

**FUNCTIONING OF CENTRAL SILK BOARD  
&  
PERFORMANCE OF INDIAN SILK INDUSTRY**

**(As on 1<sup>st</sup> April, 2022)**



**CENTRAL SILK BOARD**

**(Ministry of Textiles, Govt. of India)**

**BANGALORE-560 068**

# **FUNCTIONING OF CENTRAL SILK BOARD & NOTE ON SERICULTURE**

## **A. FUNCTIONING OF CENTRAL SILK BOARD**

The Central Silk Board (CSB) is a Statutory Body, established during 1948, by an Act of Parliament (Act No.LXI of 1948). It functions under the administrative control of the Ministry of Textiles, Government of India, having head quarter at Bengaluru. The Board comprises 39 members, appointed as per the powers and provisions under Sub-Section 3 of Section 4 of the CSB Act 1948, for a period not exceeding 3 years. The Chairperson of the Board to be appointed by the Central Government and not more than three officials to be nominated by the Central Government, one of whom shall be the head of the Silk Division in the Ministry of Textiles as the Vice-Chairperson and another one shall be the Secretary of the Board, both being the officers not below the rank of Joint Secretary to the Government.

In order to co-ordinate the sericulture development programmes in different States and for undertaking pre-shipment inspection of silk goods meant for exports, the Central Silk Board has established 4 Regional Offices at New Delhi, Kolkata, Hyderabad and Guwahati. Regional Offices of CSB maintain a close liaison with the State Sericulture Departments, field units and CSB field functionaries to co-ordinate transfer of technology. Regional Offices are also conveners of State Level Sericulture Co-ordination Committee meetings constituted by the Central Silk Board. The existing staff strength of CSB is **1876** as on **01.04.2022**.

The mandated activities of CSB are Research and Development, maintenance of four tier silkworm seed production network, leadership role in commercial silkworm seed production, standardizing and instilling quality parameters in the various production processes and advising the Government on all matters concerning sericulture and silk industry. These mandated activities of Central Silk Board are being carried out by 160 units of CSB located in different States through an integrated Central Sector Scheme viz., “Silk Samagra-2” for development of silk industry with the following four components:

1. Research & Development, Training, Transfer of Technology and I.T. initiatives.
2. Seed Organization.
3. Coordination and Market Development.
4. Quality Certification Systems, Export, Brand Promotion & Technology up-gradation.

### **1. RESEARCH & DEVELOPMENT, TRAINING, TRANSFER OF TECHNOLOGY AND I.T. INITIATIVES**

The Research and Training Institutes of CSB provide scientific and technological support for enhancing the production and productivity for sustainable sericulture through innovative approaches. The main institutes at Mysuru (Karnataka), Berhampore (West Bengal) and Pampore (Jammu and Kashmir) deal with Mulberry sericulture, whereas Ranchi (Jharkhand) deals with Tasar culture and Lahdoigarh, Jorhat (Assam) deals with Muga & Eri. Regional Sericulture Research Stations have been functioning for the development of region specific technology package and dissemination of

research findings as per regional needs. Besides, a network of Research Extension Centres (RECs) and their sub units are also functioning to provide extension support to sericulturists. In order to provide Research and Development support in post cocoon sector, the Board has established Central Silk Technological Research Institute at Bengaluru. In addition, the CSB has also set up Silkworm Seed Technology Laboratory at Bengaluru (Karnataka), Central Sericultural Germplasm Resource Centre at Hosur (Tamil Nadu) and Seri Biotech Research Laboratory at Bengaluru.

Progress of various Research & Development Projects during the year 2021-22, upto the end of 4<sup>th</sup> quarter is summarised as follows:

- ❖ Concluded 38 research projects *viz.*, 19 (Mulberry sector), 7 (Vanya sector), 8 (Post Cocoon sector), and 4 (Seed, Germplasm & Biotechnology).
- ❖ Initiated 35 research projects *viz.*, 18 (Mulberry sector), 9 (Vanya sector), 5 (Post Cocoon sector), and 3 in specialized sectors (Seed, Germplasm & Biotechnology).
- ❖ A total of 103 research projects, *viz.*, 45 (Mulberry sector), 31 (Vanya sector), 14 (Post Cocoon sector), and 13 special sectors (Seed, Germplasm & Biotechnology) are under progress. These projects emphasize the research in silkworm quality improvement, rearing management & protection, seed technology, host plant improvement, management & protection, biotechnology, post cocoon technologies, socio-economic & impact studies and sericulture by-product utilization.

## **Research & Development (Highlights of Research Programmes)**

### **(i) R&D on Mulberry Host Plant:**

- ❖ All India Coordinated Experimental Trials for Mulberry (AICEM) phase IV with Mulberry varieties AGB-8, C-1360 and PPR-1 is undergoing at 20 test centres across the country.
- ❖ Three each transgenic mulberry lines for FtPEPC (Phospho Enol Pyruvate Carboxylase), AtDREB2A (Dehydration responsive element binding protein) and ATSHN1 (Shine 1/wax inducer 1) expressing better leaf nutritional status, gas exchange parameters, slower chlorophyll leaching and tolerance to drought, salinity and oxidative stress were developed.
- ❖ Observed better performance of triploid genotypes Tri-10, Tri-01 and Tri-08 over check varieties in optimal and sub optimal conditions.
- ❖ High levels of primary metabolites were recorded in V1, G4 and *Morus multicaulis* and it was found low in Mysore Local variety.
- ❖ Identified one antagonistic fungus, two antagonistic bacteria and some potential fungicides of thiazole group against root rot pathogens.
- ❖ Observed better ingesta, efficient conversion of ingesta to shell and production efficiency of cocoon shell parameters in G4 and V1 varieties.
- ❖ Identified ten polymorphic markers between MR2 and V-1 and 13 polymorphic markers between Sahana and V-1.
- ❖ Completed DUS Characterization of 34 example genotypes, 12 reference varieties and 6 candidate varieties and found that all the candidate varieties are distinct from each other and also distinct from the reference varieties.

- ❖ Identified sixteen contrasting genotypes for the higher leaf yield.
- ❖ Identified 12 parental polymorphic SSRs against *Lasiodiplodia theobromae*.
- ❖ Completed the phenotypic evaluation of 250 diverse Germplasm accessions for Nitrogen, phosphorus, Sulphur and utilisation efficiency.
- ❖ 35 disinfectant /seri-products viz., Vijetha, Vijetha Supplement, Chlorine Dioxide, Serifit, Asthra, Amruth, Poshan, Dr. Soil etc. were analysed for their quality parameters.
- ❖ Inducted 27 new mulberry accessions to the mulberry Germplasm.
- ❖ Identified two top performing mulberry accessions(MI-1000, ME-0285) in terms of propagation, growth yield and biochemical traits.
- ❖ Initiated mulberry cultivation through hydroponic and sand culture in polyhouse.
- ❖ Standardised the method for extraction of sericin and fibroin from cocoon.
- ❖ Completed mitotic plate preparation for 136 coreset mulberry accession of which 96% accessions are diploid in nature. Karyotype analysis of 40 coreset accessions were completed and found to be metacentric.
- ❖ Identified two formulations viz., BAP+ AA and SNP to reduce the senescence, improve the leaf yield and quality.
- ❖ Identified seven powdery mildew resistant progenies from S-1 x Vietnam-2 populations.
- ❖ Recorded higher leaf yield (10-25%) and cocoon yield (12-14%) in new mulberry crop schedule over the existing schedule in southern region of West Bengal.
- ❖ Mulberry genotypes tolerant to powdery mildew disease were screened for non functional mutations in MLO2 and MLO6A gene and their expression analysis.

R&D efforts have helped in improving the mulberry productivity from 50 MT/Ha/yr during 2005-06 to 65-67 MT/Ha/yr during 2021-22.

#### **(ii) R&D on Mulberry Silkworm:**

- ❖ Probiotic characteristics of bacterial isolates from silkworm midgut were evaluated by *in-vitro* and *in-vivo* methods.
- ❖ Analysed the nutrients, bio-active compounds and microbial load in fresh and spent pupae and found out the concentration of Alpha-Linolenic Acid (ALA).
- ❖ Produced protease enzyme from silkworm pupal powder by microbial fermentation.
- ❖ Comparative characterisation of chitin and chitosan of silkworm pupae and exuviate with that of shrimp was carried out using XRD and SEM.
- ❖ Evaluation of performance of bivoltine hybrid TT21 x TT56 under different agro-climatic conditions is under progress in the field and gives promising results.
- ❖ The hybrid of S8 x CSR16 is authorized as bivoltine single hybrid for commercial exploitation by hybrid authorization committee meeting conducted on 01.09.2021.
- ❖ Identified SNPs and major deletion in Thioredoxin peroxidase gene region related to life-history trait, longevity associated with Paraquat stress

tolerance in bivoltine silkworm races and the marker can be used as a molecular signature to identify CSR17.

- ❖ 20 genes of diapause and non-diapause were screened for their expression pattern. Based on the copy numbers for non-hibernating characters and AEI, the lines having increased expression for non-hibernating characters MAS1 & MAS5, were selected.
- ❖ Validated M-LAMP assay with 500 Eri silk moth samples at ESSPC, Hosur and 250 Mulberry silk moth samples at P4 BSF, Hassan.
- ❖ A total of 1669 pouches of *Nesolynx thymus* were supplied covering 835 dfls for the management of Uzi fly.
- ❖ Supplied 45 units of egg parasitoid, *Trichogramma chilonis* and 39 units of larval parasitoid *Bracon brevicornis* to mulberry farmers of Karnataka, Tamil Nadu and Andhra Pradesh for the management of Leaf roller, *Diaphania pulverulentalis*.
- ❖ Introduction of *Blaptostethus pallescens* and *Chrysoperia zastrowi sillemi* as biocontrol agents against mulberry thrips *Pseudodendrothrips mori* found that thrips incidence reduced from 49 per cent to less than 10 per cent in mulberry plantations of Karnataka and Tamil Nadu.
- ❖ 24050 dfls of 12Y x BFC1 were field tested under authorisation trial and showed an average yield of 48.16 kg with 8.64% improvement over control.
- ❖ Under OFT - 8,625 dfls of BHP-DH (BHP3.2 x BHP8.9) evaluated with farmers of different E & NE states and recorded 16.12 % (51.0 kgs) increase over control (SK6 x SK7- 43.92 Kgs) in terms of cocoon yield/100 dfls.
- ❖ Antimicrobial peptides (PR1, LTP1 & WAP18) have been designed against bacterial pathogens causing flacherie.
- ❖ Gene expression studies reveals up-regulation of pyrexia gene in larval brain under high humidity simulated conditions.
- ❖ Under OST - Seri-Win, an eco-friendly bed disinfectant is performing at par with existing bed disinfectant (Labex) at 26 tested locations.
- ❖ Initiated commercial CRCS in Murshidabad (West Bengal) for demonstration. During first chawki (Agrahayani 2021) crop, 6000 dfls of Nx(SK6 SK7) were brushed and chawki worms were sold to 65 farmers in the range of 50-200 dfls/farmer.
- ❖ Identified six foundation crosses, three each of oval (PAM114xCSR27, PAM114 x CSR50, CSR 50 x PAM 114) and constricted (PAM1 14x APS4, PAM117 x SK7, SK6 x SK7) with superiority in SR of 20-21% and cocoon yield of approx. 60 kg/100 dfls suitable for temperate climatic conditions.
- ❖ Under the Phase IX of conservation of silkworm genetic resources, the silkworm gene bank collection comprising 489 (83 multivoltine, 383 bivoltine and 23 mutant accessions) were reared, characterized and conserved.
- ❖ Top performing multivoltine and bivoltine accessions are identified based on multiple trait evaluation for rearing and reeling traits after every crop.
- ❖ The crop-wise database is updated in the Silkworm Germplasm Information System (SGIS).
- ❖ TaqMan assay has been developed for early detection of microsporidian pathogens in B. Mori.
- ❖ Pathogenesis and expression pattern of six ORF transcripts of Indian isolates of BmBDV were elucidated. Transferred BmBDV resistance gene to CSR2 and CSR27 and validated BmBDV resistance in SK6, SK7, CSR2 and CSR27 with artificial inoculation.

R&D efforts have helped in improving the yield from 48 Kg/100 dfls during 2005-06 to 70 Kg/100 dfls during 2021-22.

### **(iii) R&D on Vanya Host Plant:**

- ❖ Seven superior *Terminalia* hybrids with high leaf yield were identified based on molecular Characterisation.
- ❖ Plant growth promoting bacteria were isolated from rhizospheric soils of primary tasar host plants and screened for PGPR attributes.
- ❖ Fertilisation recommendation chart has been developed for tasar food plants.
- ❖ A formulation of native rhizobacteria having antagonistic effects against *Alternaria* blight has been developed for management of castor blight disease, enhancing plant growth and productivity of the leaf biomass, which is under on station trials.
- ❖ Geographical coordinates of 08 wild / cultivated perennial castor accessions growing in North Eastern states of India were collected for their utilization in pre-breeding programme. Collection of wild perennial castor accessions from the field has brought variability to the gene pool for its further exploitation.
- ❖ Assessed the impact of petroleum crude oil activities on muga culture in Assam and observed the adverse effects of petroleum pollutants on muga culture. The findings have facilitated in devising suitable mitigation measures to revive muga culture in contaminated areas.

In the last 10 years, four Vanya host plants have been identified and recommended for commercial exploitation.

### **(iv) R&D on Vanya Silkworm:**

- ❖ *De-novo* Whole genome sequencing of *A. mylitta* was performed using PacBio and Illumina sequencer.
- ❖ In-depth survey was carried out in seven different parts of India inside the forest corridors for the collection of *A.mylitta* ecoraces and collected 18 different ecoraces. TasarGeoTag mobile application has been developed and linked with mobile and GAGAN dongle.
- ❖ Established Kompetitive allele specific PCR (KASP) based SNP barcoding system for the identification of ecoraces. High Density database was established for further line of research in *A.mylitta*.
- ❖ Protocol for the mass production of *Cordyceps militaris* on tasar silkworm refuses such as egg, pupa and adult tissues were standardised.
- ❖ Cocoon softening ability of cocoonase variant trypsin and papain has been tested at laboratory level and it's on station trials are under progress.
- ❖ Designed/assembled prototype unit for mass level extraction of sericin from tasar cocoon cooking waste water.
- ❖ Signalling network underlying thermo-tolerance of *A.mylitta* had been analysed and being validated for further confirmation.
- ❖ Developed the techniques for *Antheraea mylitta* semen collection, its cryopreservation and artificial insemination.
- ❖ Developed control measures on the cross transmission of pebrine spores to Muga silkworm *A. assamensis* Helfer from other lepidopteran caterpillars.

- ❖ Pathogen responsible for virosis disease in muga silkworm was identified as cypovirus -4(Reoviridae)
- ❖ Epidemiology of baculovirus and iflavirus infections in *A.proyeli* and *A.mylitta* respectively was established.
- ❖ Developed antibodies against spore wall proteins suitable for early detection of *N.assamasis* and *N. Mylitta* through lateral Flow assay.
- ❖ Test verified 11 chemicals for enhanced egg laying in Eri silk worm, resulted in 27% more egg production than the control. Similarly, in muga, 22 chemicals were test verified and found 33% increase in egg laying than the control.
- ❖ Eco-friendly bait method was developed to control potential bug predator (*Eocanthecona furcellata* Wolff) in Muga ecosystem.

In the last 10 years, 6 Vanya silkworm breeds (tasar-1, Muga-2, eri-2, Oak tasar-1) have been developed and are under field trials for commercial exploitation.

**(v) R&D on Post Cocoon Technology:**

- ❖ Developed and characterised wrinkle resistant and high drape soft silk fabrics which is technically feasible and economically viable.
- ❖ Pre-treatment for cocoon cooking and cocoon cooking condition using vacuum permeation treatment followed by conveyor cooking has been studied and found better as compared to vacuum permeation treatment and conveyor cooking for production of bulk quantities of superior grade raw silk consistently in ARM units.
- ❖ Tasar cooking technology for wet reeling has been developed using vacuum permeation technique to enhance productivity, raw silk recovery and quality of tasar yarn.
- ❖ Standard test method for Muga Silk yarn has been studied and classification/ grading table has been developed.
- ❖ Developed woven and knitted fabrics using silk and silk blended melange yarns.
- ❖ Developed Sericin/polysaccharide encapsulated fertilizer for slow and sustained release of fertilizers which will promote crop growth and quality.

R&D efforts in Post cocoon Technologies have helped in improving the Renditta from 8.2 during 2005-06 to 6.3 during 2021-22.

**(vi) Technologies/Products/Process: Patents (applied/granted) for & Commercialization:**

**a. Patent applied:**

1. Hot air drier for cocoons [Indian patent Appl. no. 202141017014 dated 12.04.2021] – CSTRI, Bengaluru.
2. Cooking machine for cocoons [Indian patent Appl. no. 202141026002 dated 11.06.2021] – CSTRI, Bengaluru.

**b. Patent granted:**

1. Sericilin (Patent No. 342953 granted on 31.07.2021) – CSR&TI, Berhampore.

### **c. Commercialization:**

1. Vijetha Supplement [M/S. SERIO CARE, Kolar-license 10.11.2021-CSR&TI-Mysuru date:23.10.2021] & M/S. Kaveri agro products Mysuru-license date: 10.11.2021-CSR&TI, Mysuru
2. Poshan [M/S. Kaveri agro products Mysuru-license date: 10.11.2021]-CSR&TI-Mysuru
3. Navinya [M/S.Nandi agrovet, Bangalore-license date: 06.08.2021] CSR&TI-Mysuru
4. Dr. Soil -An organic liquid fertilizer for mulberry: M/s. Microbi Agro tech private Limited, Bengaluru. Renewal license Agreement date: 20.09.2021-CSR&TI-Mysuru
5. Ankur Soil Mixture [M/s. Seri-Con technologies, Bengaluru. Renewal license Agreement date: 15.02.2022]-CSR&TI-Mysuru
6. NIRMOOL (Under progress through NRDC) - CSR&TI, Berhampore
7. Multi Utility shelf rearing stand – CSR&TI, Pampore.
8. Slit Button [through NRDC-New Delhi] - CSTRI-Bengaluru
9. Development of Melange yarn [through NRDC-New Delhi] – CSTRI Bengaluru

### **(vii) Collaborative and externally funded R & D projects:**

- ❖ CSB R&D institutes, in addition to the multi-institutional collaboration (between CSB R&D institutes), are also collaborated with other research Institutes such as IISc Bengaluru, NESAC Shillong, Bhat Biotech Bengaluru, TTRI Jorhat, ICAR (CIFRI Kolkata, NBAIR Bengaluru, IIHR Bengaluru), CSIR (CFTRI Mysuru, NEIST Jorhat) and State & Central Universities (University of North Bengal, Central University of Manipur, AAU Jorhat, Vel Tech. University- Chennai) etc. At present, 17 projects are being carried out in collaboration with these institutes/ organizations.
- ❖ International collaboration has also been undertaken by the CSB R&D institutes. At present, two research projects are undergoing in collaboration with International Institutes such as Tokyo University of Agri. & Technology-Japan, Yamaguchi University-japan and uzbek Research Institute-Uzbekistan.
- ❖ In addition to the in-house funded projects, R&D institutes of CSB also expedite financial assistance from national agencies *viz.*, DBT, DST, PPV &FR & NABARD. A total of 11 research projects with external funding are being carried out at various units of CSB. A total of 56 Research Fellows are working under different ongoing projects.
- ❖ MOU has been made with research institutions in Bulgaria, Japan, China, and Australia for the exchange of Genetic material to improve hybrid vigor of mulberry silkworm.

## **Training**

The R&D institutions of CSB spread across the country are intensively involved in training, skill seeding and skill enhancement on a sustainable basis, covering all activities of the silk value-chain pertaining to all the four silk sub-sectors. CSB's Capacity Building and Training initiatives have been structured under the following five heads:



- (i) Skill Training & Enterprise Development Programmes (STEP):** Under this category, a variety of short-term training modules focusing on Entrepreneurship development, In-house and industry Resource Development, Specialized Overseas Training, popularization of sericulture technologies, lab to land technology demonstration programmes, training impact assessment surveys etc. have been planned. Some of the popular programmes under this component are: Entrepreneurship Development Programme, Technology Up-gradation Programme, Resource Dev. Programme / Trainers Training Programme, Competency Enhancement Training Programme, Disciplinary Proceedings Training, Management Development Programme etc.
- (ii) Establishment of Sericulture Resource Centre (SRC):** SRCs are training cum facilitation centres established in selected Mulberry Bivoltine & Vanya clusters with a unit cost of Rs.2.00 lakhs each to act as an important link between Extension Centres of R&D labs and the beneficiaries. The purpose of these SRCs is- technology demonstration, skill enhancement, one-stop shop for Seri-inputs, doubt clarification and problem resolution at cluster level itself. As on date, 23 SRCs are functioning.
- (iii) Capacity Building & Training by R&D Institutes of CSB:** In addition to conducting structured long-term training programme (Post Graduate Diploma in Sericulture & Intensive Sericulture Training), R&D institutes of CSB also conduct technology-based training for farmers and other stakeholders.
- (iv) Capacity Building in Seed Sector:** Silkworm seed is the most critical sector that drives the entire silk value chain. The quality of seed determines the quality of industry output. Therefore, addressing the capacity building and training needs of this sector is of paramount importance. It is proposed to conduct a variety of training programmes to cover industry stakeholders like – Pvt. Silkworm Seed Producers, Adopted Seed Rearers, Managers and work force attached to Govt. owned grainages.
- (v) SAMARTH:** The textile and apparel industry is one of the earliest industries developed in India. It is the biggest employer next to agriculture. In order to meet the skill gap in the industry, the Government of India launched the scheme “**Samarth**”- a “Scheme for Capacity Building in Textile Sector (SCBTS)”, with an outlay of Rs. 1300 crore. The broad objective of the scheme is to skill the youth for gainful and sustainable employment in the textile sector, to provide demand driven, placement oriented NSQF compliant skilling programmes covering the entire value chain of textiles, to promote skilling and skill upgradation in the traditional sectors of handlooms, handicrafts, sericulture and jute, and to enable provision of sustainable livelihood either by wage or self-employment to all sections of the society across the country.

The Central Silk Board is one of the sectoral organization under Ministry of Textiles carrying out multifaceted task such as Physical verification of Training centres, Implementing Partner for conducting the training across the country and also as a ToT agency in Silk sector.

The details of number of persons trained under the above said programmes organized by the Research & Training Institutes of CSB during the years 2019-20, 2020-21 and 2021-22 is given below:

#	Training courses	No. of persons Trained					
		2019-20		2020-21		2021-22	
		Target	Achmt.	Target	Achmt.	Target	Achmt.
1	Structured Courses (PGDS, Mulberry & Non-Mulb. Courses & Intensive sericulture training)	130	121	150	109	150	75
2	Farmers Skill Training, Technology Orientation Programmes, Capsule & Adhoc Courses and Exposure Visit and training in seed sector	10025	8100	6865	6454	6570	6196
3	Other Training Programmes	4050	4560	1490	1434	1030	1740
4	STEP	1545	717	860	780	710	953
5	Training under SRC			2500	3301	2650	3199
6	SAMARTH			1360	726	*	1369
	<b>TOTAL</b>	<b>15750</b>	<b>13498</b>	<b>13225</b>	<b>12804</b>	<b>11110</b>	<b>13532</b>

\*No target fixed by MoT under SAMARTH to CSB

### Transfer of Technology (TOT)

The technologies emanated out of the concluded projects are being effectively transferred to the field through various Extension Communication Programmes (ECPs) viz., Krishi Melas cum exhibitions, Farmers' Field days, awareness programmes, Group Discussions, Enlightenment programmes/Technology Demonstrations, workshops/seminars/conferences etc. During the year 2021-22 upto the end of March, 2022 a total of 685 ECPs were organized under pre-cocoon sector and various technologies developed by the CSB R&D institutes were transferred effectively among 38,784 stakeholders in pre & post cocoon sectors. A total of 69,077 lots of cocoons, raw silk, fabrics, dyes, water etc were tested for physical, chemical and eco-parameters.

#### I.T. Initiatives:

- ❖ **mKisan:** CSB has widened the outreach of scientists and experts to disseminate information to provide scientific advisories to farmers through their mobile phones using mKisan Web Portal. All the main institutes are regularly providing advisories through this portal. Till 31-03-2022, total of 879 advisories and 55,60,971 SMS messages were sent.
- ❖ **SMS service:** Day-to-day market rates of Silk and Cocoons are regularly sent through mobile phones for the use by the farmers and other stakeholders of the industry. Both PUSH and PULL SMS services are in operation. Mobile numbers received from DOS are updated and all the 13,866 registered farmers are receiving SMS messages on daily basis.
- ❖ **SILKS Portal:** Sericulture Information Linkages and Knowledge System portal has been developed in association with North Eastern Space Application Centre, Dept. of Space by capturing geographical images through satellite and used for analysis and selection of potential areas for promoting

Sericulture activities in those areas. Multi lingual, multi district data is being updated regularly.

- ❖ **Video Conference:** CSB has full-fledged Video Conference facility at CSB Complex, Bangalore, CSR&TI, Mysore & Berhampore, CTR&TI, Ranchi, CSR&TI, Pampore, CMER&TI, Lahdoigarh, RO, New Delhi and MSSO Guwahati. Till 31/03/2022, 465 multi-studio Video conferences and web based video conferences were conducted.
- ❖ **CSB website:** Central Silk Board has a website “csb.gov.in” in bi-lingual English and Hindi. Maximum information is disseminated through this portal for the benefit of common citizen, who may need to know about the organisation as well as schemes and other details. Publicity of sericulture plan programmes, achievements and sharing of success stories are featured in the website.
- ❖ **National Database for farmers and reelers:** Farmers and Reelers database has been designed and developed to help policy makers by providing appropriate information for effective decision making. As on 31/03/2022, a total number of **7,52,600** farmers and **15,453** reelers details have been recorded by the states in the database.

## 2. SEED ORGANISATION

The CSB has a chain of Basic Seed Farms supplying basic seeds to the States. Its commercial seed production centers augment the efforts of the States in supplying commercial silkworm seed to farmers.

The Table below indicates the total quantity of seed production during the year 2019-20, 2020-21 and 2021-22.

(Unit: Lakh dfls)

Particulars	2019-20		2020-21		2021-22	
	Target	Achmnt.	Target	Achmnt.	Target	Achmnt.
<b>Mulberry</b>	470.00	399.87	410.00	356.18	400.00	329.74
<b>Tasar</b>	51.17	55.53	52.77	47.37	51.40	47.46
<b>Oak Tasar</b>	1.48	0.44	0.576	0.50	0.138	0.053
<b>Muga</b>	5.65	5.71	5.86	5.72	6.463	6.20
<b>Eri</b>	6.30	6.64	6.00	6.48	6.00	6.45
<b>Total</b>	<b>534.60</b>	<b>468.19</b>	<b>475.20</b>	<b>416.25</b>	<b>464.001</b>	<b>389.903</b>

### IT initiatives under Seed sector:

- Registration of Stakeholders under Central Seed Act: CSB has developed web based Online registration (new/renewal) process to facilitate the stakeholders viz., Silkworm Seed Producers, Chawki Silkworm Rearers and the Silkworm Seed Cocoon Producers through [www.csb.gov.in/](http://www.csb.gov.in/) <https://nssoregwebpages.firebaseio.com>, whicheases the process of paperless submission/transaction for registration.
- “e Cocoon” mobile application: As a part of quick and real-time monitoring by the Seed Analysts /Seed Officers under Central Seed Act, CSB has developed an Android based mobile application “e-Cocoon ”for onsite/online reporting of the inspection proceeds of Seed Officers and Seed Analysts.

### **3. COORDINATION AND MARKET DEVELOPMENT.**

Central Silk Board administration includes Board Secretariat, Regional Offices, Certification Centers and Raw Material Banks. The Board Secretariat of CSB monitors the implementation of various schemes and coordinates with Ministry and States in implementation of various projects in sericulture sector. Besides, Board secretariat undertakes activity to mobilize additional funds through convergence with the programmes/schemes of various Ministries of Govt. of India. Several National meetings, Board meetings & Review meetings and other high level meetings are being carried out by the Board Secretariat. The Raw Material Banks operate floor price to stabilize the market price of cocoons to ensure remunerative price to primary producers.

#### **PRODUCT DESIGN, DEVELOPMENT AND DIVERSIFICATION (P3D)**

The activities under P3D are to give special focus on fabric engineering, silk blends, designing new fabric structures, design and development of new products in silk and silk blends, product development in the clusters, commercialization of developed products, assisting the commercializing partners in providing backward linkage, technical know-how and assisting/coordinating in sample development.

#### **Activities of P3D:**

- Revival of Traditional Silk Products
- Design development and diversification of products with blends
- Product development based on certain identified preferences and requirement in terms of both their design and end uses
- Generating market information, updating market data and forecasting fashion trends.
- Generic and Brand promotion of Indian Silks by organising theme pavilions and display of products in silk expos /exhibitions.
- Assist silk manufacturers and exporters in development of innovative designs and fabrics in tune with the market demand.
- Display of latest developments in silk products and ultimately to create a Centre of excellence for innovations in Indian Silks.

#### **Products Developed:**

1. Muga Satin fabric on power loom and Garments
2. Eri silk denim fabrics for Blazer and garments, Eri and Mulberry knits, Eri silk blanket and carpet & Eri silk thermal wear.
3. Tasar silk fabric on power looms for bridal dress.
4. Pure silk sarees and Fabrics in Chanderi cluster.
5. Kanchipuram sarees with Muga silk is designed for replacement of Zari.
6. Stain guard and Aroma treated sarees.
7. Silk life style products – Ladies purse, bags, socks, glouse, accessories.
8. Silk sarees /fabrics printed in Bagh (MP) cluster.
9. Products with traditional Lambani art work.
10. Mulberry x Eri sarees with Bomkai Design.
11. Mulberry saree with Nagaland tribal motif and Silk /linen, silk / cotton, silk / modal fabrics.

#### **4. QUALITY CERTIFICATION SYSTEM, EXPORT BRAND PROMOTION & TECHNOLOGY UPGRADATION**

One of the main objectives of the Quality Certification System is to initiate suitable measures towards strengthening quality assurance, quality assessment and quality certification. Under the scheme, two components viz. “Cocoon and Raw Silk Testing Units” and “Promotion of Silk Mark” are being implemented.

Besides, Central Silk Board is popularising “Silk Mark” for purity of silk products through the Silk Mark Organisation of India (SMOI). “Silk Mark”, an assurance label, protects the interests of the consumers from the traders selling artificial silk products in the name of pure silk.

The progress achieved under the Silk Mark Scheme during 2019-20, 2020-21 and 2021-22 is given below:

Particulars	2019-20		2020-21		2021-22	
	Target	Achmnt.	Target*	Achmnt.	Target*	Achmnt.
Total No. of new Members enrolled	260	280	130	261	200	360
Total No. of Silk Mark Labels sold (Lakh nos.)	27	29.71	15	24.86	20	30.42
Awareness Programmes/ Exhibition/ Fairs/ Workshop/ Road shows	500	549	240	324	300	497

\*The targets for 2020-21 & 2021-22 were considerably slashed in view of the downward trend in business due to COVID19 pandemic.

#### **Silk Mark Expos**

In order to ensure that Silk Mark gains further credibility & popularity, Silk Mark Expos were being organized exclusively for Silk Mark Authorized Users across the country. However, in view of the government guidelines on social distancing etc., due to COVID19 pandemic, no physical expos were organised during 2020-21& 2021-22.

SMOI has entered into an agreement with M/s. Amazon.in for online promotion of the 100% pure silk products with ‘Silk Mark’ by the Authorised Users of Silk Mark. About 25 Authorised Users of ‘Silk Mark’ are on-boarded to the Amazon platform.

Salesmen training programmes were conducted by SMOI chapters through Video conference method for newly joined members due to Covid-19 pandemic situation.

SMOI participated in virtual Expo organized by ICC-Dept. of Commerce during 6<sup>th</sup> - 9<sup>th</sup> July, 2021 and 06 SMOI members had been a part of the programme.

SMOI participated in ‘Vanijya Utsav’ on the occasion of Azadi Ka Amrit Mahotsav at Itanagar on 23<sup>rd</sup> &24<sup>th</sup>, Sept, 2021.

SMOI participated in Fashion show cum SMOI Expo organized by New Mothi bagh ladies Club at New Delhi during 26<sup>th</sup> -28<sup>th</sup> November, 2021.

SMOI participated in “India International Silk Fair(IISF)” organized by ISEPC at Gurugram, New Delhi from 18<sup>th</sup> to 20<sup>th</sup> , December, 2021 and 7 SMOI members participated in this programme. Further, CSB/SMOI set up theme pavilion in this programme.

SMOI sponsored the “Miss and Missus Bangalore 2022” Season 5, Beauty of women; a beauty pageant conducted by Alex Fashions, Bangalore at Davanam Sarovar Portico Suites, Bangalore on 26<sup>th</sup> February, 2022.

SMOI organized international Women’s Day Programme at Centre of Excellence, CSB, Bangalore on 8<sup>th</sup> March, 2022.

SMOI Participated 02 days international event, GLOBALSPIN TRADE CONCLAVE on 21st 22nd March 2022 organized by the National Institute of MSME, NI-MSME (An organization of Ministry of MSME, Govt. of India), IAMKHADI and NIFT Foundation for Design Innovation, NFDI (An organization of Ministry of Textiles, Govt. of India) and CEO, SMOI had about Silk & Silk Mark in the programme.

SMOI participated 02 days international event, GLOBALSPIN TRADE CONCLAVE on 29 03-2022 & 30-03-2022 organized by IAMKHADHI & National Institute of MSME at India International Centre, New Delhi. Dignitaries from different countries Ethiopia, Zimbabwe, Egypt and South Africa participated in this programme. SMOI, Mumbai chapter have organized a SMOI stall and presented about Silk Mark.

SMOI bring efforts through all social media platforms like Instagram, Twitter, Face book, and You tube for the publicity of Silk Mark by means of posting beneficial messages and articles.

## 5. FINANCIAL PROGRESS

The table below indicates year-wise financial performance of the Central Silk Board during the years 2019-20, 2020-21 and 2021-22:

(Cr. Rs.) (p)

BUDGET HEADS	2019-20		2020-21		2021-22	
	Allocation (RE)	Expnd.	Allocation (RE)	Expnd.	Allocation (Approved RE)	Expnd. (p)
Administrative Expenditure	577.70	575.65	447.88	447.88	500.44	488.52
Scheme Outlay- for Silk Samagra	209.91	209.91	202.13	202.13	374.56	365.57
<b>Total</b>	<b>787.61</b>	<b>785.56</b>	<b>650.00</b>	<b>650.00</b>	<b>875.00</b>	<b>854.09</b>

(p) provisional expenditure upto 31<sup>st</sup> March, 2022

## 6. OTHER SCHEMES

### A. CONVERGENCE EFFORTS:

CSB, Ministry of Textiles, GOI has taken up many convergence initiatives with various Ministries of Govt. of India by availing the financial support from other schemes/Programmes like MGNREGS, RKVY, NAP, TDF and State plan schemes to support sericulture activities from plantation to marketing including infrastructure both for pre & post cocoon sector & extension. As per the latest reports received from DOSs, during the year 2020-21, states have

received sanction for 303 projects worth Rs.1732.82 crores and funds amounting to Rs.829.95 crores were released for the sericulture development. Further, during the year 2021-22, states have submitted 57 project proposals for Rs.320.37 crores and received sanction for 41 projects amounting to Rs.248.12 crores and received funds of Rs.62.65 crores.

#### **B. MAHILA KISAN SASHAKTIKARAN PARIYOJANA (MKSP):**

The project on 'Promotion of Large Scale Tasar sericulture based Livelihoods' under Mahila Kisan Sashaktikaran Pariyojana (MKSP)-Non-Timber Forest Produce (MKSP-NTFP), a Sub-component of National Rural Livelihood Mission(NRLM) was implemented from 2013-14 across 7 states viz., Jharkhand, Chhattisgarh, Odisha, West Bengal (in coordination with PRADAN), Maharashtra(by BAIF, Pune), Andhra Pradesh and Bihar (in coordination with BRLPS & PRADAN) with the support of the Ministry of Rural Development(MoRD), GOI and Central Silk Board, Ministry of Textiles at an outlay of Rs.71.61 Cr. Being the executing agency, Central Silk Board closely monitors the implementation of project and extends necessary technical support through the units of CTR&TI, Ranchi on pre-cocoon aspects, BTSSO Bilaspur for seed requirement and CSTRI, Bengaluru on post-cocoon activities.

#### **Scaling up projects under MKSP with CSB as NRLM Support organization (NSO)**

CSB being the National Rural Livelihood Mission (NRLM) support Organization (NSO) of MoRD, is supporting State Rural Livelihood Missions (SRLMs) in up-scaling initiatives under tasar sector. MoRD has already approved three MKSP Tasar projects formulated with support of CSB, for the states of Jharkhand (25000), Odisha (5220), and West Bengal (5000) covering 35,220 Mahila Kisans funded by MoRD(60%) and SRLMs (40%) with an outlay of Rs.63.34 crores, which are under implementation during the year. Besides, project proposals from Chhattisgarh and Bihar states are under consideration.

#### **C. SCHEDULED CASTE SUB-PLAN (SCSP)**

During 2021-22, Ministry of Textiles, Govt. of India under Scheduled Caste Sub-Plan (SCSP) of Silk Samagra scheme sanctioned an amount of Rs. 35.00 crores towards implementation of components. The entire sanctioned fund has been completely released to Karnataka, Andhra Pradesh, Tamil Nadu, Telangana, Jammu & Kashmir, Maharashtra, Bihar, Uttarakhand, Chhattisgarh, Punjab, Haryana & Uttar Pradesh towards the implementation of components under SCSP and to cover 3893 beneficiaries.

#### **D. TRIBAL SUB-PLAN (TSP)**

During 2021-22, The Ministry of Textiles, Govt. of India had sanctioned an amount of Rs. 25.00 crores towards implementation of components under Tribal Sub-Plan (TSP) of Silk Samagra scheme. An amount of Rs.23.52 crores has been released to Karnataka, Andhra Pradesh, Tamil Nadu, Odisha, Bihar, Telangana, Jammu & Kashmir, Maharashtra, Chhattisgarh, Assam, Nagaland & Uttarakhand towards the implementation of components under TSP and to cover 3893 beneficiaries.

## **E. SERICULTURE DEVELOPMENT IN NORTH-EASTERN STATES (NERTPS)**

North East being a non-traditional area for Sericulture, Govt. of India has given special emphasis for consolidation and expansion of Sericulture in all the North Eastern States with critical interventions from host plantation development to finished products with value addition at every stage of production chain. As a part of this, under NERTPS-an Umbrella scheme of Ministry of Textiles, the Govt. of India has approved 38 Sericulture projects for implementing in the identified potential districts of all North Eastern States under four broad categories viz., Integrated Sericulture Development Project (ISDP), Intensive Bivoltine Sericulture Development Project (IBSDP), Eri Spun Silk Mills and Aspirational Districts with a total cost of Rs. 1,107.90 crore, of which GoI share is Rs. 956.01 crore. The projects are proposed to bring around 38,170 acres of plantation under mulberry, eri, muga & oak tasar sectors, expected to contribute additional production of 2,650 MT raw silk during the project period and generate employment around 3,00,000 persons.

**a. Integrated Sericulture Development Project (ISDP):** Eighteen projects have been approved with a total cost of Rs.631.97 crore with GoI share of Rs. 525.11 crores under ISDP in Assam including BTC, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland and Tripura states. The projects will cover 29,910 acres of Mulberry, Eri & Muga plantation benefitting around 41,068 beneficiaries covering in all NE States.

**Silk Printing Unit at Tripura:** To modernize the Silk printing facilities for value addition to the silk and fabric produced in Tripura, a project for establishment of Silk Processing and Printing Unit under NERTPS was approved at a total cost of Rs. 3.71 crore with 100% Central assistance. This unit targets to print and process 1.50 lakh metre silk per annum.

**Seed Infrastructure Units in CSB :**To create infrastructure facilities for production of the quality seeds in Mulberry, Eri and Muga Sectors in Assam, BTC, Meghalaya and Nagaland, 6 silkworm seed production units were set up at a total cost of Rs. 37.71 crore with 100% Central assistance. These units have a production capacity of 30 lakh mulberry dfls and 21.51 lakh Muga & Eri dfls for supplying to States and stakeholders.

**b. Intensive Bivoltine Sericulture Development Project (IBSDP):** To produce import substitute bivoltine silk in NE states, ten projects under IBSDP are being implemented at a total cost of Rs. 290.31 crores with GoI share of Rs. 258.74 crores. These projects cover around 4,900 acres of mulberry plantation and benefits around 10,607 women beneficiaries in all NE States (except Manipur).

**c. Eri Spun Silk Mills (ESSM):** Establishment of 3 Eri Spun Silk Mills in Assam, BTC and Manipur States have been approved with a total cost of Rs. 64.59 crore (GoI share of Rs.57.28 crore) to produce 165 MT of Eri spun silk yarn per annum, which benefits around 7,500 stakeholders after completion of establishment.

**d. Development of Sericulture in Aspirational Districts (AD):** Govt. of India initiated development of silk industry in the Aspirational Districts in one/two blocks per district covering Mulberry, Eri, Muga or Oak Tasar as per the



potentiality of the district with the involvement of State Governments. Presently, 5 sericulture projects are under implementation in the states of Assam, BTC, Mizoram, Meghalaya and Nagaland at a total cost of Rs. 79.60 crore with GOI share of Rs. 73.47 crore. These projects envisaged to cover 3,360 acres of plantation to benefit around 4,245 beneficiaries.

**Progress:** Upto March, 2022, about 37,326 acres have been brought under host plantation of Mulberry, Eri, Muga & Oak Tasar covering 50,826 beneficiaries and produced 5000 MT(P) of raw silk during the project period (2014-15 to 2021-22). As against Rs. 829.05 crore released by Ministry under the above projects, an expenditure of Rs. 733.39 crore (88%) has been incurred towards creation of about 50,000 assets at individual beneficiary level and at common facility level (Construction of rearing houses, seed grainages, reeling infrastructure, mounting halls, plantation etc.).

As per the directives of Department of Expenditure, Govt. of India, various Central Sector Schemes have been rationalized and schemes with similar objectives are proposed to be merged under one scheme. Keeping in view of the said guidelines of the DOE, Ministry of Textiles, Govt. of India has decided to discontinue the Ministry's umbrella scheme "NERTPS". Ministry of Textiles has directed Central Silk Board to continue the project based sericulture activities in North Eastern States under the proposed Silk Samagra-2 scheme in line with the NERTPS with necessary budgetary provision under NE Budget head of Ministry. It has been further directed that in view of the discontinuation of NERTPS by the Ministry of Textiles, the on-going sericulture projects activities under NERTPS have to be carried forward as committed expenditure under Silk Samagra-2 Scheme.

Some of major initiatives adopted for monitoring of the implementation of above projects are as follows:

- Geo-tagging of assets created under on-going sericulture projects have been undertaken through NESAC, Shillong. The assets of around 46,094 NERTPS beneficiaries are to be geo-tagged. The 14 projects sanctioned since 2018, the details of land and beneficiaries covered in respect of plantation are being captured using GPS Map Camera App. and geo-tagged details of around 3000 beneficiaries for plantation have been uploaded in CSB website.
- MIS have been developed under ISDP, IBSDP & Aspirational Districts. So far 86% of MIS have been uploaded under the project.
- As a part of monitoring & evaluation, field visits have been undertaken in the project sites by the scientists of CSB regularly. An Internal Assessment on the progress of projects is being carried out regularly and suggests DoSs to take action on the findings.
- Combined meetings are being conducted at regular intervals with all NE States by CSB and MoT to review the progress of projects.

The summary of overall Sericulture projects being implemented under NERTPS up to March 2022 is given in the Table below:

#	State	Total Project cost (Rs. Cr.)	Total Gol Share (Rs. Cr.)	Progress during the project period up to March, 2022			
				Gol Release (Rs. Cr.)	Beneficiaries (Nos.)	Plantation (Acres)	Output per annum 2021-22
A	ISDP (18 Projects)	631.97	525.11	468.91	38,178	29,910	652.428
	Tripura (Silk Printing)	3.71	3.71	3.71	-	-	Printed around 1500 Sarees
	CSB Seed Infrastructure	37.71	37.71	37.71	-	-	0.55 lakh Mulberry, 0.74 lakhs Muga & 2.59 lakhs Eri dfls achieved
	<b>Total for ISDP (20 Projects)</b>	<b>673.39</b>	<b>566.53</b>	<b>510.33</b>	<b>38,178</b>	<b>29,910</b>	<b>652.428 MT</b>
B	IBSDP ( 10 Projects)	290.31	258.74	236.18	9,379	4,650	70.27 MT
C	Eri Spun Silk Mills (3 Projects)	64.59	57.28	19.55	-	-	-
D	Aspirational Districts (5 Projects)	79.6	73.47	58.15	3,269	2,766	62.33 MT
	IEC	-	-	4.84	-	-	-
	<b>Grand Total (38 projects)</b>	<b>1,107.90</b>	<b>956.01</b>	<b>829.05</b>	<b>50,826</b>	<b>37,326</b>	<b>785.028 MT</b>

## **SUCCESS STORIES IN SERICULTURE:**

1. Shri B. Chidananda, Agali, Madakasira, Ananthapuram district, Andhra Pradesh studied up to 10th class, having 4.0 acres of land got into sericulture farming in 1984 due to high production cost and low income from sugarcane, paddy, maize and areca nut cultivation. He practised 5 crop schedule/year with brushing of 300 dfls/acre/crop and harvested an average cocoon yield of 75-80 kg/100 dfls. By practising bivoltine sericulture, his annual income increased from Rs.1 lakh to Rs. 12.60 lakhs per annum. The earnings from sericulture helped him to arrange education, marriage and individual houses to his siblings. After adopting sericulture, the farmer and his family became self-sufficient, improved their socio-economic status and are leading a secured life.
2. Shri Francis Xavier Amalraj, Malamettukkadu, Kozhippara PO, Elappully, Palakkad district, Kerala is a stakeholder of sericulture since 2008. He initiated mulberry in one acre and constructed a silkworm rearing shed by spending Rs. 2 lakhs with the support and guidance of CSB. He has increased the mulberry acreage to 2.5 acres during 2018-19. Presently he is rearing 1,500 dfls annually in 10 or 11 crops. His average cocoon yield is above 90 kgs per 100 dfls. The revenue generated from sericulture helped him to construct a new dwelling house at the cost of Rs.10 lakhs, purchase of new motor cycle, farm mechanization equipments like mini power tiller, weed cutter, power sprayer, etc. and to provide good education to his children.
3. Shri Amelson Sangma, East Garo Hills, Meghalaya is practising raising of Kissan Nurseries of Eri Host plant, Kesseru, since 2014-15, with financial

support under NERTPS for this self-employment venture. He is supplying about 20,000 saplings of Kesseru varieties and getting an average income of Rs.1,60,000/Year. He has supported farmers in this hilly terrain areas of Tura in East Garo Hills by supply of healthy saplings to raise plantations under the project.

4. Shri Sayed Azam, Chikkaballapur, Karnataka with 8th Standard pass, is engaged in mulberry silk Reeling since last 30 Years. During 2016-17, He installed a 400 ends Automatic Reeling Machine with GOI support (50%), State Govt support (25%) and remaining as his contribution. Required technology support was extended from CSB. He is able to reel 700 Kg of cocoons per day, producing an average of 112 kg of raw silk and getting an average annual income of Rs.10 lakh. With the support, He has cleared his loan of Rs.75Lakh, and purchased a Four Wheeler.

## **POLICY INITIATIVES**

**1. Customs Duty on imports:** The basic customs Duty on Raw Silk was enhanced from the level of **10% to 15%** on 1<sup>st</sup> Feb-2021. The basic customs duty on Silk fabric is maintained at 20 %.

## **B. STATUS OF SILK INDUSTRY**

Silk is the most elegant textile in the world with unparalleled grandeur, natural sheen, and inherent affinity for dyes, high absorbance, light weight, soft touch and high in durability. Because of these unique features silk is known as the **“Queen of Textiles”** the world over. On the other hand, it stands for livelihood opportunity for millions, owing to its high employment potential, low capital requirement and remunerative nature of its production. The very nature of this industry with its rural based on-farm and off-farm activities and enormous employment generation potential has attracted the attention of the planners and policy makers to recognize the industry among one of the most appropriate avenues for socio-economic development of a largely agrarian economy of India.

Silk has been intermingled with the life and culture of the Indians. India has a rich and complex history in silk production and its silk trade which dates back to 15<sup>th</sup> century. Sericulture industry provides employment to approximately 8.7 million persons in rural and semi-urban areas in India. Of these, a sizeable number of workers belong to the economically weaker sections of society, including women. India’s traditional and culture bound domestic market and an amazing diversity of silk garments that reflect geographic specificity has helped the country to achieve a leading position in silk industry. India has the unique distinction of being the only country producing all the five known commercial silks, namely, Mulberry, Tropical Tasar, Oak Tasar, Eri and Muga, of which Muga which is produced only in India with its golden yellow glitter is a prerogative of India.

India is the second largest producer of silk in the world. Among the four varieties of silk produced in 2021-22, Mulberry accounted for 74.03% (25,853 MT), Tasar 4.17% (1,456 MT), Eri 21.07% (7,359 MT) and Muga 0.73% (255 MT) of the total raw silk production of 34,923MT.

## **Performance of Sericulture Sector**

Particulars	2017-18	2018-19	2019-20	2020-21	2021-22
-------------	---------	---------	---------	---------	---------

	Achmnt.	Achmnt.	Achmnt.	Achmnt.	Target	Achmnt. (Prov.)
<b>Mulberry Plantation (Lakh ha.)</b>	2.24	2.35	2.39	2.38	2.55	2.45
<b>Raw Silk Production (MT)</b>						
Mulberry (Bivoltine)	5874	6987	7009	6783	8500	7978
Mulberry (Cross breed)	16192	18358	18230	17113	19250	17875
<b>Sub Total (Mulberry)</b>	<b>22066</b>	<b>25345</b>	<b>25239</b>	<b>23896</b>	<b>27750</b>	<b>25853</b>
<b>Vanya</b>						
Tasar	2988	2981	3136	2689	3825	1456
Eri	6661	6910	7204	6946	7650	7359
Muga	192	233	241	239	275	255
<b>Sub Total (Vanya)</b>	<b>9840</b>	<b>10124</b>	<b>10581</b>	<b>9874</b>	<b>11750</b>	<b>9070</b>
<b>GRAND TOTAL</b>	<b>31906</b>	<b>35468</b>	<b>35820</b>	<b>33770</b>	<b>39500</b>	<b>34923</b>

Source: Compiled at CSB from the data received from DOSs .

### Raw Silk Production during 2021-22

The total silk production in the country during 2021-22 was 34,923 MT which is 3.4% higher than the production achieved during previous year (33,770 MT) and around 88.4% of the annual targeted production for the year 2021-22.

The bivoltine raw silk production increased substantially by 17.6% from 6,783 MT during 2020-21 to 7,978 MT during 2021-22. Further, vanya silk, which includes Tasar, Eri and Muga silks, have reduced by 8.1% during 2021-22 over 2020-21. It is mainly due to reduction in the tasar silk production by 45.9% during 2021-22.

The area under mulberry has increased by 3.2% in 2021-22 compared to previous year. The state-wise productions of raw silk during last five years, 2017-18 to 2021-22 are given in **Annexure- I**.

### Raw Silk Imports:

The quantity and value of raw silk imported during 2017-18 to 2021-22 are given below:

Year	Quantity (MT)	Value (Rs. in Crores)
2017-18	3712	1218.14
2018-19	2785	1041.35
2019-20	3315	1149.32
2020-21	1804	570.56
2021-22 (P)	1978	819.68

Source: DGCIS, Kolkata P : Provisional

### Exports:

The export earnings during 2020-21 were Rs. 1466.60 crores. Export values of silk goods during 2017-18 to 2021-22 are given below:

(Rs. in Crores)

Items	2017-18	2018-19	2019-20	2020-21	2021-22 (P)
Natural Silk Yarn	15.66	24.72	16.77	29.37	52.625
Silk Fabrics and made-ups	864.81	1022.43	982.91	729.50	837.41
Readymade Garments	650.48	742.27	504.23	449.56	671.13
Silk Carpet	17.34	113.08	143.43	107.56	79.125
Silk Waste	101.19	129.38	98.31	150.61	208.67
<b>Total</b>	<b>1649.48</b>	<b>2031.88</b>	<b>1745.65</b>	<b>1466.60</b>	<b>1848.96</b>

Source: Compiled from the statistics of DGCIIS, Kolkata; P: Provisional

### **Employment Generation:**

The employment generation in the country is 8.8 million persons (provisional) in 2021-22 compared to 8.7 million persons in 2020-21, indicating increase of 1.1%.

\*\*\*\*\*

## Annexure- I

### State-wise raw silk production during 2017-18 to 2021-22

(in MT)

#	State	2017-18		2018-19		2019-20		2020-21		2021-22	
		Target	Achmnt.	Target	Achmnt.	Target	Achmnt.	Target	Achmnt.	Target	Achmnt. (P)
1	Karnataka	11120	9322	10750	11592	12000	11143	12600	11292	12500	11191
2	Andhra Pradesh	6090	6778	7805	7481	7946	7962	8208	8422	9305	8835
3	Telangana	160	163	200	224	295	297	310	309	337	404
4	Tamil Nadu	2000	1984	2190	2072	2300	2154	2300	1834	2400	2373
5	Kerala	12	15	14	16	20	13	17	7	10	9
6	Maharashtra	328	373	415	519	630	428	475	428	560	523
7	Uttar Pradesh	300	292	340	289	365	309	354	316	395	354
8	Madhya Pradesh	230	103	160	100	165	61	80	47	74	30
9	Chhattisgarh	405	532	670	349	562	480	535	300	561	224
10	West Bengal	2590	2577	2775	2394	2900	2295	2520	872	1630	1632
11	Bihar	85	63	95	55	86	56	58	64	96	46
12	Jharkhand	2744	2220	2658	2375	2604	2402	2904	2185	2902	1046
13	Odisha	140	116	148	131	150	137	160	102	185	108
14	Jammu & Kashmir	180	132	190	118	170	117	142	80	150	98
15	Himachal Pradesh	40	32	43	34	50	31	45	20	40	28
16	Uttarakhand	44	35	45	36	42	40	25	25	42	42
17	Haryana	2	0.7	2	0.7	2	1	1	1	1	1
18	Punjab	6	3	5	3	5	3	4.5	1	2	4
19	Assam	4705	4861	4980	5026	5395	5316	5519	5462	5855	5700
20	Ar. Pradesh	58	54	65	59	75	64	67	43	59	53
21	Manipur	560	388	435	464	600	504	542	327	530	502
22	Meghalaya	1070	1076	1110	1187	1220	1192	1245	1213	1367	1234
23	Mizoram	100	83.6	105	92	130	104	113	43	59	59
24	Nagaland	770	615	633	620	682	600	649	264	311	315
25	Sikkim	17	0.001	3	0.4	1	1	2	0.08	5	0.03
26	Tripura	85	87	125	230	130	111	125	112	125	113
<b>Total</b>		<b>33840</b>	<b>31906</b>	<b>35960</b>	<b>35468</b>	<b>38530</b>	<b>35820</b>	<b>39000</b>	<b>33770</b>	<b>39500</b>	<b>34923</b>

(P): Provisional