

ITEC TRAINING
on
“SERICULTURE AND SILK INDUSTRY”

During 6 November -3 December, 2022



COURSE CONTENT

**CENTRAL SERICULTURAL RESEARCH AND TRAINING INSTITUTE (CSR&TI),
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Training in “Sericulture and Silk Industry” under the Indian Technical and Economic Co-operation (ITEC), Ministry of External Affairs, New Delhi, India

1. INTRODUCTION:

India has the unique distinction of being the only country producing all the known commercial varieties of natural silk, viz., Mulberry, Tropical Tasar, Temperate Tasar (Oak Tasar), Eri and Muga. India ranks second among the silk producing countries of the world accounting for about 22% of the total global silk production with productivity level of 98 kg/ha. Central Silk Board (CSB), a statutory body under the administrative control of Ministry of Textiles has been entrusted with the overall responsibility of developing silk industry covering the gamut of sericultural activities in the country. Central Silk Board has its head quarters in Bangalore. Under the umbrella of Central Silk Board, good numbers of research institutions are working for the cause of technology development and Human Resource Development.

2. RATIONALE OF THE PROGRAMME

Trained human resource is one of the critical requirements for the production of quality silk at a reasonable cost. Sericulture is playing an important role in the economic development of many developing countries especially the rural poor. However, the industry in these countries needs trained technical personnel to transfer the technology to the rural mass. Training is one of the key areas of Central Silk Board’s mandate and since its establishment, CSB has been playing a pivotal role in generating the required technical man power in most developing countries practicing sericulture. In this direction, CSB is organizing different training programmes at CSRTI, Mysore for the benefit of various stakeholders of the industry. These programmes are tailor-made to meet the specific needs of each sector and of immense help in updating the knowledge and skills of the extension personnel and the sericulturists, as well. This exercise is having the dual advantage of development of essential human resource for the industry and complementing the efforts of effective transfer of technologies.

With the new developments taking place in the field of sericulture, the training and development activity is considered as a necessity by all forward-looking organizations both national and international for updating the knowledge and skill and hence the training needs will continue to exist at all levels of silk industry world wide.

Central Sericultural Research and Training Institute (CSRTI), Mysore is the pioneer Sericultural Research Institute under Central Silk Board, accredited with ISO 9000:2008 involved in the Research and Development of technologies to increase the productivity and improve upon the quality of silk produced in the country. The Institute also conducts Training programmes on different aspects of sericulture for national as well as foreign candidates. To assist sericulture industry in developing countries, an International Centre for Training and Research in Tropical Sericulture (ICTRETS) under Indo-Swiss bilateral co-operation in September, 1980 was

established. Training was imparted to more than 550 foreign students from 30 countries under this programme. Similarly, the International training programmes for foreign national were also conducted under JICA from 1997 to 2012.

The Institute has so far successfully undertaken three batches of the ITEC sponsored training on sericulture and silk industry.

3. DETAILS OF THE TRAINING PROGRAMME

Keeping in view of the requirements of the sericulturally developing countries, the Govt. of India has considered to organize a training programme on “Sericulture and Silk Industry” in Central Sericultural Research and Development Institute, Mysore for a period of 4 weeks with a view to replicate successful model of commercial sericulture practice to other developing countries.

3.1. OBJECTIVES OF THE TRAINING:

1. To assist in introducing and developing sericulture activities in Third World countries,
2. Generation of skilled man power in the field of sericulture,
3. To impart training in extension management and transfer of technology,
4. To impart training in Post Cocoon Technology, and
5. To enlighten the successful model of commercial sericulture practice for replicating in other developing countries.

3.2. METHODOLOGY:

The programme will be of 28 days (4 weeks) duration and the batch strength will be 30 persons. The training programmes will be conducted by covering the following subjects:

- (a) Mulberry cultivation technologies,
- (b) Silkworm rearing (Young age and Late age silkworm rearing),
- (c) Silkworm seed production technology,
- (d) Extension management and transfer of technology, and
- (e) Post cocoon technology

The above subjects would be covered mostly by practical and interactive sessions. Towards this purpose, one silkworm rearing will be conducted specially for the training programme, wherein, the trainees themselves will participate and acquaint themselves with the practical aspects. Practical sessions will also be arranged on different aspects of sericulture. The Resource persons will use audio-visual methods for effective communication. The trainees will also be

exposed to field activities among the farmers through field visits. The schedule of the training shall be on the following manner:

Day	Topic/Activity
Day 1 Sunday	Arrival and Registration
Day 2 Monday	Inauguration of training programme and pre- test. Orientation visit to different sections of CSRTI, Mysore
Day 3 Tuesday	Soils suitable for mulberry cultivation and soil fertility management(Theory) Soil sampling and testing (Practical)
Day 4 Wednesday	Hands on training on Brushing of larvae (Practical) Orientation visit to different sections of CSRTI, Mysore General sericulture Scenario in India Hands on training on silkworm rearing - Practical
Day 5 Thursday	Hands on training on bivoltine silkworm rearing – Practical (2 sessions) Central Silk Board – its organizational structure and role in the development of silk industry in India
Day 6 Friday	Hands on training on bivoltine silkworm rearing - Practical (2 sessions)
Day 7 Saturday	Hands on training on bivoltine silkworm rearing - Practical (2 sessions) Economics of sericulture
Day 8 Sunday	Holiday
Day 9 Monday	Hands on training on bivoltine silkworm rearing - Practical
Day 10 Tuesday	Hands on training on bivoltine silkworm rearing - Practical (2 sessions) Chawki garden concept, importance of pruning & training of plants (Theory & practical) Late age silkworm rearing technology
Day 11 Wednesday	Visit to Kollegal & Chamarajanagar & nearby farmers & weavers (Rainfed area)
Day 12 Thursday	Hands on training on bivoltine silkworm rearing -Practical (2 sessions) Mulberry pests and their management (Theory) Mulberry pests and their management (Practical)
Day 13 Friday	Hands on training on bivoltine silkworm rearing - Practical (2 sessions) Leaf estimation in mulberry plot (Practical) Use of artificial diet in chawki rearing
Day 14 Saturday	Hands on training on bivoltine silkworm rearing - Practical (2 sessions) Silkworm pests and their management (Theory) Silkworm pests and their management (Practical)
Day 15 Sunday	Holiday
Day 16 Monday	Visit to P4 station Hassan, near by places of cultural and historical importance

Day 17 Tuesday	Hands on training on bivoltine silkworm rearing - Practical (2 sessions) Microsporidian diseases of silkworm – causative agent, symptoms and management (Theory). Use of Sampoorna in silkworm rearing
Day 18 Wednesday	Hands on training on bivoltine silkworm rearing - Practical (2 sessions) Preparation & selection of mulberry cutting and their plantation in nursery beds (Practical). Seri-composting and Vermi -composting
Day 19 Thursday	Hands on training on bivoltine silkworm rearing & arrangement of mountages (Practical) (2 sessions) . Scope and role of mechanization in sericulture
Day 20 Friday	Visit to Karnataka Silk Industries Corporation (KSIC), Cold Storage and Silkworm Seed Production Centre (SSPC), Mysuru. Acid treatment of bivoltine silkworm eggs and their preservation schedules
Day 21 Saturday	Training on silkworm seed production
Day 22 Sunday	Holiday
Day 23 Monday	Marketing of silk cocoons at Cocoon market, Ramanagaram (A visit to cocoon market where bivoltine cocoons are transacted). Visit to Central Silk Board (CSB),Bangalore, Central Silk Technological Research Institute (CSTRI), Bangalore. Halt at Bangalore
Day 24 Tuesday	Visit local areas in Bangalore and leave to Mysore
Day 25 Wednesday	Introduction to Reeling technology – Cocoon quality, testing & Grading. Shell ratio, defective cocoon and reelability (Theory). Stiffling – Objective, methods, their merits & demerits. Storage & Sorting Practicals on cocoon testing – Shell ratio, Defective cocoon Cocoon mixing, cooking & Brus% Reeling;
Day 26 Thursday	Reeling Machines, production calculation, Reelability, reel permeation etc. reeling lacing ,skeining bundling Practicals on cocoon testing –Reeling; objectives, methods, machines, production calculation, Reelability, reel permeation etc. Natural and & Man made Fibers Re – reeling, lacing, skeining, bundling and packing Practicals on single cocoon filament length, denier & its variations using Epprovette. Raw silk testing & Classification
Day 27 Friday	Methods of testing & its equipment Water quality for reeling Competency of India in global silk, textile Industry production, its production quality and infrastructure. Hands on training on cocoon cooking, reeling, re–reeling using Indian machines
Day 28 Saturday	Concluding, Valedictory and issue of certificates of participation. Leave Bangalore to their respective countries

3.3. COURSE CURRICULUM:

- Orientation,

- Presentation of Job Report by the participants,
- Plan and policies of sericulture in India, development of sericulture through various plan periods, Important projects implemented during the country ,
- Soil fertility and it's management, general sericulture, package of practices for mulberry, calculation of fertilizers, Mulberry pests and diseases and their management, leaf harvesting,
- Silkworm breeds for tropical sericulture, Silkworm seed multiplication system followed in India, disinfection of rearing house, calculation of disinfectant solutions, Chawki rearing, late age rearing, Silkworm rearing – Practical,
- Mounting, types of mountages, Cocoon quality parameters, etc.,
- Mechanization in sericulture,
- Economics of sericulture, marketing, concepts of benefit cost ratio, net present value, break even analysis and it's importance,
- Extension education, extension communication methods, teaching aids, elements of learning, knowledge, skill and attitude, supervision, diffusion of innovations, etc.,
- Post cocoon activities in sericulture, and
- Visit to important sericulture practicing areas in south India, cocoon markets, silk exchange, department of sericulture, research institutes, etc.

3.4. ELIGIBILITY OF THE CANDIDATES

- Officials in Government, Public and Private Sectors, Universities, Chambers of Commerce and Industry, etc.
- Candidates should possess one year work experience in the related field.
- Minimum of University Degree or other equivalent qualifications,
- Working knowledge of English is required to follow the Course.
- Age between 25 to 45 years.
- Medically fit to undertake the training.

3.5. TEACHING METHODOLOGY:

The teaching shall be conducted by a group of highly experienced scientific personal, whose CVs are attached. The training methodology shall be on the following lines:

- Audio- Visual presentation,
- Case analysis,
- Practical classes
- Group discussion, and
- Interactive lecturing

3.6. FACILITIES AVAILABLE

The Institute has all the necessary facilities for conducting training programmers. The important facilities are listed below:

- a) Separate rearing houses for young age and late age rearing of silkworm,
- b) Well developed mulberry garden,
- c) Well equipped class rooms with audio-visual facilities,
- d) Well qualified and experienced faculty in different aspects of sericulture,
- e) Well equipped laboratories,
- f) Library facility with access to internet,
- g) Hostel facilities at the Institute premises,
- h) Canteen facility,
- i) Seminar hall, and
- j) Banking facility within the campus

4. PARTICIPATING COUNTRIES

ITEC Member Countries and ISC Member Countries

5. PERIOD OF TRAINING:

6 November to 3 December 2022.
