

**PROGRESS FOR THE YEAR 2023-2024  
(UPTO 31<sup>ST</sup> MARCH, 2024)**

# Name of the institute: CSGRC, Hosur

## 1. Organizational Set up

Unit	Place
RSRS/ RSTRS	
REC/ STSC	

## 2. R&D Projects, TOT, ECP, CBT etc:

Item	Target	Achievement	Remarks
<b>1. CSB coded Research projects</b>			
<b>1.1. With PI from the Institute</b>			
1.1.1. On-going projects during the year 2023 - 2024	2	3	Annex 1.I.1
1.1.2. Concluded projects during the year 2023 - 2024	2	1	Annex 1.I.2
1.1.3. Newly initiated Projects during the year 2023 -2024	4	1	Annex 1.I.3
<b>1.2. With CI from the Institute</b>			
1.2.1. On-going projects during the year 2023- 2024	1	1	Annex 1.I.4
1.2.2. Concluded projects during the year 2023- 2024	0	0	Annex 1.I.5
1.2.3. Newly initiated Projects during the year 23- 24	-	-	Annex 1.I.6
<b>2. Transfer of Technologies (ToTs)</b>			
<b>2.1 On Station Trials (OST)</b>			Annex 1.II.1
2.1.1. No. of technologies validated	NA	NA	
2.1.2. No. of trials/locations covered	NA	NA	
<b>2.2 On Farm Trials (OFT)</b>			Annex 1.II.2
2.2.1. No. of technologies demonstrated	NA	NA	
2.2.2. No. of locations covered	NA	NA	
2.2.3. No. of stakeholders covered	NA	NA	
<b>3. Capacity Building &amp; Training (CBT)</b>			Annex 1.III
3.1. No. of programmes conducted	-	2	
3.2. No. of stakeholders covered	-	8	
<b>4. Extension Communication Programs (No.)</b>			Annex 1.IV
4.1. Number of programmes conducted	-	01	
4.2. No of stakeholders covered	NA	35	
<b>5. Soil analysis services provided</b>			Annex 1.V
5.1. No. of states covered	NA	NA	
5.2. No. of samples analyzed	NA	NA	
<b>6. Information, Education &amp; Communication</b>			Annex 1.VI
6.1. Periodicals	3	8	
6.2. Publications	19	13	
6.3. Extension literature	-		
6.4. Films / Videos	-		
6.5. Social media			
<b>7. Patents filed/ granted, technologies commercialized, Software, mobile/android app developed etc.</b>	-		Annex 1.VII
<b>8. Procurement of equipments &amp; other accessories</b>	20 nos.	07	Annex 1.VIII
<b>9. Other activities(pl specify)</b>	3.35	1.75	Annex 1. IX

<b>10. Revenue generated (Rs. in Lakhs)</b>	6.45	5.674	<b>Annex 1. X</b>
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## 1. CSB coded Research projects

### 1.1. With PI from the Institute

Annex- 1.I.1

#### 1.1.1. Ongoing projects during the year 2023-2024

Sl. No	Code	Title	Start	End	Milestones crossed	Progress achieved	Budget allocation (Rs. Lakhs)	Budget utilization (Rs. Lakhs)
At main institute								
1	PIE 0600 8 SI	Collection, conservation, regeneration and supply of mulberry genetic resources – X phase	Jan 2023	Dec 2025	<p>Collection of new mulberry germplasm from Kaloriang, Arunachal Pradesh and Manas National park, Assam.</p> <p>Establishment of nursery and land preparation.</p> <p>Uprooting of old mulberry germplasm.</p> <p>Transplantation of saplings (150) to FGB.</p> <p>The uprooting of old mulberry germplasm.</p> <p>Intercultural operations. Gap filling of failed saplings. Land preparation and transplantation of saplings (150) to FGB.</p>	<p>A total of 54 exotic mulberry accessions (Exotic ME 0116 to ME 0170) were transplanted to ex-situ field gene bank with drip irrigation system.</p> <p>Intercultural operations and gap filling of all the failed accessions were completed.</p> <p>A total of 913 indigenous accessions were raised and maintained in nursery polybag.</p> <p>Additional, 500 mulberry accessions were raised in field nursery and maintained.</p>	14.30	10.83
2	AIE 0600 9 SI	Collection, characterization, evaluation, conservation and utilization of silkworm genetic resources – X phase	Jan 2023	Dec 2025	<p>Collection of new silkworm breeds if any.</p> <p>Five multivoltine conservation crop rearings/ 3 batches of bivoltine/ 2 crops of mutants</p> <p>Updation of the rearing and reeling</p>	<p>Collected 2 MV races viz., 8W and 12Y from CSR&amp;TI, Berhampore &amp; completed one quarantine rearing.</p> <p>5 multivoltine conservation crop rearings / 3 batches of bivoltine/ 2 crops</p>	18.40	8.79

				<p>data in SGIS database</p> <p>Utilisation of SWGRs.</p> <p>Purchase, installation and configuration of the server.</p> <p>Preparation of Script for digital database</p> <p>Characterization and capturing of images (50) SWGRs)</p> <p>Preparation of description.</p>	<p>of mutants were completed.</p> <p>All the accessions were screened for pathogen in different stages of silkworm and maintained Pebrine free layings prepared from SWGRs were consigned.</p> <p>Updated rearing and reeling data in SGIS database.</p> <p>29 DFLs (12 BV &amp; 17 MV) of SWGRs were supplied to different indenters as per indents.</p> <p>A work contract for six months made with Siquell Inc. Bangalore through GeM portal for development of web application for the digitization of e-seri germplasm.(w.e.f. 20.01.24).</p> <p>Conducted two meetings with M/s Siquell Inc / Scientists / Assistant Director (Computer) on 20.01.24 and 18.03.24.</p> <p>Conducted a meeting with M/s Siquell Inc., the work contractor, scientists, and the assistant director (computer) to discuss the requirements analysis and finalize the website template for database creation for digitization.</p>	
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						Completed the formalities and purchase one DSLR Camera (Rs. 62,095) with Macro lens EF100mmF/2.8L (Rs.82445) for capturing the images of different life stages of Silkworm L1 M/s PN Solution and Electricals for Rs.144540/= through Gem portal.		
3	AIG-06007 MI	Molecular characterization and assessment of genetic diversity in silkworm ( <i>Bombyx mori</i> L)	Mar 2021	Feb 2024	Bioinformatic analysis of whole genome Re-sequenced data of four genomes ie., Pure Mysore, Nistari, CSR-2 and SK-6. ( <b>outsourcing</b> ). Identification of hypervariable SSR/SNP markers for further genotyping of silkworm germplasm. Transcriptome analysis from four tissues of PM & CSR-2 ( <b>outsourcing</b> ) and validation of transcriptomes through qRT-PCR analysis (SBRL) ddRAD-sequencing and analysis of SNPs	Variant call, and InDels were studied. Hyper variable SSRs were identified.  Hybrid genome assembly has been done and compared with the reference genome.  RNAseq is completed and Transcriptome analysis was carriedout.  Tissue specific gene expression was identified. Selected important genes for validation through qRT-PCR analysis.  ddRADseq of 370 silkworm genome is completed.  The Bioinformatic analysis is in progress.	66.77	30.50
At nested units								

## 1.1.2. Projects concluded during the year 2023-2024

Sl.No.	Code	Title	Start	End	Progress achieved	Utility of output/ Impact on silk industry	Budget allocation (Rs. Lakhs)	Budget utilization (Rs. Lakhs)
At main institute								
1	AIT 06006 MI	Marker assisted screening to identify silkworm genetic resources tolerant to BmNPV and BmBDV	Nov 2023	Jan 2024	22 BmBDV-tolerant and 15 BmNPV tolerant silkworm accessions were identified through markers followed by bioassay studies.	The identified tolerant silkworm accessions can be utilized in evolving disease tolerant/resistant silkworm breeds.	39.367	36.371 (92.4%)
At nested units								

## 1.1.3. Newly initiated projects during the year 2023 -2024

Sl.No.	Code	Title	Start	End	Milestones to be crossed	Progress achieved	Budget allocation (Rs. Lakhs)	Budget utilization (Rs. Lakhs)
At main institute								
3	PIG06010SIC	Studies on cytological status of mulberry genetic resources (Phase II)	Feb, 2024	Jan, 2027	Recruitment of JRF and procurement of chemicals	Ploidy-associated traits were identified using leaf anatomical data, with a focus on <i>Morus nigra</i> (2n=22x=308). The consideration of the polyploid <i>M. nigra</i> based on the fact that vegetative propagation restricted to	12.00	0.00

						<p>early February or March. Additionally, <i>M. nigra</i> did not effectively respond to the conventional pruning process. A reliable and reproducible protocol optimized for counting of chloroplast per stomata.</p> <p>The necessary documents regards to advertisement for the JRF recruitment have finalized. The process has postponed because of election code of conduct. A list of chemicals and enzymes has prepared to initiate the procurement process.</p>		
At nested units								

## 1.2. With CI from the Institute (Collaborative projects with other CSB institutes)

Annex- 1.I.4

### 1.2.1. Ongoing projects during the year 2023-2024

Sl. No.	Code	Title	Start	End	Milestones crossed	Progress achieved	Budget allocation (Rs. Lakhs)	Budget utilization (Rs. Lakhs)
At main institute								
01	MTL 01025MI	Life Cycle Assessment of Mulberry Silk: A National Assessment	Mar. 2022	Feb. 2025 (Extended up to Jan 2026)	Collection of gaseous exchange at leaf surface.	Leaf mass per unit area was collected. Leaf gas exchange data recorded. Monitoring and maintenance of studied plants.	9.43 (for CSGRC)	3.62

						A purchase order (Rs. 2.03 lakh) for rechargeable batteries for portable photosynthesis instrument has been sent to the company.		
At nested units								

**Annex- 1.I.5**

**1.2.2. Projects concluded during the year 2023-2024**

Sl.No.	Code	Title	Start	End	Progress achieved	Utility of output/ Impact on silk industry	Budget allocation (Rs. Lakhs)	Budget utilization(Rs. Lakhs)
At main institute								
Nil								
At nested units								

**Annex- 1.I.6**

**1.2.3. Newly initiated projects during the year 2023-2024**

Sl.No.	Code	Title	Start	End	Milestones crossed	Progress achieved	Budget allocation (Rs. Lakhs)	Budget utilization(Rs. Lakhs)
At main institute								
Nil								
At nested units								

**Transfer of Technologies (ToTs) Programmes during the year 2023-2024**

**Annex - 1.II.1**

**2.1.On Station Trials (for validation of technology at CSB institutes/ RSRs/ DoS units etc.)**

Sl. No	Name of the Technology	Unit Cost (Rs.)	At CSB institutes	RSRs	DOS Units	Total	Findings	Budget allocation (Rs. Lakhs)	Budget utilization(Rs. Lakhs)
1	Nil								

2	
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**Annex- 1.II.2**

**2.2.On Farm Trials (for demonstration of Technologies at farmers' level)**

Sl. No	Name of the Technology	Unit Cost (Rs.)	No. of locations	No. of stakeholders	Findings	Budget allocation (Rs. Lakhs)	Budget utilization(Rs. Lakhs)
1	Nil						
2							

**Annex- 1. III**

**3. Capacity Building & Training programmes during 2023-2024**

Sl. No.	Title of the training programme	Unit cost (Rs)	Target			Achievement		
			No of programmes	No of stakeholders	Budget allocation (Rs.in lakhs)	No of programmes	No of stakeholders	Budget utilisation (Rs.in lakhs)
3.1	Structured Training Course*	-	-	-	-	-	-	-
3.1.1	PGDS	-	-	-	-	-	-	-
3.1.2	Intensive Sericulture Training	-	-	-	-	-	-	-
3.2	Farmers Skill Training	-	-	-	-	-	-	-
3.2.1		-	-	-	-	-	-	-
3.2.2		-	-	-	-	-	-	-
3.3	Exposure visit for technology awareness	-	-	-	-	-	-	-
3.4	Technology Orientation Programme	-	-	-	-	-	-	-
3.5	Sericulture Resource Centres (SRCs)	-	-	-	-	-	-	-
3.6	Training under Post Cocoon Sector**	-	-	-	-	-	-	-
3.7	Management Development Programme under STEP	-	-	-	-	-	-	-
3.8	Training for Adopted Seed Rearers (ASRs)	-	-	-	-	-	-	-
3.9	Training to Registered Seed Producers (RSPs)	-	-	-	-	-	-	-
3.10	Training on Seed Act	-	-	-	-	-	-	-
3.11	Other Need Based Training Programme	1. Dissertation work- 03 2. Internship training programme- 05						
3.12	<b>Non-CBT:</b> Training programme funded by agencies other than CSB*	-	-	-	-	-	-	-

3.13	<b>Training under SAMARTH ***</b>	-	-	-	-	-	-	-
3.13.1	Pre-cocoon (Silkworm rearing)	-	-	-	-	-	-	-
3.13.2	Post cocoon – Silk (Reeling, Spinning, Wet processing)	-	-	-	-	-	-	-
3.13.3	Post cocoon – Handloom (Designing & Weaving)	-	-	-	-	-	-	-
	<b>Total</b>	-	-	-	-	-	-	-

\* Pl specify the details, \*\* Name of training with duration, \*\*\* only NSQF aligned courses

#### Annex- 1. IV

#### 4. Extension Communication Programmes conducted during 2023-2024

Sl. No	Programmes	Unit cost (Rs.)	Target			Achievement		
			No of programmes	No of stakeholders	Budget allocation (Rs. In lakhs)	No of programmes	No of stakeholders	Budget utilisation (Rs. In lakhs)
4.1	Krishi Mela/ Reelers mela cum exhibition					1	35	0.54
4.2	Farmers Field day							
4.3	Awareness programme							
4.4	Technology demonstration / Enlightenment programmes							
4.5	Workshop/ Seminars & Conferences	-	-	-	-	1	35	0.54
4.6	Other activities							
	<b>Total</b>							

#### Annex-1.V

#### 5. Soil analysis during the year 2023-2024

#	State	Target		Achievement	
		Physical (No)	Budget allocation (Rs in Lakhs)	Physical (No)	Budget utilisation (Rs in Lakhs)
5.1		Not applicable			

#### Annex-1.VI

#### 6. Information, Education and Communication during 2023-2024

Sl. No.	Item	Target (No.)		Achievement	
		Physical (No)	Budget allocation	Physical (No)	Budget allocation

			(Rs. In lakhs)		(Rs. In lakhs)
6.1	Periodicals	3	1.00	8	0.573
6.2	Publications				
6.2.1	Research papers-National	6	0.12	1	
6.2.2	Research papers-International	6	0.12	2	0.020
6.2.3	Proceedings/ Abstracts	2	0.10	6	
6.2.4	Books/ Book Chapters/ Manuals etc.	2	0.50	1	
6.2.5	Popular Articles	2	0.00	2	
6.2.6	Booklets, Brochures etc.	1	0.10	1	
6.3	Extension literature				
6.4	Films/ Videos				
6.5	Social media				
<b>Total</b>		<b>22</b>	<b>1.94</b>	<b>21</b>	<b>0.593</b>

#### Annex-1.VII

### 7. Technology Patent filing/grant of patent, technologies Commercialized/ Products Developed during 2023-2024

Sl. No.	Item	Patent No., Date of filing patent by NRDC, Technology commercialised to & Date of licence.	Target		Achievement	
			Physical (No)	Budget allocation (Rs. In lakhs)	Physical (No)	Budget allocation (Rs. In lakhs)
<b>7.1</b>	<b>Patents filed</b>	Nil				
7.1.1						
<b>7.2</b>	<b>Patents granted</b>					
7.2.1						
<b>7.3</b>	<b>Technologies commercialized</b>					
7.3.1						
<b>7.4</b>	<b>Android/mobile app, software developed etc.</b>					
7.4.1						

#### Annex-1.VIII

### 8. Procurement of equipments and other accessories during the year 2023-2024

#	Items/equipments/ other accessories	Justification	Target		Achievement	
			Physical (No)	Budget allocation	Physical (No)	Budget utilisation

				(Rs in Lakhs)		(Rs in Lakhs)
8.1	Binocular microscope with tablet (AIE-06009MI)	Required for mother moth examination	2	3.40		3.86
8.2	Platform balance (AIE-06009MI)	Required for assessing supplied leaf weight during conservation crop rearing	1	0.50		0.05
8.3	Rearing stands (AIE-06009MI)	Required for conservation crop rearing		0.50		
8.4	Humidifiers (AIE-06009MI)	Required to maintain humidity in the rearing rooms during conservation crop rearing	2	0.60		0.20
8.5	Electronic weighing machine (1g – 2Kg) (AIE-06009MI)	Required for cocoon assessment during conservation crop rearing	1	0.10		
8.6	Web – Server/Cloudspace hiring (AIE-06009MI)	Required for digitization of database		5.00		0
8.7	High resolution digital camera with accessories (AIE06009MI)	Required for documenting photos for digitization of database	1	0.50		1.45
8.8	Battery operated Knapsack Sprayer (PIE-06008SI)	Required for spraying of pesticides and weedicides	1	0.06		0.04
8.9	Tractor operated Water Pump (PIE-06008SI)	Required for lifting of water from low-lying areas in Field Gene Bank	1	0.50		
8.10	Tractor operated mulberry twigs shredder(PIE-06008SI)	Required for shredding farm waste materials into powder form for faster preparation of compost.	1	0.74		
8.11	Spectrophotometer	For quantification of DNA/RNA and proteins/enzymes.	1	9.00		
8.12	Waterbath	Required for incubation during DNA/RNA isolation	1	0.50		
8.13	Weighing balance (1 mg-200g)	Required for molecular biology laboratory for regule measurements	1	0.20		
8.14	Liquid nitrogen storage tank with accessories	For cryopreservation of mulberry accessions	1	3.00		

8.15	Apple iMac computer 8 GB RAM, 3.1GHz 6-core 10th-Gen Intel Core i5 256GB SSD	For cytology and karyotype analysis of mulberry accessions	1	2.50		-
8.16	Battery for Photosynthetic instrument	For replacing the battery of the existing photosynthetic instrument	1	0.40		2.03
8.17	Microtome	For cytological studies of mulberry	1	1.00		
8.18	Tractor-trailer	For maintenance of mulberry field gene bank	1	4.00		2.16
8.19	RO Water purifier (2 nos. for rearing and grainage buildings)	For drinking water facility in working space	2	0.40		-
8.20	Seri Torch (gas flame gun) – 1 no. with one Commercial Gas Cylinder including Caution Deposit.	For Weed removal in FGB and Mulberry gardens	1	0.20		-
8.21	Emergency lights	For use during silkworm rearing	4	0.20		-
<b>Sub Total</b>				<b>33.30</b>		<b>9.79</b>
<b>Tool, Plant and Machinery</b>						
8.16	Desktop computers (3 nos.)	To replace old and obsolete computers more than 10 years old.	3 nos	3.00	3	2.25
8.17	1 printer +1 scanner cum printer (2nos)	For office use	2 nos.	0.50	2	0.40
8.18	3 KVA online UPS	To replace more than 10 years old 2 KVA online UPS	1 no.	0.60		-
8.19	Storage device (external hard disks)	Tech cell / Computer Section / Silkworm Division (to store photographs and videos of events/projects)	5	0.60	5	0.42
8.20	Antivirus software	For protection of computers against virus threat	For all computers	0.30		-
8.21	Upgradation of CSGRC website / Renewal of Website , webspace enhancement / App development	Website upgradation, hiring of cloudspace and hosting, client- server system for offline database	2	6.00		0.46
8.22	Replacement of old CCTV camera & DVR with IP cameras for office main building and laboratories	Installation of IP camera in the main building and laboratories		3.00		-
<b>Tool Plant Machinery Sub-Total</b>				<b>14.00</b>		<b>3.53</b>

**9. Other activities carried out during the year 2023-2024**

#	Activity	Justification	Budget allocation (Rs in Lakhs)	Budget utilisation (Rs in Lakhs)
9.1	Swachh Bharat	As per CSB guidelines	0.50	0.23
9.2	Vigilance Awareness Week		0.05	0.04
9.3	OLIC meetings, Hindi Workshop, Hindi Day and Hindi Fortnight		0.60	0.25
9.4	Other activities as per guidelines		0.20	0.13
9.5	Scientific meetings		2.00	1.10
			<b>3.35</b>	<b>1.75</b>

**10. Revenue Generation during 2023-2024**

Sl. No.	Source of Revenue Generation	Physical (No.)	Revenue generated (Rs. in Lakhs)	
			Target	Achievement
<b>10.1</b>	<b>Patent (Technology)</b>			
10.1.1	License Fee collected			
10.1.2	Royalty collected			
<b>10.2</b>	<b>Testing &amp; Analytical charges (Sample)</b>			
10.2.1	Testing of Soil/water/FYM/ Leaf etc			
10.2.2	Quality analysis/ testing of products			
10.2.3	Testing of cocoons/silk yarn/fabric etc.			
<b>10.3</b>	<b>Consultancy (Services)</b>			
<b>10.4</b>	<b>Supply/ sale proceeds of cutting / Sapling/ seedling/ chawki worms/ cocoons/ Silk etc.</b>			
10.4.1	Mulberry cutting		0.25	0.0075
10.4.2	Vanya host plant sapling/ seedling		-	
10.4.3	Silkworm chawki worms		-	
10.4.4	Silkworm Seed (DFLs)		0.25	0.033
10.4.5	Vanya seed (DFLs)		-	
10.4.6	Cocoons		1.50	
10.4.7	Output from R&D Projects (Silk, fabric etc)		-	
10.4.8	Others (pl specify)			
	HRR/Water charges		2.00	2.193
	Coconut auction, grass cutting, etc		2.00	2.725
	Guest house charges		0.25	0.317
	Project fees		0.20	0.355
	Audit recovery			0.044

	<b>Total</b>		<b>6.45</b>	<b>5.674</b>
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### Progress at a glance for the year 2023-2024

Name of the Institute	Research Projects as PI			Research Projects as CI			On Station Trials		On Farm Trials			Capacity Building & Training		Extension Communication programmes (ECPs)		Soil Analysis services provided	Information, Education and Communication during	No. of patents filed/granted and technologies to be commercialised	Procurement of equipments (Amount spent -Rs in laksh)	Other activities	Revenue generated (Rs. in Lakhs)
	Ongoing projects during the year	Concluded Projects during the year	Newly initiated Projects	Ongoing projects during the year	Concluded Projects during the year	Newly initiated Projects	No. of technologies validated	No. of trials /locations covered	No. of technologies demonstrated	No. of locations covered	No. of stakeholders covered	No. of Programs Conducted	No. of stakeholders trained	No. of Programs Conducted	No. of stakeholders trained						
CSGRC, Hosur	3	1	1	1	0	0	-	-	-	-	-	2	8	1	35	-	21	-	9.79	1.75	5.674