterial - viral and mycoplasmal diseases of mulberry - control measures. Root knot nematode diseases - its occurrence - symptoms and control. Mineral deficiency symptoms in mulberry and reclamation. Fungicide formulations and method of application.

Unit – IV Common diseases affecting sericulture Industry

Types of silkworm diseases-Protozoan disease - Pebrine - Symptoms - mode of infection - prevention and control. Bacterial disease - Flacherie - Symptoms - causative agents - factors influencing flacherie - sources and mode of infection – prevention and control. Viral diseases - Grasserie - Symptoms - mode of infection - detection. Prevention and control. Fungal diseases - Muscardine - Symptoms - causative agents mode of infection - prevention and control. Aspergillus disease - symptoms - causative agents mode of infection - prevention and control and Uzi infestation.

Unit – V Cocoon and Silk Products

Economics of seed production - cost of seed cocoon -egg sheets. Physical & Chemical properties of silk - Uses of silk. Cocoon types - composition of cocoon - characteristics of cocoon - defective cocoons - harvesting of cocoons - silk wastes and byproducts. Detailed Processing of Cocoon- Reeling: Objective, raw silk yarn and its importance, cocoon feeding, croissure and its effects, Re-reeling and package.

Unit – V Silk Organization

Organisation of sericulture industry in India - Government of India - State departments of sericulture of different states. - sericulture research and its role in sericulture development. Raw silk testing and grading of silk. Silk marketing society - Credit Co-operatives. Financing agencies in sericulture. Short term, mid term and long term financing. NABARD and other nationalized banks – silk exchange and its activities-extension methodologies-role of CSB.

Reference books

1. Ganga, G. Comprehensive sericulture, Volume – 2. Silkworm rearing and silk reeling – Oxford and IBH Publishing Company Private Limited, S. 155 Panchshila Park, New Delhi.
2. Rao, M. M., Comprehensive sericulture manual. B.S. Publications, 4.3.309, 2nd floor, Girraj Lane, Sultan Bazar, Hyderabad.
3. Dandin, S.B., Jayaswal, J. and K. Giridhas, Hand book of sericulture technologies, Central Silk Board, Madivala, Bangalore – 68.
4. Kesary, M. and Johnson, M., Sericulture.
5. M. Madan Mohan Rao. A textbook of sericulture. B.S. Publications 4.3.309, 2nd floor, Girraj Lane, Sultan Bazar, Hyderabad.

Certificate Course in Sericulture			
Paper-II	Mulberry Cultivation and Silkworm rearing	18NZOC12	
Total Hrs : 45	Hrs./Week:2	Hrs / Unit : 9	Credits: 3

Unit-1 Mulberry propagation

Mulberry Propagation : Seedlings : method of raising seedlings-Saplings : Selection of plants for cutting - selection of cuttings- Grafting - selection of stock and scion - Layering : types – techniques-Nursery raising : Layour - Bed size - soil composition– Nursery raising by seedings, saplings and grafts. Mulberry cultivation in irrigated land. Water resources - irrigation systems - surface - sub soil, drip system.

Unit 2 Mulberry growth and nutrition

Mulberry growth and nutrition: Importance of soil in mulberry cultivation — essential elements for growth – their classification. Deficiency of soil in mulberry cultivation-Organic Manure application

Unit -3 Organ systems of *Bombyx mori*

Digestive system including mouth parts and reproductive systems - silk gland structure – silk spinneret. Embryology: Structure of the egg - developmental stages - blastokinesis - eye spot and blue egg stage - hatching.

Unit - 4 Silkworm rearing

Model house –CSB model – Rearing appliances. Disinfection - Selection of races for rearing - Bivoltine and multivoltine - their advantages and disadvantages.

Unit-5 Late age rearing

Spacing - leaf requirement - environmental conditions - feeding and bed cleaning schedules. Methods of rearing: Shelf, shoot and floor rearing - advantages and disadvantages Mounting - Types of mountages – Bamboo (Chawki)-plastic (Netrika) -advantages and disadvantages.

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1. Ganga, G. Comprehensive sericulture, Volume – 2. Silkworm rearing and silk reeling – Oxford and IBH Publishing Company Private Limited, S. 155 Panchshila Park, New Delhi.
2. Rao, M. M., Comprehensive sericulture manual. B.S. Publications, 4.3.309, 2nd floor, Girraj Lane, Sultan Bazar, Hyderabad.
3. Dandin, S.B., Jayaswal, J. and K. Giridhas, Hand book of sericulture technologies, Control Silk Board, Madivala, Bangalore – 68.
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Certificate Course in Sericulture		
Paper III	Practicals in Sericulture	18NZOCP1
Total Hrs : 30		Credits: 3

1. Observation of life history of silkworm (to be done individually or team of five members)
2. Identification and collection of mulberry varieties cultivated locally
3. Identification of different silkworm races
4. Identification of cocoons
5. Identification of pests of mulberry
6. Identification of pests of silkworm
7. Field visit report to mulberry garden and sericulture institute.
8. Organ systems of silkworm-Digestive and silk gland
9. DFL Card



Sadakathullah Appa College (Autonomous)

Rahmath Nagar, Tirunelveli -627 011.

Certificate Course in Sericulture

Offered by Department of Zoology

Upon completion of the course students will be able to:

- Understand overall aspects of Sericulture and the method of propagation of Mulberry.
- Know the process of Silkworm seed production and Mulberry cultivation.
- Identify various diseases affecting Silkworm and Mulberry.
- Categorize the various species of Silkworm and differentiate various organ systems of Silkworm.
- Acquire knowledge in reeling process.