

DIPLOMA IN SERICULTURE

Regulations

1. CONDITION FOR REGULATIONS

A candidate who have passed the Higher Secondary Examination (Academic Stream) conducted by the government of Tamilnadu or an examination as equivalent to 10, +2 course including CBSE, which have been recognized by the Periyar University or any other University accepted by the syndicate as equivalent there to subject to such conditions as may be prescribed therefore shall be permitted to appear and qualify for Professional Diploma in Sericulture examination of this University after a course of study of ONE academic year.

2. DURATION OF THE COURSE

The course of the professional Diploma in Sericulture shall consist of one academic year.

3. ELIGIBILITY FOR THE DIPLOMA

A candidate shall be eligible for the professional Diploma in Sericulture is he/she has satisfactorily undergone the prescribed course of study for a period of not less than one year and passed examinations in all papers.

4. COURSE OF STUDY

The course of study shall comprise instruction in books prescribed from time to time

1. Paper 1: An overview of Sericulture
2. Paper 2: Moriculture Technology
3. Paper 3: Pest and Disease Management in silkworm
4. Paper 4: Silkworm Rearing Process
5. Practical 1 : Basics of Moriculture - Lab
6. Practical 2: Silkworm Rearing Techniques - Lab

5. EXAMINATIONS

The examinations shall be three hours duration to each paper at the end of the year. The candidate failing in any subject(s) will be permitted to appear for each failed subject(s) in the subsequent examination.

6. SCHEME OF EXAMINATIONS

The scheme of the Examinations shall be follows:

S.NO	PAPER CODE	TITLE OF THE PAPER	EXAM DURATION	MAX.MARKS
1.	PAPER 1	An overview of Sericulture	3	100
2.	PAPER 2	Moriculture Technology	3	100
3.	PAPER 3	Pest and Disease Management in silkworm	3	100
4.	PAPER 4	Silkworm Rearing Process	3	100
5.	PAPER 5	Basics of Moriculture -Lab	3	100
6.	PAPER 6	Silkworm Rearing Techniques - Lab	3	100
TOTAL MARKS				600

7. PASSING MINIMUM

A candidate shall be declared to have passed examinations in theory of study only is he/she scores not less than 40 marks out of 100 in the University examinations.

8. CLASSIFICATION OF SUCCESSFUL CANDIDATES

Candidate who secures not less than 60% of the aggregate marks in the whole examination shall be declared to have passed the examination in **FIRST CLASS**. All other successful candidates shall be declared to have passed in **SECOND CLASS**. Candidates who obtain 75% in **FIRST CLASS WITH DISTINCTION** provided they pass all the examinations prescribed for the course in the first appearance.

9. QUESTION PAPER PATTERN:

TIME: 3 hours

Max.marks: 100

PART A: 5 X 5=25

Answers all questions

Two questions from each unit with Internal Choice

PART: 5 X 15=75

Answer all questions

Two questions from each unit with Internal Choice

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Paper 1: An overview of Sericulture

Unit 1

Sericulture: Introduction, World level status, Historical background of sericulture - Spread of sericulture to Europe, Japan, South Korea, India and other countries.

Unit 2

Sericulture practices in climatic states: Sericulture in rain-fed areas, irrigated conditions, traditional and non-traditional areas.

Unit 3

Sericulture in Indian Economy: Mulberry silk in India, Sericulture in south India, Sericulture practices in tropical and temperate climate, Sericulture in Tamilnadu. Sericulture problems and perspectives in India.

Unit 4

Employment generation in sericulture: Alternative source of income, Enhancement in livelihoods of Small-scale farmers and Tribal Communities, Role of women's in sericulture.

Unit 5

Sericulture administrative setup: Sericulture organization in India, Role of State Department of Sericulture, Central Silk Board, Universities and NGOs in sericulture development.

References

Devaiah M.C., 2001. Advances in Mulberry Sericulture. Dept. of Sericulture, UAS, Bangalore.
Charles J. Huber, 1929. The Raw silk Industry of Japan, The Silk Association of America, Inc.
Chaudhury S.N., 1981. Muga Silk Industry, Directorate of Sericulture and Weaving, Government of Assam, Gowhati, Assam.
Sulochana Chetty, J., 2008. Introduction to Sericulture. Oxford & Ibh Publishing Co. Pvt Ltd,
Hisao Aruga, Principles of Sericulture. CRC Press.

Paper 2: Moriculture Technology

Unit 1

Soil conditions for mulberry cultivation: Definition and types of soil, Importance of fertile soil on mulberry cultivation, Soil Characteristics - pH, Organic carbon, NPK and micro nutrients. Deficiency micro/macro nutrients on mulberry plants .

Unit 2

Mulberry varieties and cultivation techniques. Mulberry varieties - important varieties/ their characters/varieties amenable for rain fed cultivation, Nursery techniques, Planting.

Unit 3

Managements in Moriculture: Fertilized management, NPK management, Weed management, Water management.

Unit 4

Pest management in moriculture: Definition of pest, pest outbreak, pest forecasting, Major pests - sucking pest, leaf folder, root feeders, IPM, Minor pests - girdlers, termites, and mites, Preventive and control measures.

Unit 5

Diseases and management: Bacterial, fungal (powdery mildew, leaf spot, leaf rust, leaf blight, root rot) and viral diseases, Symptoms, preventive and control measures. Nematode management.

References

Shankar M.A., 1997. Hand book of mulberry nutrition, UAS - Multiplex, Bangalore.
Sathe, T.V. and Jadhav, A., 2002. Sericulture and Pest Management. Daya Publishing House.
Jaiswal, K., 2009. Moriculture. Aph Publishing Corporation, New Delhi.
Kichisaburo Minamizawa, 1997. Moriculture: Science of Mulberry Cultivation. CRC Press.
Patnaik, R.K., 2008. Mulberry Cultivation Hardcover. Biotech Book Publisher, New Delhi.
Lu Yang Zhang Zhong Fu Zhu Bian, 1991. Mulberry cultivation and silkworm rearing technology (agricultural science and technology-home series). China Agricultural Publisher.

Paper 3: Pest and Disease Management in silkworm

Unit 1

Introduction and classification of silkworm diseases. Protozoan disease – symptomatology, structure of pebrine spore, life cycle of *Nosema bombycis*, source of inoculum, mode of infection and transmission, cross infectivity, prevention and control.

Unit 2

Bacterial diseases: Causative agents, symptoms, factors influencing flacherie, source of inoculum, mode of infection and transmission prevention and control.

Unit 3

Viral diseases: Grasserie, infectious flacherie, cytoplasmic polyhedrosis, densovirus and gattine; Causative agents, Symptoms, Sources of inoculum, Mode of infection and transmission-cross infectivity, Prevention and control.

Unit 4

Fungal diseases: White and green muscardine and aspergillosis, Causative agents, Symptoms, Structure and life cycle of fungal pathogen, Mode of infection and transmission - cross infectivity, Prevention and control.

Unit 5

Life cycle of Indian uzifly, seasonal occurrence; oviposition and host-age preference; nature and extent of damage; prevention and control; integrated management of Indian uzifly. Cocoon pests of silkworm: Dermestid beetle- life cycle; nature and extent of damage, Prevention and control measures.

References

- Sturnikov V.A., 1976. Control of Silkworm Development and Sex, MIR Publisher, Moscow.
- Tanaka Y., 1964. Sericology, Central Silk Board Publication, Bangalore.
- Yokoyama, 1954. Synthesised Science of Sericulture, Published with permission by Sugimani-Ko, Tokyo.
- Magazine: Disease Management - Mulberry Silkworm published by Tamil Nadu Agricultural University, Coimbatore.

Paper 4: Silkworm rearing process

Unit 1

Situations/suitability: Optimal Environmental condition for silkworm, Light and illumination, Ventilation, Rearing bed area for silkworms.

Unit 2

Young larvae rearing home and Grownup larval rearing home: Environmental Conditions for Young Silkworm - temperature, humidity, light air current. Construction of rearing room. Area/estimate for rearing room, Equipment/required for rearing materials.

Unit 3

Mulberry leaf processing: Harvesting mulberry leaf, Selection of leaves, leaf preservation, cleaning and Moulting.

Unit 4

Silkworm rearing: Young larval rearing, Weather parameters, Sterilization of room & equipments, Dark room for eggs, Separating larvae from eggs, Feeding, Moulting, Rearing bed, Cleaning bed.

Unit 5

Grownup larval rearing - room/structure/weather parameters/space air circulation/ feeding/ quality of leaves and shoot harvest/leaf protection/moulting care/increased production techniques/harvesting of cocoons.

References

- Eikichi Hiratsuka, 2000. Silkworm breeding, Oxford and IBH publications, New Delhi.
- Nobumasa Hojo, 2000. Structure of the Silk yarn, Oxford and IBH publications, New Delhi.
- Yasuji Hamamura, 2001. Silkworm Rearing on artificial diet- Oxford & IBH Publishing Co. Pvt. Ltd. New Delhi & Calcutta.
- Eikichi Hiratsuka, 1999. Silkworm Breeding (Translated from Japanese) Oxford & IBH Publishing Co. Pvt . Ltd. New Delhi & Calcutta.
- Morohosi, S., 2000. Development Physiology of Silkworms (Translated Japanese). Oxford & IBH Publishing Co. Pvt. Ltd. New Delhi, Calcutta.
- Silk Dyeing and Finishing Handbook, 2000. (Translated from Chinese) Compiled by Shanghai Silk Industry Corporation, China. Oxford & IBH Publishing Co. Pvt .Ltd. New Delhi & Calcutta.
- Kovalev, P.A., 1970. Silkworm breeding Stocks, Central Silk Board, Bangalore.

Sainosuka Omura, 1973. Silkworm rearing Techniques in Tropics, Overseas Technical Co-operation Agency, Tokyo, Japan.

Practicals

Practical 1: Basics of Moriculture

1. Silkworms- mulberry silk worm/Eri silkworm/Tasser silkworms
2. Mulberry varieties
3. Pests of mulberry (sucking pests. Leaf feeders, root feeders, IPM).
4. Mulberry diseases.
5. Nursery and main field techniques.

References

Patnaik, R.K., 2008. Sericulture Manual. Astral International Pvt. Ltd., Delhi.

Lim, S.H., Kim, Y.T. and Lee, S.P., 1990. Sericulture Training Manual. FAO Agricultural Services Bulletin, Food and Agriculture Organizations of the United Nations.

Huber & Co. Carera, 1883. Practical method for the cultivation of mulberry trees, raising of silk worms, cocoons, etc., Library of Congress.

Practical 2: Silkworm rearing techniques

1. Rearing structures/rearing methods – young larval, group larval.
2. How to construct a rearing room.
3. Equipments/martial required for rearing.
4. Uzi fly – identification and management.
5. Silkworm diseases – identification and management.

References

Rajan, R.K., Muroga, A. and Datta, R.K., (1996). Manual of Young Silkworm Rearing. Central Sericulture Research Institute. Mysore, Karnataka.

Eikichi Hiratsuka, 1999. Silkworm Breeding. Oxford & IBH Publishing Co. Pvt . Ltd. New Delhi & Calcutta.