

MINUTES OF 42nd RESEARCH ADVISORY COMMITTEE MEETING OF CMER&TI, LAHDOIGARH HELD ON 9th-10th OCTOBER 2023

The 42nd RAC meeting of CMERTI, Lahdoigarh was held on 09th – 10th October 2023 under the chairmanship of Dr. B. C. Deka, Vice Chancellor, Assam Agricultural University, Jorhat. The list of members and participants for the meeting is appended as Annexure – I.

Welcome address by the Director, CMER&TI and felicitation

All the esteemed participants at the meeting were welcomed by Dr. Kasthala Mary Vijaya Kumari, Director of CMER&TI. In her welcome address, she acknowledged the presence of Dr. B. C. Deka, Vice Chancellor, Assam Agricultural University, Jorhat, and Chairman of the Research Advisory Committee of CMER&TI; Prof. L. K. Hazarika, Retd. Professor & Head of Entomology, AAU, Jorhat; Prof. P K Neog, Director-EEI, NE Region; Dr. B.K. Singh, Retired Director, CSB; Dr. Kartik Neog, Director, Muga Eri Silkworm Seed Organization, CSB; Sh. Aatur Rahman, Additional Director of Sericulture, Govt. of Assam; Ajit K Pathak, Deputy Director of Sericulture, Govt. of Assam; Mr. Robin Bharali, Member, Sivasagar (Rearer Representative); Sh. Mhathung Kikon, Director, Govt. of Nagaland; Sh. Vikehelie Pienyu, Joint Director of Sericulture, Govt. of Nagaland; Dr. S. Jhansi Lakshmi, Scientist-D & Head RCS, CSB and Dr. Prashanth Sangannavar, Scientist-C, RCS. She also welcomed special invitees for the meeting Sh. Anjan K. Chakravarty, Director, Dept. of Sericulture, BTC-Kokrajhar; Dr. Thlatea Pachuau, Sr. Scientist, Directorate of Sericulture, Govt. of Mizoram and Sh. B. Lalchhuana, Deputy Director, Directorate of Sericulture, Govt. of Mizoram. As a heartfelt gesture, Dr. Vijaya Kumari, extended her warm regards and presented tokens of appreciation to all the attendees as the meeting marked the last gathering of this esteemed committee. The meeting proceeded with discussions as per the agenda items.

Inaugural address by the Chairman

The Chairman in his opening remarks, emphasized the importance of Muga silk as a symbol of pride for our region. He expressed the collective concern about the preservation of Muga's endemicy and the need to protect this unique natural resource. He highlighted that Muga silk holds significant cultural and economic value, and we must ensure its continued existence within our region. Further, the Chairman conveyed the commitment of the RAC and CMERTI to prioritize efforts in the development and preservation of Muga silk. He stressed the need for collaborative and innovative approaches to achieve this goal and also urged all stakeholders to contribute actively to the cause, ensuring that the endemicy of Muga is not compromised.

The Chairman urged all members to maximize their efforts in promoting the development of Muga silk. He emphasized the need for enhanced research, conservation, and sustainable practices to ensure the long-term viability of the Muga silk sector. He expressed his appreciation for the technologies and approach adopted by CMERTI in the development of the Muga silk sector. He commended the institute's dedication to research and innovation in this field and encouraged CMERTI to continue its good work and offered support from the RAC to further their initiatives.



R&D highlights of the Institute by Director, CMERTI

Dr. K. M. Vijaya Kumari, Director, briefly presented the major R&D achievements of the Institute. She provided an overview of the Institute's activities, scientific resources, operational areas, research and development outcomes, publications, and scientific achievements. Additionally, she presented a snapshot of the comprehensive recommendations and initiatives undertaken by the Research Advisory Committee throughout its three-year tenure.

AGENDA NO. 1: CONFIRMATION OF LAST RAC MEETING MINUTES

The last (41st) RAC meeting of CMERTI, Lahdoigarh was held on 24th January 2023 under the Chairmanship of Dr. B. C. Deka, Vice Chancellor, Assam Agricultural University, Jorhat. The minutes of the meeting were circulated among all the Members, Invitees and Scientists and as no comments received from any of the members, the minutes of the 41st RAC meeting were confirmed.

AGENDA NO. 2: FOLLOW UP ACTION ON THE GENERAL RECOMMENDATION/ DECISIONS OF THE LAST RAC MEETING

Dr. Aftab A. Shabnam, Scientist-D, PMCE presented the follow up action on general recommendations / decisions of the last RAC meeting.

Recognizing the pending status of the policy paper, the Chairman urged swift and decisive action during the meeting. He entrusted CMERTI, MESSO, DoS, and CO, CSB with the task of collaboratively drafting the Muga Silk policy paper, aimed at revitalizing the muga silk sector. He emphasized that the policy paper should cover the sector's historical context, technological advancements, challenges, beneficiary development strategies, necessary support from other departments, besides outlining a detailed roadmap for the joint efforts required by the Department of Sericulture (DoS) and the Central Silk Board (CSB) to revive the sector. A deadline of January 2024 was set for its completion, and the Chairman offered to provide all necessary assistance in appraising the Government lawmakers at all possible platforms for its effective implementation. The representatives from Mizoram reported that they have prepared a policy paper, which has been reviewed and presented to the relevant state government authority. In response, the Chairman requested CMERTI and DoS Assam to use this as a reference to create similar state-specific policy papers. Representatives from DOS Assam informed the house that department has prepared a draft of the policy document and the same will be finalized in consultation with CMER&TI, MESSO, RO and RSTRS Guwahati.

The Chairman encouraged other State Department officers to explore drafting similar state-specific policy papers which can be for reviewed in upcoming meetings and work for its effective implementation.

Action: DOS, Assam; CMER&TI, Lahdoigarh and MESSO, Guwahati

AGENDA NO. 3: FOLLOW UP ACTION TAKEN ON THE PROJECT SPECIFIC RECOMMENDATIONS/ DECISIONS OF THE LAST RAC MEETING

As previously decided, the project specific recommendations/decisions were presented by the respective scientists while presenting the progress of their projects.



AGENDA NO. 4: REVIEW ON CONCLUDED PROJECTS

#	DETAILS	
1.	Project code and title:	MOE05004-EF: Adoption of improved sustainable technologies of Muga culture for elevation of cocoon production in the tribal belt of Assam
A	Investigators	Vijay N, (PI), D K Gogoi, (CI, upto July 2021), D. Mech, (CI), SAS Rahaman, (CI), Dr K. Sathyanarayana, (CI)
B	Project period:	Aug 2019-July 2022 (Extended upto Feb. 2023)
C	Objectives:	1. To promote adoption of improved Muga rearing technologies among tribal rearers through sustainable NGO-rearer linkages facilitated by CMER&TI. 2. To improve the socio-economic status of tribal population by enhancing cocoon production through improved muga culture
D	Progress achieved:	<ul style="list-style-type: none"> Analysis of final survey and report and documentation
E	Utility of Outcome/ future course of action	<ul style="list-style-type: none"> Improvement of the socio-economic status of tribal population by enhancing cocoon production through improved muga culture
F	Budget and expenditure:	RS. 25.51 lakh (Received Rs17.36 lakh), Expenditure :16.77 lakh.
	42nd RAC Suggestions	The investigators should conduct the follow-up study among the selected beneficiaries after 03 years to assess the level of their adoption and continuation of using the recommended technologies besides recording their associated improvements in profitability and socio-economic upliftment.
2.	Project code and title:	PIB-05005-SI: Genetic enhancement of Castor (<i>Ricinus Communis L.</i>) germplasm as a source material for development of productive perennial varieties
A	Investigators	Aftab A Shabnam (PI); DK Jigysu (CI), Somen Singh (CI)
B	Project period:	Oct. 2019 to Sept. 2022 (Extension sought upto March 2023)
C	Objectives:	1. Genetic enhancement of castor germplasm. 2. Development of pre-bred intermediate castor with perennial characteristics.
D	Progress achieved:	<ul style="list-style-type: none"> F2 and F3 generation plantations are being regularly monitored for selections at Farm no: 01 from 1st& 2nd crossing lots. Plantation of F2 generation at GCC, Chenijan was maintained as per recommended package of practices. Data generated under the project has been compiled and statistically analyzed. However, F2 generation data of 17 potential cross combinations is yet to be recorded for which project period extension has been sought.
E	Utility of Outcome/ future course of action	<ul style="list-style-type: none"> Enrichment of gene-pool and its characterization will give breeders choice of selecting desired parents for future breeding programs for improvement of castor. Recurrent selection of these lines in subsequent generations will lead to development of intermediate/superior perennial castor cultivar. The Project will be continued in 2nd Phase for attaining homogeneity in the selected lines.
F	Budget and expenditure:	Budget: Rs. 13.30 lakh Utilized: 9.53183 Lakhs
	42nd RAC Suggestions	The investigators should propose 2 nd phase of the project and continue the activities for attaining homogeneity in the selected lines.
3.	Project code and title:	AIB- 05006-SI: Breeding of muga silkworms for improved silk quality and disease tolerance
A	Investigators	Arun Kumar K.P. (PI), Mahesh D.S. (CI) and Manjunath R.N. (CI)

B	Project period :	October,2019 to September,2022 (Requested for extension till Sep 2023)
C	Objectives:	<ol style="list-style-type: none"> 1. Selection of better parents by field collection of muga silkmoth samples. 2. Classical breeding studies to select better lines for muga silkmoths. 3. Mass production for limited trials.
D	Progress achieved:	<ol style="list-style-type: none"> 1. GBS based large scale genotyping that was carried out before revealed that the wild muga, irrespective of place of collection was highly heterozygous in nature. Very little heterozygosity was observed in the cultivated stock, which probably is the reason behind reduced yield after several inbreeding cycles in the cultivated stock. 2. Genome wide association studies (GWAS) using the generated data is ongoing. 3. The wild samples were collected from Jorhat and pupal hibernation during summer was observed in grainage and the DNA was isolated individually from selected males and females. 4. DFLs of selected line (BP1) and wild muga stock are being reared on Farm No.2.
E	Utility of Outcome/ future course of action	<ol style="list-style-type: none"> 1. Almost 10 times lower heterozygosity observed in cultivated stock compared to wild muga. 2. Loss of heterozygosity is a possible reason behind loss of vigor in cultivated muga. 3. Observation of summer hibernation in wild muga. 4. One promising muga line has been selected after several rounds of directional selection and further rearing. This line is now being stabilized. <ol style="list-style-type: none"> 1. Both Muga and Wild muga DFLs are being reared based on their cocoon characteristics and fecundity for better muga lines
F	Budget and expenditure:	Budget: 18.32 lakhs, Expenditure: 9.26 lakhs
42nd RAC Suggestions		The investigators should propose 2 nd phase of the project for taking forward the project outcomes.
4.	Project code and title:	APR 05007 SI: Standardization of chawki rearing practices for Eri silkworm, <i>Samia ricini</i> (Donovan)
A	Investigators	Mahesh D S (PI); Arun Kumar (CI); Subadas Singh (CI)
B	Project period :	3 years (October, 2019 – September, 2022) (Extended up to March 2023)
C	Objectives:	<ul style="list-style-type: none"> -Establishment and management of eri host plant garden for eri chawki rearing. -Design and fabrication of Eri silkworm chawki rearing equipment. -Development of new rearing method and ideal environment for eri chawki rearing.
D	Progress achieved:	<ol style="list-style-type: none"> 1. Identified suitable castor variety (NBR-1) for eri chawki worms. 6 plot module developed for brushing 90,000 DFLs/hectare/year. 2. Standardized all the eri chawki rearing practices starting from egg incubation stage to distribution stage. 3. Designed and fabricated a “Model Chawki Rearing House” at CMER&TI for brushing 5000 DFLs at a time. 4. Several demonstrations and field testing of eri chawki rearing carried out in different regions of Assam, Nagaland and Gujarat to show that this technology works at field level. 5. The yield from chawki rearing was compared with the conventional method in farmers’ field and found significantly higher (>20 %). 6. Overall economics of commercial eri chawki rearing technology calculated.
E	Utility of Outcome/ future course of action	<ol style="list-style-type: none"> 1. Standard package of practice for eri chawki rearing will lead to the development of eri chawki rearing enterprises in different regions of north eastern states and other Eri growing areas. 2. This project outcome will also be helpful for creation of more employment in each standardized practice. 3. The standardized practices will be helpful in producing better quality of



		cocoons and increased yield of cocoons leads to increase in total raw silk production of India.
F	Budget and expenditure:	Total budget is 18.15 Lakhs and expenditure is 17.15 Lakhs
	42nd RAC Suggestions	Continue the trials of Chawki rearing in large scale at farmers' level to assess and validate the outcome of the project at commercial level.
5.	Project code and title:	AIB-05009-SI: Isolation of thermo-tolerant line(s) of Oak tasar silkworm <i>Antheraea proylei</i> J.
A	Investigators	Y. Debaraj (PI); S. Subharani Devi (CI); R. Debnath (CI)
B	Project period:	October 2019- September 2022 (Extended upto Sept. 2023)
C	Objectives:	1. To isolate thermo-tolerant line of oak tasar silkworm, <i>Antheraea proylei</i> 2. Characterization of Heat shock protein gene in thermo-tolerant line.
D	Progress achieved:	During spring crop, 2022 reared <i>A. proylei</i> , RTRS-1 and C27 after inducing heat stress at different temperatures 32 °C to 38°C in 5th instar larvae and recorded decreased ERR % with increase in heat stress. Repeated protein profiling studies in heat treated larvae of <i>A. proylei</i> , RTRS-1 and C27. Cloning of PCR amplified random segments of genomic DNA is carried out in the Department of Biotechnology, Manipur University, however, the experimental work could not be completed due to closure of Manipur University since 3rd May 2023 due to large scale violence and riots that broke out on 3rd May 2023. Heat treated seed cocoons of <i>A. proylei</i> are under preservation for maintaining the generation.
E	Utility of Outcome/ future course of action	➤ <i>A. proylei</i> , RTRS-1 and C27 after inducing heat stress at different temperatures 32 °C to 38°C in 5th instar larvae and recorded decreased ERR % with increase in heat stress. ➤ Heat treated seed cocoons of <i>A. proylei</i> are under preservation for maintaining the generation for further studies.
F	Budget and expenditure:	Rs. 21.90 lakhs and 8.688 lakhs.
	42nd RAC Suggestions	The isolated thermo-tolerant line should be test verified through OST/OFT trials.
6.	Project code and title:	CFC-5017-MI: Exploration and adoption of novel solvent based muga cocoon cooking technology for increasing its reelability and raw silk quality
A	Investigators	Manjunath R. N (PI), D K Gogoi, RSRS, Khoraput (CI), Rajiv Munshi, RSTRS Khanapara (CI)
B	Project period :	March 2021 – Feb 2023
C	Objectives:	1. To study the efficacy of enzymatic and non-enzymatic (chemical) approaches in muga cocoon cooking/softening. 2. To develop a new solvent based cocoon cooking technique to improve the reelability & raw silk quality in muga cocoons dried under different techniques 3. To carry out large scale Multi-location trials at CSB and DoS reeling units for validating the efficacy of the newly developed cooking method. 4. To create awareness among the reeling beneficiaries to adopt/popularize the new solvent based muga cocoon cooking technique for efficient reeling and quality raw silk production.
D	Progress achieved:	Enzymatic approach: 1. Significant progress was made by utilizing an enzyme obtained from RSH1 for the degumming of muga cocoons. 2. Through systematic investigations into temperature, pH, and time, the optimal conditions for protease activity/degumming were identified at approximately 35°C and pH 7, ensuring the enzyme's effectiveness. 3. A quantitative protease assay provided concrete evidence of the enzyme's efficacy in the degumming process, further validating its potential for

		<p>practical use.</p> <ol style="list-style-type: none"> Reeling trials conducted with a microbial consortium showed promising results, highlighting the efficiency of the enzymatic degumming approach. The project's culmination involved the deposition of the developed enzyme into the National Collection of Microorganisms (NCMR) & with the allocation of accession number MCC 5323, this strain is now accessible for use by the scientific community and the wider public. <p>Non-enzymatic approach</p> <ol style="list-style-type: none"> A new cocoon cooking formulation that can facilitate efficient and uniform cooking of muga cocoons was developed and tested for its efficacy on reeling performance. Intense trials were carried out in comparison with conventional soda-based cooking chemical and the comparative results indicated that the newly developed formulation significantly contributed to the reelability of muga cocoons by reducing breakages (upto 35-40%) during the reeling process and improving the raw silk recovery (upto 10-12%). Besides, the cooking duration was significantly reduced thus positively contributing to the retention of natural luster. Tensile properties of Silk obtained from new cooking technique were studied and compared with traditional soda based cooking method and it was evidenced that new formulation is capable of addressing those issues by reducing the strength loss and better retention of luster. The formulation was found suitable for cooking both Muga and Eri cocoons and the cooking solution can be reused effectively for 2-3 times thereby supporting the conservation of materials involved.
E	Utility of Outcome/ future course of action	<ul style="list-style-type: none"> The new cocoon cooking formulation “Muga Super Cook” is promising on achieving its efficacy in cooking Muga cocoons. Protocols for pre-treatment (cooking) of cocoons were developed and optimised for better reelability & recovery %, reduced strength loss and improved luster retention along with the ease of cooking technique. The reduced cooking duration and multiple reusability of the cooking liquor offers great benefits to reelers and can address the issues of energy conservation in many aspects. Increase in recovery by around 10% can offer better income generation to the reelers per unit Kg of Raw silk production. A new strain that can produce enzyme suitable for cocoon degumming has been identified and the same has been deposited at NCMR (accession number: MC5323) for future public usage
F	Budget and expenditure:	Budget: Rs. 18.23 lakh Expenditure: 10.29 Lakh
	42nd RAC Suggestions	<ol style="list-style-type: none"> Furnish the certificate of deposition of the identified strain received from NCMR to CO, CSB for records. The cooking formulation should be test verified through OST/OFT mode particularly at PCT-Vanya Section of CSTRI, CSB Bangalore.
7.	Project code and title:	MFM-5019-MI Development of Honeycomb Mountages and Harvesting Technology for Muga Cocoon Production with Improved Uniformity and Raw Silk Recovery.
A	Investigators	Manjunath R. N (PI), Mahesh D.S (CI) L Guha, MSSO (CI)
B	Project period:	March 2021 – Feb 2023
C	Objectives:	<ol style="list-style-type: none"> Fabrication of honeycomb mountages and suitable harvesting technology for uniform Muga cocoon production. Impact assessment of honeycomb mountages on cocoon production, cocoon characteristics and reeling performances. To conduct on-station feasibility trials of the mountages at CSB/DoS units



		for prototype test verification.
D	Progress achieved:	<ol style="list-style-type: none"> 1. Continuous trials on the newly developed mountages were carried out to forsee the quality of cocoon construction and reeling parameters in comparison to all the traditional methods. 2. Based on the suitability and manufacturing feasibility, Large scale Fabrication of Mountages using potential constructional materials was undertaken along with fine required tuning for easy harvesting. 3. Subsequently, FRP based mountages were imbibed and the overall comparison of cocooning trials utilizing FRP-made honeycomb mountages revealed creditable cocooning efficiency, on par with conventional methods. Additionally, the resulting cocoons displayed 7-9% improvements in their reeling performance compared to their counterparts (Jali & Box-type mountages) besides following attributes. 4. Improved cocoon quality from the honeycomb mountages could potentially result in increased revenue, suggesting a tentative 10% overall revenue boost and an estimated ROI of around 8% per crop.
E	Utility of Outcome/ future course of action	<ol style="list-style-type: none"> 5. Reelability and Raw silk recovery% in cocoons produced from honeycomb mountages were studied in comparison to traditional mounting techniques and about 7-9% of positive increment in reelability and recovery% was observed in the resulting cocoons. 6. Enhanced Cocoon Efficiency: The adoption of FRP-based honeycomb mountages demonstrates comparable cocooning efficiency to traditional methods but with notable improvements in reeling performance. However, the users can attain efficient space utilization through the compact design of honeycomb mountages, allowing them to maximize cocoon production even in limited areas. 7. Knowledge of the durability of FRP materials leads to longer-lasting mountages and lower maintenance costs, contributing to resource efficiency in sericulture operations. 8. The concept of direct stifling and cocoon cooking simplifies the production process, reducing labor requirements and streamlining operations for cocoon harvesting.
F	Budget and expenditure:	Budget: Rs. 10.63 lakh Expenditure: 5.18 Lakh
	42nd RAC Suggestions	<ol style="list-style-type: none"> 1. The new type of mountages developed under the project should be test verified through OST/OFT mode for further fine-tuning and need based modifications and comparatively validate the findings/ project outcome. 2. The PI should ensure the establishment of strong linkages between manufacturers/entrepreneurs and beneficiaries to facilitate a consistent and uninterrupted supply of montages wherever they are required.
Collaborative projects with other Institutes as CI		
8.	Project code and title:	BPS-01013-CN- Utilization and diversification of silkworm pupae products for human & animal consumption and composting.
A	Investigators	PI: Mahesh DS, CI: James Kiesa,
B	Project period :	September 2020 – August 2022 (Extended up to March 2023)
C	Objectives:	<ul style="list-style-type: none"> • To evaluate nutrients and bioactive compounds in silkworm pupae of Eri and Muga. • To characterize proteome of Eri and Muga silkworm pupae.

D	Progress achieved:	<ul style="list-style-type: none"> ➤ The proteomics studies by using samples of pre-pupae and matured pupae (fresh whole pupae, dried pupae, cuticle and flesh) reared on different host plants of eri silkworms being carried out at IIT, Guwahati ➤ The eri pupal samples viz., fresh pupae, dried pupae, cuticle, inner bio-soft (descent) are prepared for the analysis of complete biochemical and structural components by using advanced instruments viz, XPS and FE-SEM. ➤ The shelf-life studies for the eri pre pupae and matured pupae and preparation of the food products for human consumption are under progress at CFTRI, Mysore. ➤ Standardized the de-cuticle procedure for both eri and muga pupae by using different techniques.
E	Utility of Outcome/ future course of action	<ul style="list-style-type: none"> • Creation of entrepreneurs by licensing the pupal products thus by generation of employment. • Information generated would be useful for further by-product utilization research.
F	Budget and expenditure :	Budget: 11.88 Lakhs Expenditure: 9.72 Lakhs
	42nd RAC Suggestions	Continuing the project activities into the second phase of the project is very much essential for the development of preservation techniques for Eri pupae.

AGENDA NO. 5: CONCEPT NOTES OF NEW RESEARCH PROJECTS FOR PPROVAL:

1	Project title:	Evaluation of suitable model for Muga & Eri IFS for Assam condition
A	Investigators	D. Mech, PI, Vijay. N., CI
B	Project duration:	2 ½ Years (30 months)
C	Objectives:	<ol style="list-style-type: none"> 1. To identify existing muga and eri based IFS in different locations 2. To ensure optional utilization of available resources in the existing IFS in different farming situations 3. To evaluate suitable muga and eri based IFS model through assessment of yield and economics per unit area
F	Expected outcome & utilization	Study will enable to develop suitable model for muga and eri based IFS separately for sustainable livelihood of farmers in different potential areas in Assam. Proper and adequate utilization of available resources farm income of the farmers will be increased per unit area
G	Budget	38.50 Lakh
	42nd RAC Suggestions	<ol style="list-style-type: none"> 1. Prior to selecting potential locations, conduct a comprehensive survey to analyze their feasibility for integration. Based on the documented data during the survey, formulate and study 2-3 IFS models for further examination within the project. The primary objective should be location identification, and the secondary objective should be the development of IFS-based models. Consider excluding the proposed evaluation objective. 2. The questionnaire should be sent to CO Bengaluru for vetting. 3. The detailed survey report may be vetted by RCS in terms of statistical analysis and linkages of all components for finalizing the selected models/locations for study. 4. Instead of Manipur state, Meghalaya can be explored as it has more potential and comparatively a greater number of beneficiaries are involved in Sericulture practices. 5. Sustainability index should be mandatorily studied under each model during the project.



		<p>6. To ensure effective survey and implementation, The PI should make it a collaborative effort and consider involving various CSB stations, KVKs, and other relevant parties.</p> <p>7. Modify the title of the project as “Development of Suitable Muga and Eri base Integrated Farming System (IFS) for North East India”.</p> <p>The project is recommended for approval, provided that all the suggestions made by the committee are addressed.</p>
2	Project title:	Characterization and evaluation of Soalu (<i>Litsea monopetala</i>) accessions for muga silkworm (<i>Antheraea assamensis</i>) rearing
A	Investigators	Om Prakash Patidar, PI; Dharmendra Kr Jigyasu, CI; Aftab A. Shabnam, CI;
B	Project period:	3 year (Jan 2024 to Jan, 2027), 36 months.
C	Objectives:	1. To evaluate and characterize the Soalu accessions towards varietal development
F	Expected outcome & utilization	It is expected to identify most suitable Soalu accession for commercial cultivation to enhance Muga production and productivity. This study will also support to identify base material for future breeding programs.
G	Budget	
	42nd RAC Suggestions	<p>1. Check the establishment of rooted saplings in the 3rd year of the project.</p> <p>The project is recommended for approval with one project assistant, provided that all the suggestions made by the committee are addressed.</p>
3	Project title:	Economic analysis of Tapioca based Eri-culture in Assam & Nagaland
A	Investigators	Vijay N, PI, Diganta Mech, CI
B	Project period :	Nov 2023- Jan 2025 (15 Months)
C	Objectives:	<p>1. To assess the impact of different percentage of leaf utilization on tuber production and eri rearing performance in Assam & Nagaland.</p> <p>2. Economic analysis of tapioca cultivation with respect to eri culture.</p>
F	Expected outcome & utilization	<p>The expected outcomes of the tapioca-based eri culture project in Nagaland and Assam are as follows:</p> <ol style="list-style-type: none"> 1. Comparative Yield Evaluation 2. Cost-Benefit Analysis & Economic Viability 3. Break-Even Analysis & Payback Period 4. Recommendations 5. Promotion of Sustainable Sericulture 6. Policy Advocacy
G	Budget	
	42nd RAC Suggestion	<p>1. While selecting farmers, prioritize those who are already engaged in tapioca cultivation, with a focus on individuals who genuinely require assistance, have limited resources, or are enthusiastic about the initiative.</p> <p>2. Instead of 20 samples, take 24 samples (12 samples per state) in 3 different groups in each state (4 samples from each group based on their economic status) for clear in-depth statistical analysis.</p> <p>The project is recommended for approval for a duration of 18 months, provided that all the suggestions made by the committee are addressed.</p>

4	Project title:	Introduction and Popularization of Eri-culture in castor growing areas of Gujarat
A	Investigators involved	CMERTI Lahdoigarh: Mahesh D S, PI; Vijay N, CI; Suraj Pal, CI; From Kalyan Foundation, Palanpur, Gujarat: Dr R. K. Mishra, Seri-Expert. Mr. Satish Singh, Mr. Nitin Jaimini,
B	Project period :	November 2023 to October 2025 (2 years)
C	Objectives:	1.Introduction of Eri-culture technologies in the castor growing areas of Gujarat state. 2.Popularization of Eri-culture in the castor growing areas of Gujarat state to enhance the farmers income.
F	Expected outcome & utilization	-Introduction of ericulture as an enterprise in non-traditional areas of Gujarat State, contributing to increased silk production and aligning with India's Sustainable Development Goals (SDGs). - Use of bioformulations or bio-control agents in castor pest and disease management integrated with nonchemical approaches would benefit eri silkworm rearing besides saving the castor yields.
G	Budget	
	42nd RAC Suggestions	1. Change the introduction-based objectives to "Evaluation, Optimization, and Standardization of Eri-culture" to more accurately reflect the project's focus. 2. Clearly highlight the novel aspects/approaches to be adopted/implemented. 3. In order to achieve the objectives, a detailed action plan should be chalked out, including specific tasks, timelines, and resource allocation and accordingly the methodology should be re-casted to outline the step-by-step approach for the successful execution. 4. Budget seems to be on the higher side which needs to be relooked and justified sufficiently. The project is recommended for approval, provided that all the suggestions made by the committee are addressed.
5	Project title:	Adoption of Improved Technologies of Muga Culture for Enhancing Cocoon Production in Manipur
A	Investigators	Kh. Subadas Singh, PI; L. Somen Singh, CI; Vijay N, CI
B	Project period :	3 years
C	Objectives:	To improve the socio-economic status of muga farmers of Imphal East district of Manipur by enhancing cocoon production through adoption of improved technologies of muga culture.
F	Expected outcome & utilization	This study will help to boost production and productivity of muga silk in Manipur by adopting improved technologies, ultimately improvement of socio-economic conditions of rural population through muga culture.
G	Budget	
	42nd RAC Suggestions	1. Split the objectives into two distinct parts: the first part focusing on technological intervention for improvement and the second part emphasizing on the socio-economic upliftment. 2. It is important to include not only adoption and knowledge gain but also profitability as a key parameter for evaluation. Specify the sampling criteria, sample size, and data collection methods to comprehensively assess these aspects within the project. 3. The PI should ensure that the expected outcome is observable on the ground by the end of the project duration.

	The project is recommended for approval, provided that all the suggestions made by the committee are addressed.	
6	Project title:	Development of clonal propagation methods in Borpat (<i>Ailanthus grandis</i> L.) for its mass multiplication
A	Investigators	Om Prakash Patidar, PI; D K Jigyasu, CI;
B	Project period:	3 year (Jan 2024 to Jan, 2027), 36 months.
C	Objectives:	1. To evolve simple, rapid and inexpensive clonal propagation techniques for mass multiplication of Borpat. 2. Optimization of most suitable technique for mass multiplication of Borpat.
F	Expected outcome & utilization	It is expected that a simple, rapid and inexpensive clonal propagation techniques for mass multiplication of true to type plants of important Eri host plant Borpat. This will support in augmentation of perennial host plant availability for eri silkworm rearing.
G	Budget	
42nd RAC Suggestions	1. Explore for collaboration with RFRI (Rain Forest Research Institute) to investigate the feasibility of micro-propagation and other propagation methods. Ensure that their contribution is integrated into the project components and accordingly revise the budget and work allocation in the proposal. The project is approved in collaboration with RFRI, provided that all the suggestions made by the committee are addressed.	

AGENDA NO. 6: REVIEW OF THE PROGRESS OF ON-GOING PROJECTS

#	DETAILS	
1.	Project code and title:	AIB-05012-SI: Inter and intra-specific hybridization for improvement of eri silkworm, <i>Samia ricini</i> Donovan
A	Investigators involved	Reeta Luikham (PI), Aftab A. Shabnam (CI).
B	Project period :	4 years (March, 2020 – February, 2024)
C	Objectives:	To develop improved cross breeds/hybrids of Eri silkworm with higher fecundity and silk yield for commercial exploitation.
D	Progress achieved:	Selection of 08 fecundity lines was carried out from different cross combinations during preparation of F ₂ generation seed. These lines were reared (cellular rearing) in F ₂ generation and recurrent selection of fecundity lines was carried out during preparation of F ₃ seed. The expression level of fecundity trait was calculated and only those lines were carried forward which showed fecundity above or on par with the selected fecundity lines. Hence, only C3FL1/11 (Fecundity: 465 Nos.), C2FL3/21 (Fecundity: 468 Nos.), C7FL1/29 (Fecundity: 484 Nos.) and C2FL3/31 (Fecundity: 478 Nos.) were selected and reared. After harvesting the cocoons, higher cocoon weight i.e. (C3FL1/11-CWA1=4.06 g), (C2FL3/21-CWB1=4.60 g), (C2FL3/21-CWB2=4.84 g), (C7FL1/29-CWC1=4.55 g) (C7FL1/29-CWC2=4.45 g), (C7FL1/29-CWC3=4.75 g), (C7FL1/29-CWC4=4.23 g), (C7FL1/29-CWC1=4.55 g) and (C2FL3/31-CWD1=4.16 g) were selected for cocoon lines (above 4 gram). Grainage activities of 04 fecundity lines (C3FL1/11, C2FL3/21, C7FL1/2 and C2FL3/31) to produce F ₄ seed are in progress. Hybrid combination: Rearing of 04 Parental strains (BYP, TGBP, GYP and C2) for preparing 03 hybrid combinations (BYP x TGBP, C2 x BYP and GYP x TGBP) was completed for their large scale trial at Institute level. Cocoons were harvested and kept for emergence at room temperature. Grainage activities of 04 parents

		are under progress <u>Inter-specific hybridization</u> Larval mortality has been recorded during first and second instars of three lines crossed with wild eri. The effort for inter-specific hybridization will be made again based on the availability of wild eri.
E	Specific outcome:	08 'fecundity' and 09 'cocoon trait plus fecundity' lines selected based on fecundity above 400 and cocoon weight above 4 g. Recurrent selection in F ₃ generation carried out. F ₄ generation rearing in progress.
F	Budget and expenditure :	Budget: Rs. 23.15 lakhs & Expenditure: 14.12 lakhs
42nd RAC Suggestions		<ul style="list-style-type: none"> ▪ Continue the efforts for inter-specific hybridization. ▪ Continue with recurrent selection of fecundity and cocoon weight line and if positive results are obtained, the investigators may seek extension of the project for achieving further meaningful conclusions. ▪ As suggested by RCS, the Investigators should focus on hybrid evaluation. Continue with station trails of hybrid combinations only if their performance is found superior during initial evaluation trials. ▪ The RC of the Institute should review the progress of the project in next 03 months and decide on its continuity.
2.	Project code and title:	AIB 5013 SI: Impact of elevated CO₂ and temperature on muga silkworm and its primary host plant
A	Investigators involved	D. K. Jigyasu (PI, w.e.f. 01.08.2022), Amit Kumar (PI up to 31.07.2022 & Co-PI w.e.f. 01.08.2022); Aftab Ahmad Shabnam (CI); G. Subramanyam, (CI up to 26.07.2021)
B	Project period :	March 2020 to Feb 2023
C	Objectives:	<ol style="list-style-type: none"> 1. To assess the influence of elevated CO₂ and temperature on growth and yield attributes of primary host plant (Som). 2. To assess the impact of elevated CO₂ and temperature on muga seed crop production, cocoon characteristics and fecundity. 3. To design strategies for adoption in muga silk worm rearing under the changing environmental scenario in Assam.
D	Progress achieved:	<ul style="list-style-type: none"> • Imposing treatment of elevated CO₂ at 550 ppm concentration and elevated temperature (ambient +1.5 °C) are presently going on as per revised plan with constant monitoring and data recording. • The 1st seed crop rearing and grainage activities are completed after treatment for six months on som plants during January-February, 2023. • Biochemical analysis of six months treated Som plants was estimated and compared using paired t-test. • The average larval weight was recorded highest in OTC-4 (control) (13.24 gm) followed by OTC-1 (eCO₂) (11.87 gm), OTC-2 (eTemp) (10.61 gm) and OTC-3 (eCO₂+eTemp.) (10.52 gm). • The average cocoon weight was recorded highest in OTC-4 (6.86 gm) followed by OTC-1 (6.18 gm), OTC-3 (5.63 gm) and OTC-2 (5.20 gm). • Muga silkworm rearing was conducted in 2nd seed crop (July-August) under the OTCs.
E	Specific outcome:	Exposure of Som plants to eCO ₂ and varied temperature regimes to assess the impact on plant growth, biochemical attributes and feeding behavior of muga silkworm.
F	Budget and expenditure:	Budget: Rs. 44.72 lakh Expenditure till September, 2023: 35.4211 Lakh
42nd RAC Suggestions		1. Evaluate impact of elevated CO ₂ and temperature on moisture

	content. 2. Explore the possibility of studying terpenoids & sterols which are responsible for altered feeding behavior in silkworms. 3. Continue the project as per revised milestones.
3. Project code and title:	ARP-05015-SI: Development of chemical based control measures for management of pebrine disease in Muga silkworm, <i>Antheraea assamensis</i> Helfer
A Investigators involved	Arun Kumar K.P (PI)
B Project period:	Jan 2021 – Dec 2023
C Objectives:	<ul style="list-style-type: none"> • Effect of different chemical disinfectants and antifungal substances on survivability and infectivity of microsporidian spores • Efficacy analysis and field application of chemical disinfectants suitable for management of pebrine disease.
D Progress achieved:	<ul style="list-style-type: none"> • Egg washing studies with different chemicals and optimization of protocol to avoid transovum infection. OST trails at research extension stations of CMER&TI and MSSO units. • The degree of capacity of controlling microsporidian infection of the disinfectants will be deduced.
E Specific outcome:	<ul style="list-style-type: none"> • Protocols for field application of short-listed chemicals and egg washing technique are being optimized. • The Degree of capacity of controlling microsporidian infection of the disinfectants is being studied.
F Budget and expenditure :	Budget: 19.92 lakhs Expenditure: 10.61 lakhs
42nd RAC Suggestions	<ol style="list-style-type: none"> 1. Plan for OSTs in collaboration with the DoS & ASRs, as MESSO is primarily involved in seed production and not large-scale commercial operations. 2. Continue the project work as per milestones
4. Project code and title:	APR-05018-MI: Effect of various host plants separately and in combination on Rearing and grainage performance of Muga silkworm, <i>Antheraea assamensis</i> Helfer
A Investigators involved	DK Jigyasu (PI w.e.f. 1 st July, 2022), Kh. Subadas Singh (PI up to 30 th June, 2022), S. A. S. Rahman (CI), Vikram Kumar (CI), D. Mech (CI, w.e.f. Nov., 2022)
B Project period :	March 2021 – Feb 2024
C Objectives:	<ol style="list-style-type: none"> 1. To study the effect of various host plants separately and in combination on rearing performance of muga silkworm. 2. To study the effect of various host plants separately and in combination on grainage performance of muga silkworm.
D Progress achieved:	<ul style="list-style-type: none"> • Muga silkworm rearing on primary (Som and Soalu) and secondary (Dighloti and Majenkari) host plants and its combinations is conducted during seed and commercial crops. • Data of rearing and grainage of muga silkworm were compilation. • Highest larval weight and highest larval mortality of muga silkworms was recorded on Soalu rearing and its combination. • Highest mortality was observed in Mejankari solo and combinational rearing. The highest mortality was recorded due to continuous rainfall, high temperature and humidity lead to outbreaks of viral disease.
E Specific outcome:	Assessment of Muga silkworm rearing on different host plants in seed and commercial crops.
F Budget and expenditure:	Budget: Rs. 15.42 lakh (CMER&TI: 7.62 lakh), Total Expenditure till September, 2023: 6.51 Lakh
42nd RAC Suggestions	1. Assess different combinations to determine which one provides the

	<p>highest immunity, disease resistance and survivability.</p> <p>2. In the final findings, provide season-wise and plant-wise recommendations for the best combinations. Additionally, study key grainage parameters and include these findings in the final recommendations.</p> <p>3. Continue the project as per milestones</p>
5. Project code and title:	APS-05020-MI - Commercial egg production technology for ericulture
A Investigators involved (PI & Co-I's)	Mahesh D S, (PI), Lalith Natarajan, , EBSF, Topatoli, (Co-PI), Arunkumar K P, (CI)
B Project period :	February 2022 to January 2024
C Objectives:	<p>a. Standardization and selection of suitable egg laying device for commercial loose egg production in eri.</p> <p>b. Synchronization of hatching and subsequent rearing.</p> <p>c. Popularization of loose egg production in Ericulture.</p>
D Progress achieved:	<ul style="list-style-type: none"> • Studies on black boxing schedules for synchronization of hatching by using different days laid eggs are being continued for the final confirmation. • Large scale trial on commercial loose egg production is being carried out at EBSF, Topatoli. The calculation of economics for commercial loose egg production of selected egg laying devices is being continued. • Standardization of mass mother examination, early emerged male moth and seed preservation techniques for commercial egg production are being carried out for conclusive results. • Development of standard package of practice for loose egg production is being carried out.
E Specific outcome:	• New commercial loose egg production techniques in Ericulture
F Budget and expenditure:	Total budget is 14.65 Lakhs Expenditure is 7.95 Lakhs
42nd RAC Suggestions	<p>1. Upon considering the request for extension from PI, the committee recommends the extension of the project duration upto March 2023 without any additional financial support.</p> <p>2. Continue the project as per milestones.</p>
6. Project code and title:	APS-05021-EF: Studies on population diversity and role of host plant volatile cues for enhancing egg laying in temperate tasar (Vanya) silk moths <i>Antheraea proylei</i>.
A Investigators involved	S Subharani Devi (PI), Y. Debaraj (CI), K MVijaya Kumari (PI)
B Project period :	Jan., 2022- Dec. 2024
C Objectives:	<ul style="list-style-type: none"> • To survey and establish population diversity of oak tasar silk moths across NER. • To establish potent food plants (Host) for oak tasar silk moths, <i>A. proylei</i> for egg production. • To isolate and evaluate highly suitable host plant volatiles to activate/increase egg laying in oak tasar silk moth. • To standardize the synthetic oviposition stimulant blends to enhance egg production in oak tasar silk moths and establishing the efficacy of developed technology. • To evaluate the synthetic volatile blend in large scale at oak tasar seed production centers.
D Progress achieved:	Surveyed and collected live <i>Antheraea frithi</i> cocoons from Imphl east and Kangpokpi district of Manipur. Cocoons of <i>A. proylei</i> and other <i>Antheraea</i> sp. supplied to other collaborating Institutes viz. Manipur University for molecular characterization and IIHR for GC-EAD studies from different host plant leaf as well as stem volatiles. Conducted grainage of <i>Antheraea proylei</i> cocoons reared on different food plants and observed maximum average realized eggs

		in <i>Q. serrata</i> (174 eggs) followed by <i>Q. griffithii</i> (157 eggs) and <i>L.dealbata</i> (101 eggs) fed plants. Rearing performance of <i>A. proylei</i> fed on <i>Quercus serrata</i> showed highest ERR (26.90 %). The elemental composition of <i>A. proylei</i> cocoons collected from different NE states by EDX technique showed the character spectrum of different elements. It was found that carbon (C) showed the highest percentage (53.13 to 60.70) % of all the elements.
E	Specific outcome:	Surveyed and collected live <i>Antheraea frithi</i> cocoons from Imphal East and Kangpokpi district of Manipur. Grainage performance of <i>A. proylei</i> fed on different food plants showed maximum average realized eggs in <i>Q. serrata</i> (174 eggs). Rearing performance of <i>A. proylei</i> fed on <i>Quercus serrata</i> showed highest ERR (26.90 %). EDX analysis of elemental composition of <i>A. proylei</i> cocoons collected from different states showed the highest percentage of carbon (53.13 to 60.70) % of all the elements.
F	Budget and expenditure:	Rs.122.49 lakhs (Total) & Rs. 12.72 lakhs (RSRS, Imphal)
42nd	RAC Suggestions	1. Information on Physical & financial progress of the collaborating Institutes should also be furnished/presented. 2. Recheck on the potential fecundity to ensure accuracy/reliability of the data.
7.	Project code and title:	MOE-05022-MI: Evaluation and popularization of improved technologies developed in the field of Muga, Eri and Oak sector for Northeastern India (OST/OFT of CMER&TI)
A	Investigators involved (PI & Co-I's)	D K Jigyasu, CMERTI (PI), Sri Suraj Pal, REC-Fatehpur (CI), James T Keisa, CMERTI (CI), Y Debaraj, RSRS-Imphal (CI), L Somen Singh, RSRS-Imphal (CI), Sri. B N Choudhury, RSRS-Boko (CI), Sri SAS Rahman, RSRS-Boko (CI), Dr D. Mech, REC-Lakhimpur (CI), Aftab A Shabnam, CMERTI (CI), S. Subharani Devi, RSRS-Imphal (CI), Arun Kumar KP, CMERTI (CI), Amit Kumar, CMERTI (CI), Kh. Subadas Singh, CMERTI (CI), Dr Vijay. N, CMERTI (CI), Mahesh D S, CMERTI (CI), Manjunath R N, CMERTI (CI), Mr. Abhishek Singh, MESSO (CI)
B	Project period:	February 2022 to January 2024
C	Objectives:	<ul style="list-style-type: none"> • To popularize various technologies in different stages developed by the Institute • To further create awareness for technological intervention among the farmers and beneficiaries • To increase the overall cocoon production.
D	Progress achieved:	<ul style="list-style-type: none"> • 10 kg of Castor (NBR) seeds were supplied to DoS, Pathankot, Punjab for popularization of NBR-Castor for eri silkworm. • 200 Kesseru seedlings were supplied to 2 farmers at Golaghat district. • 2 kg NBR castor seeds have been supplied to eri farmers at Mariani area. • 100 kg of Castor (NBR) seeds were supplied to DoS, Mizoram for popularization of NBR-Castor for eri silkworm. • 18 kg Borpat seeds for raising of seedling for the popularization of perennial host plant of eri silkworm have been collected. • Single leaf bud cuttings and bud grafting of Som morphotypes of S3 and S6 have been prepared for the raising of saplings. • Transferring of seedlings of superior variety of Kesseru (HF-008 and HF-005) in poly bags for supply. • 400 seedlings of Kesseru plant are supplied to two farmers in Sivasagar.
E	Specific outcome:	Awareness and popularization of technologies in muga, eri and oak tasar.
F	Budget and expenditure:	Budget: Rs. 8.84 lakh Expenditure till September, 2023: 0.61 Lakh
42nd	RAC Suggestions	1. Recording OST/OFT data in comparison to the project outcome/results and validating them is essential to make informed



		<p>decisions about whether to implement these technologies to the field.</p> <p>2. Henceforth, each CI should present their respective components individually, focusing on specific improvements and progress for better clarity and assessment.</p> <p>3. Continue the project and achieve yearly targets as fixed in Action Plan (2023-24)</p>
8.	Project code and title:	ARP05023CN: Muga and Eri silkworm disease monitoring in north eastern states of India
A	Investigators involved	Bitupon Das (PI), Lopamudra Guha (Co-PI) and all Scientists of CMER&TI & MESSO units (CIs).
B	Project period:	March 2023 to February 2028
C	Objectives:	1. To monitor silkworm diseases during grainage and rearing and its management with respective DoS in North Eastern states
D	Progress achieved:	<ul style="list-style-type: none"> • Region wise committee for monitoring prepared with nominated team leader. • Review meeting with all in-charges/technical personnel of MESSO was conducted in the month of August 9th for carryout monitoring works. • Monitoring of diseases and suggestions of remedial measures for bhodia crop in MESSO and ASRs field undertaken.
E	Specific outcome:	Will be appraised by the PI during the meeting
F	Budget and expenditure:	Budget: 11.88 Lakhs Expenditure: 0.295 Lakhs
	42nd RAC Suggestions	<p>1. Investigators to create a webpage by using the data collected in this project and previous database to create forecasting and forewarning for timely benefit of the beneficiaries.</p> <p>2. Continue the project as per the milestones.</p>
9.	Project Code & Title	AIT05024EF - Advanced-Level Institutional Biotech Hubs at CMERTI-Jorhat Assam (Phase-II)
A	Investigator	Dr. Arun Kumar K P (P.I), Sh. Bitupan Das (C.I), Dr. Mahesh DS (C.I),
B	Project period:	3 Years, February 2023 – February 2026
C	Objectives:	<p>1. Collection and maintenance of different eco-races and strains of eri silkworms.</p> <p>2. Genotyping by Sequencing of selected eco-races and strains of eri silkworms.</p> <p>3. Analysis of SNP data for use in different downstream applications for the improvement of eri silkworm</p>
D	Progress achieved:	<ul style="list-style-type: none"> • Collected ecoraces from Lakhimpur (SR012), Kokrajhar (SR014) and Borduar (SR001) were characterised according to their morphological traits and are maintained at the institute. • Cocoons from Dhansiripar (SR020) ecoraces were collected and grainage is going on.
E	Specific outcome:	<ul style="list-style-type: none"> • 2nd Generation grainage of selected strains of Lakhimpur (SR012) and Kokrajhar (SR014) ecoraces completed. 3rd generation rearing of both ecoraces started. • 2nd Generation grainage and rearing of selected strains of Borduar ecorace (SR001) completed. 3rd generation grainage is going on. • 4 eco-races of eri have been collected.
F	Budget and expenditure:	Budget – 57.81 Lakhs, Expenditure – 1.80 Lakhs
	42nd RAC Suggestions	<p>1. Efforts should be diligently made to collect all eco-races and should be maintained at GCC Chenijan, CMERTI & RSRS Boko.</p> <p>2. Continue the project as per milestones.</p>

AGENDA NO. 7: R&D HIGHLIGHTS OF THE INSTITUTE Jan 2023 – Sept 2023

Director of the Institute presented the R&D highlights of the institute in the beginning of the meeting. Chairman and members appreciated the progress made by the Institute.

AGENDA NO. 8: TRANSFER OF TECHNOLOGY (TOTs) PROGRAMMES

The progress of ToTs was presented & discussed in the ongoing project MOE05022MI.

AGENDA NO. 9: EXTENSION COMMUNICATION PROGRAMMES

Progress of extension activities was presented by Dr. D. Mech, Scientist-D. It was suggested to maintain the data base of the stakeholders covered under various extension communication programmes and complete the left-over target as per annual action plan 2023-24.

AGENDA NO. 10: CAPACITY BUILDING & TRAINING PROGRAMMES

Progress under capacity building and trainings was presented by Sh. Bitopan Das, Scientist-D. Progress achieved so far was appreciated and it was advised to make necessary efforts to achieve the leftover annual target for the year 2023-24.

AGENDA NO. 11: ANY OTHER POINTS


- All the new technologies developed by CMERTI should be thoroughly validated against existing and primitive technologies. Upon fully validating the technologies, a technology inventory comprehensively detailing all the package of practices to be prepared and the same to be prioritized for inclusion in the SILK SAMAGRA scheme so that the beneficiaries associated in the sector are benefitted.

AGENDA NO. 12: CONCLUDING REMARKS FROM RAC CHAIRMAN & MEMBERS

- Publishing technology descriptors and extension literature in local languages is highly recommended. This approach ensures that essential information reaches a broader audience, promoting greater understanding and adoption of these technologies within local communities.
- Regular adoption and validation trials should be conducted, with a focus on comparing the new technologies/methods with traditional or control practices. These trials should systematically record and evaluate improvements along with profitability at both the laboratory and farmer levels to ensure the effectiveness of the new technologies.
- The internal Research Council (RC) should conduct a thorough evaluation of projects, with a particular focus on their objectives. Only projects that align with genuine needs should be presented to the Research Advisory Committee (RAC).
- To comprehensively survey and collect all the eco-races again and ensure their maintenance in Institute's facilities.
- Race maintenance and improvement should be a regular programme of the Institute.
- Scientists should make use of Silk Samagra-2 while preparing the projects.
- Muga silk, with its intrinsic ties and pride to Assamese culture, deserves to be cherished and protected. The challenges posed by global warming, pollution, and deforestation must be addressed with collective efforts to ensure that this regional treasure continues to shine bright in future.
- State DoSs should take necessary steps towards mass multiplication of bio-logical control for uzi fly which is very much crucial in pest management and ecological balance.

- The Department of Sericulture (DoS) in Mizoram has recognized the need for intervention in the state's sericulture sector and have expressed their enthusiasm for utilizing the benefits of R&D outcomes of the Institute. CMER&TI and MESSO should support in all the technical activities for popularization/enhancement of Muga and Eri culture in Mizoram.
- Director, DoS BTC, appreciated the work of the Institute and expressed that more focus to be given on developing technologies that can be easily adoptable by the farmers. The willingness of farmers to readily embrace technologies provided by the Central Silk Board (CSB) reflects the reliability of the Institute's research and development outcomes, making it a dependable resource for advancing the sericulture sector.
- Collaborative efforts are essential for the Muga industry's sustainability, requiring coordinated action between CSB, DOS, and farmers.
- State has to take a lead role in ensuring that farmers are rearing certified disease free layings sourced from licensed grainures/MESSO.
- The Committee strongly recommended the immediate engagement of at least one breeder at the Institute to carry out continuous breeding-based research efforts.

The meeting was ended with vote of thanks by Dr. Manjunath R.N., Scientist-C, PMCE Division, CMER&TI, Lahdoigarh.


(Dr. B. C. Deka)
Chairman-RAC

**LIST OF PARTICIPANTS IN THE 42nd RESEARCH ADVISORY COMMITTEE MEETING OF
CMER&TI, LAHDOIGARH HELD ON 9-10, OCTOBER 2023**

Chairman

1. Dr. B C Deka, Vice Chancellor, Assam Agricultural University, Jorhat,

Members

2. Prof. L.K. Hazarika, Retd. Professor & Head of Entomology, AAU
3. B.K. Singh, Rtd. Director (CMER&TI, Lahdoigarh),
4. Prof. P. K. Neog, Director, EEI-AAU, Guwahati
5. Shri Ataur Rahman, Additional Director of Sericulture, Govt. of Assam
6. Sh. Ajit Pathak, Deputy Director of Sericulture, Govt. of Assam
7. Shri. Mhathung kikon, Director of Sericulture, Govt. of Nagaland
8. Shri. Vikehelie Pienyu, Joint Director of Sericulture, Govt. of Nagaland
9. Dr. Kartik Neog, Director, MESSO, CSB, Guwahati
10. Sri Robin Bharali, Rearer, Representative Sericulture Farmer, Sivasagar-785640
11. Dr. Jhansi Lakshmi, Scientist-D, RCS, Central Silk Board, Bangalore
12. Dr. Prashanth Sangannavar, Scientist-C, RCS, Central Silk Board, Bangalore
13. Dr. K. M. Vijaya Kumari; Director, CMER&TI, Lahdoigarh

Scientists

14. Sh. Suraj Pal, Scientist-D, EREC, Fatehpur, Uttar Pradesh
15. Dr. Reeta Luikham, Scientist-D, CMER&TI, Lahdoigarh
16. Dr. D. Mech, Scientist-D, REC, Lakhimpur
17. Sh. S A S Rahman, Scientist-D, RSRS, Boko
18. Dr. Laishram Somen Singh, Scientist-D, RSRS, Imphal
19. Dr. Aftab A. Shabnam, Scientist-D, CMER&TI, Lahdoigarh
20. Sh. Bitupan Das, Scientist-D, CMER&TI, Lahdoigarh
21. Dr. Sinam Subharani Devi, Scientist-D, RSRS, Imphal
22. Dr. Arun Kumar K.P., Scientist-D, CMER&TI, Lahdoigarh
23. Dr. D.K. Jigyasu, Scientist-C, CMER&TI, Lahdoigarh
24. Dr. K. Subadas Singh, Scientist-C, CMER&TI, Lahdoigarh
25. Dr. Vijay N., Scientist-C, CMER&TI, Lahdoigarh
26. Dr. Mahesh D.S., Scientist-C, CMER&TI, Lahdoigarh
27. Dr. Manjunath R.N., Scientist-C(R&S), CMER&TI, Lahdoigarh
28. Dr. Om Prakash Patidar, Scientist-C, CMER&TI, Lahdoigarh
29. Sh. Roshan Lal Meena, Scientist-B, CMER&TI, Lahdoigarh

Invitees

30. Sh. Anjan K. Chakravarty, Director, Dept. of Sericulture, BTC-Kokrajhar
31. Dr. Thlatea Pachuau, Sr. Scientist, Directorate of Sericulture, Govt. of Mizoram
32. Sh. B. Lalchhuana, Deputy Director, Directorate of Sericulture, Govt. of Mizoram

Technical staff/Research Fellows

33. Smt. Asmat Jan, AD (Comp)
34. Sh. Simanta Saikia, SFA
35. Sh. Kalpajyoti Gogoi, JRF
36. Sh. Akib Hussain, JRF
37. Sh. Suraj K Shah, JRF
38. Ms. Wahengam Sapana Devi, PA
39. Ms. Raisa Begum, PA
40. Sh. Debajani Nath, JRF