Proceedings of the 58th meeting of Research Advisory Committee of CSB-CSRTI, Berhampore held during 27th – 28th March 2024

The 58th meeting of the Research Advisory Committee (RAC) of CSB-CSRTI, Berhampore was held during 27-28th March 2024 in hybrid (physical & virtual) mode to review the progress of R&D projects/programmes under the Chairmanship of Dr. Swarup Kumar Chakrabarti, Former Vice-Chancellor, Uttar Banga Krishi Viswavidyalaya, West Bengal. The new committee comprised Dr. Sailesh Chattopadhyay, Professor, Chief Scientist & Head, Dept. of Forest Biology & Tree Improvement, Birsa Agricultural University, Ranchi; Dr. Prabir Kumar Bhattacharyya, Associate Professor, Department of Genetics & Plant Breeding, Bidhan Chandra Krishi Viswavidyalaya, West Bengal; Dr. Siddhartha Deb Mukhopadhyay, Professor & Head, Department of Agricultural Extension, Visva-Bharati University, West Bengal; Dr. Sukhen Roy Chowdhary, Former Director, Central Silk Board; Dr. Atul Kumar Saha, Former Scientist-D, Central Silk Board; Commissioner, Textiles & Sericulture, Govt. of West Bengal; Director, Department of Sericulture, Govt. of Assam; Director, Dept. of Handlooms, Handicrafts & Sericulture, Govt. of Tripura; Director, Dept. of Sericulture, Govt. of Manipur; Md. Abdur Rashid, Rearer representative; Mr. Ansarul Sk., Reeler representative; Director (Tech) & Director, NSSO, Central Silk Board; Scientist-D & Head, Research Coordination Section, Central Silk Board; Representative, Silk Mark Organization of India (SMOI) and Scientist-D, RSTRS (CSB-CSTRI). Before the meeting commenced, members of the reconstituted RAC participated in a facility tour, which included showcasing key facilities, R&D labs, experimental mulberry plantations and silkworm rearing house.

At the outset, Dr. Rahul K, Scientist-C (PMCE), extended a warm welcome to the Chairman, members of the reconstituted RAC, scientists from the institute and its affiliated units, representatives from the Department of Sericulture (DoS), Junior Research Fellows (JRFs), Project Assistants (PAs), and other participants to the 58th RAC meeting. He introduced the newly constituted RAC members to the house and conveyed appreciation to the former Chairman, Dr. Chirantan Chattopadhyay, and the committee members for their significant contributions to institutional activities.

Dr. Jula S Nair, Director, CSRTI-Berhampore & Member Convener, RAC warmly welcomed the Chairman and all the members. She expressed that the establishment of this esteemed committee represents a significant stride forward in the institute's endeavor to excel in sericulture research and development. She emphasized that the committee's expertise will help the institute in refining strategies and ensuring that research remains aligned with the evolving needs of the industry.

The Chairman in his opening statement warmly greeted all participants and encouraged active interaction. He inquired about the cost-effectiveness of silk production, trends in silk export-import, and proposed expanding mulberry cultivation in degraded soil, as millions of hectares of degraded land is available for reclamation nationwide. He stressed the need to evaluate new projects based on economic viability and acceptance by farmers. Dr. Prabir Kumar Bhattacharyya & Dr. Siddhartha Deb

Mukhopadhyay emphasized the importance of disseminating results from concluded projects to farmers and ensuring that new projects are tailored to meet their requirements.

Dr. Sukhen Roy Chowdhary stressed the necessity for enhanced productivity, technologies tailored to specific needs, and the adaptability of these technologies. Dr. Atul Kumar Saha underscored the importance of conducting post-authorization trials of new breeds involving farmers, the Department of Sericulture (DoS), and National Silkworm Seed Organization (NSSO). Mr. Surajit Chaudhuri, Deputy Director of Sericulture, Govt. of West Bengal (representative of Commissioner, Textiles & Sericulture, Govt. of West Bengal) suggested the inclusion of farmer representatives from Nadia and Birbhum to understand their needs. He informed about the initiation of eight new CRCs with the objective of fostering sericulture development in West Bengal.

Md. Abdur Rashid, Rearer representative highlighted the issue of root-knot nematode in mulberry. Additionally, he voiced concerns regarding rising fertilizer prices, as well as the growing incidence of grasserie. The Chairman recommended utilizing a formulation developed by IIHR, Bangalore, to address the root knot nematode issue. Dr. Manjunatha GR, CO-Bangalore mentioned that CSB-CSRTI, Mysore has also developed a formulation to combat root-knot nematode. The Director proposed conducting a field study to determine the level of infection and supported the evaluation of different formulations against nematodes, including neem-based formulations. Mr. Ansarul Sk., Reeler representative, expressed concerns about the limited availability of cocoons. Mr. Debasish Chattopadhyay, Scientist D, RSTRS, Malda, advocated for the establishment of an organized cocoon market and ensuring the availability of high-quality cocoons for MRM.

Dr. Jula S Nair, Director, outlined the key research outcomes, extension activities, and training initiatives of the Institute. Additionally, she provided insights into the requirements of the industry and stressed the significance of devising novel concepts to meet these demands. She elaborated on the economic benefits of young age silkworm rearing (Chawki rearing), the establishment of Chawki Rearing Centers (CRC) and various Seri-business activities.

List of participants is appended in Annexure–I.

Subsequently, agenda-wise items were taken up for discussion.

AGENDA NO. 1: CONFIRMATION OF THE MINUTES OF 57th MEETING OF RAC HELD ON 19-20 JULY 2023 AT CSRTI-BERHAMPORE: As no comments were received from the members of the RAC, the minutes of the 57th meeting of RAC were confirmed.

AGENDA NO. 2 & 3: FOLLOW-UP ACTION ON THE GENERAL & PROJECT SPECIFIC RECOMMENDATIONS/ DECISIONS OF THE 57th RAC MEETING

Action taken report on the general recommendations of the 57th meeting of RAC was presented by Dr. K. Rahul, Sci-C, PMCE. Action taken report on the project specific recommendations were presented by the concerned PI's of the respective projects.

AGENDA NO. 3: REVIEW OF NEW RESEARCH PROJECTS FOR APPROVAL [5 Nos. + 1 (Pilot Study)]

1. PIE02021SIC: **Identification and assessment of superior hybrids of polycross population for leaf yield and quality traits in mulberry**

Dr. Yallappa H, Sci-C presented the research project proposal outlining the following objectives along with referees' comments

1. To identify superior mulberry genotypes from polycross population
2. To evaluate shortlisted genotypes for leaf yield and quality traits

The committee recommended the use of regional and local check varieties and emphasized the importance of establishing plantations properly using suitable experimental designs for evaluating F1 hybrids of polycross population. It was advised to include a list of parents of F1 hybrids to be utilized in the project proposal. Additionally, the committee suggested selecting F1 hybrids/varieties with resistance to diseases and pests, particularly powdery mildew, whitefly, and thrips. It was also recommended to identify marker-assisted male components of F1 hybrids of polycross population and employ fingerprinting techniques to identify the true cultivar, which will aid in protecting mulberry varieties in the future.

RAC approved the project with modifications as mentioned

(Action: Dr. Yallappa H, Sci-C)

2. MOEQ2022MIC: Vulnerability of sericulture to climate change in India

Dr. Parameshwara Naik J., Sci-C presented the research project proposal outlining the following objectives along with referees' comments

1. To assess the vulnerability and adaptation strategies of seri-farmers to climate change
2. To explore the potential areas of sericulture based on climatic factors
3. To build the climate resilience among seri-farmers through extension approaches

   Committee suggested the following

The committee advised adopting the Participatory Rural Appraisal (PRA) approach to gather information from farmers without reducing the sample size. The data collection should encompass the farmers' vision and perspectives, agricultural activities, issues arising from climate change, and their impacts. It was suggested to conduct a problem tree analysis to comprehensively capture the data, along with developing adaptation strategies for climate vulnerability and addressing community needs. The investigation team must be trained on various approaches being used in the project for data collection and analysis. The Principal Investigator (PI) requested the inclusion of a soil science expert as Co-Investigator (CI), and it was agreed to include Mr. Ravi Saini, Sci-B, as CI in the project.

The project received RAC approval, with an advice to include the suggestions in work methodology

(Action: Parameshwara Naik J., Sci-C)

3. CFW02023MIC: Study the weaving and knitting performance of West Bengal & North East mulberry silk yarn & comfort value of its fabric

Mr. Arun Kumar, Sci-B presented the research project proposal outlining the following objectives along with referees' comments

1. To analyse the season-wise quality parameters of raw silk and aesthetic properties in woven and knitted fabric of silk yarn produced by different popular reeling techniques in WB and NE regions
2. To identify the best-performing process and best product based on WB & NE silk
3. To improve quality parameters of the yarn regarding fabric and process

Committee suggested the following

- Advised to calculate production cost
- The committee suggested comparing the quality of silk yarn and products from West Bengal and the Northeast region with those from South India
- Advised to find the silk yarn quality parameters pertaining to different products
- Conduct statistical analyses to compare quality parameters of yarn and fabric produced using different technologies
- Collect data on the demand for woven and knitted silk fabric in the area
- Analyze season-wise and machine-wise variations in silk from crossbreeds, multi- and bivoltine races using ANOVA
- Assessment of comfort properties using the Kawabata system

RAC endorsed the project, incorporating the specified modifications

(Action: Mr. Arun Kumar, Sci-B (R&S))

4. BPP02024SIC: In vitro evaluation of potential health benefits of different botanical parts of mulberry

Mr. Rahul Kamidi, Sci-C presented the research project proposal, outlining the following objectives along with referees' comments

1. To identify the phytochemical constituents of different botanical parts of mulberry by mass spectroscopy analysis
2. To evaluate antimicrobial, antioxidant, anti-inflammatory, anti-tumour and osteo-protective properties of different botanical parts of mulberry (*In vitro*)

Committee suggested the following

Use specific plant genotype for the study. Document the developmental stage of different plant parts being utilized for experiments. Ensure that biosafety conditions are cleared by IBSC. Take necessary precautions to dispose of the material used for cell line experiments. Consider the potential utility of the new laboratory being established for other experiments.

RAC approved the project with the aforementioned amendments (Action: Dr. Rahul K, Sci-C)

5. MOE02025SIC: Identification of seri-based IFS model for enhancing productivity and income at farmers' level in West Bengal, Assam and Manipur

Dr. G. Srinivasa, Sci-D presented the research project proposal, outlining the following objectives along with referees' comments

1. To work out the complete budgeting by collecting costs and returns of different crops/enterprises practiced by the farmers in the study area
2. To identify the efficient seri-based crop combinations for different study areas

Committee suggested the following

The study duration should be extended to two years or more. The committee proposed commencing the study by establishing an economic threshold level and measuring economic efficiency as a basis for finding the relationship between enterprises. Additionally, it is recommended to evaluate the contribution of various resources such as fisheries, farming, poultry, etc., in combination with sericulture. Chairman suggested integrating sericulture to farming. The committee noticed the need for inclusion of a Co-Investigator (CI) with a background in Statistics/Economics due to the impending retirement of the PI. Following extensive deliberation, the committee recommended the inclusion of Dr. Arnab Roy from CTR&TI, Ranchi, as a CI.

Incorporating the stated modifications, the project obtained RAC approval

(**Action: Dr. G. Srinivasa, Sci-D**)

6. CSB-BER-RCN-25: Development of anti-microbial sheet for use in mulberry silkworm rearing [Pilot Study]

Dr. Mihir Rabha, Sci-C presented the research project proposal with the following objectives

1. To develop a low cost antimicrobial sheet for use on silkworm rearing bed
2. To evaluate efficacy of the antimicrobial sheet against silkworm pathogens

The committee sought clarification on the chemicals to be used as antimicrobial agents and the type of paper material intended for use in the experiments. The committee expressed satisfaction with the antimicrobial chemicals that have been shortlisted and recommended experimenting with materials including paraffin paper, kraft paper, newsprint paper, or any other suitable option.

RAC approved the pilot study

(**Action: Dr. Mihir Rabha, Sci-C**)

AGENDA NO. 5: REVIEW OF CONCLUDED PROJECTS

PPA02005SI: Optimization of spacing and nutrient dose for newly developed high yielding mulberry variety C2038 under irrigated condition

Budget and expenditure (Rs. in lakhs): Budget – Rs.9.95 L; Expenditure – Rs.5.71 L

Dr. Yallappa H, Sci – C (PI) presented the project's conclusion report outlining its utility and outcome

Utility of outcome and future course of action: New recommendation of fertilizer dose with 20% increase over existing dose (336:180:112 kg/ha/yr) for commercial cultivation of C-2038 mulberry variety (3'×3' spacing) under irrigated condition in West Bengal

The committee recommended conducting 'on-station/farm trials' before making final recommendations. The recommendations should be specific to each variety, and spacing and fertilizer doses need to be reassessed since the last recommendation was made in 1973 for S1 variety. It is also suggested to conduct validation trials at the National level prior to making recommendations. Additionally, it is advised to obtain permission from CSB before recommending the new dosage.

RAC endorsed the conclusion report and advised compliance with the committee's recommendations

(**Action: Dr. Yallappa H, Sci-C)**

MOT02016EF: Seri-entrepreneurship development in aspirational districts of North-Eastern India (DBT funded)

Budget and expenditure (Rs. in lakhs): Budget – Rs.43.40 L; Expenditure – Rs.39.67 L

Dr. Parameshwara Naik J, Sci – C presented the project's conclusion report outlining its utility and outcome

Utility of outcome and future course of action

A total of 100 young women have been successfully trained in sericulture entrepreneurship, poised to enhance sericultural production at the grassroots level. Beneficiaries now possess improved sericultural technologies including shelf rearing racks, plastic collapsible mountages, and access to the high-yielding mulberry variety (C-2038) garden, demonstrating a keen understanding of the importance of utilizing critical technologies. Two reeling centers, each equipped with motorized charkha, have been established in both the districts, serving as pivotal market hubs for locally produced cocoons. Efforts to bolster these reeling units and facilitate improved markets for the sale of raw silk are underway. Continuous monitoring and technical guidance will persist, ensuring sustained progress and success in future endeavors.

Committee suggested to assess the number of farmers who continue the program after withdrawal of the support.

RAC accepted the conclusion report with an advice to adhere to the committee's suggestions

(Action: Dr. Parameshwara Naik J, Sci-C)

MOE02011EF: Development of seri-entrepreneurship through sericulture chawki business by setting up two Chawki Rearing Centers (CRC) as demonstrative units in Murshidabad District, West Bengal (NABARD funded)

Budget and expenditure (Rs. in lakhs): Budget – Rs.20.89 L; Expenditure – Rs. 20.08 L

Dr. Parameshwara Naik J, Sci – C presented the project's conclusion report outlining its utility and outcome

Utility of outcome and future course of action

The demand for chawki worms is steadily rising, indicating a continuous upward trend. There has been an increase in farmer acceptance of chawki worms within the study area. Despite the brushing capacity of CRC being 5000 dfls/crop, CRC owners are implementing alternative arrangements such as additional chawki crops to meet demand without compromising quality. However, there is an urgent need to enhance their capacity while providing necessary handholding support. Similarly, there is a need to replicate the infrastructure setup to establish CRCs in other blocks within the district and across the state

The committee inquired about the sustainability of the enterprise in West Bengal without government support and advised monitoring the CRC owners to ensure the continuity of the enterprise.

RAC accepted the conclusion report with a recommendation to implement the committee's suggestions

(Action: Dr. Parameshwara Naik J, Sci-C)

MTL02017CN: Study on sericulture based IFS in hilly region of West Bengal

Budget and expenditure (Rs. in lakhs): Budget – Rs.4.60 L; Expenditure – Rs.3.07 L

Dr. Harish Babu, Sci – C & PI, RSRS-Kalimpong presented the project's conclusion report outlining its utility and outcome

Utility of outcome and future course of action

Identified IFS models as per the high hill, mid hill and low hill regions. The most effective models identified can be promoted on a larger scale to increase awareness and adoption at the field level in the hilly districts of the state.

The committee suggested to reassess the cost-benefit ratio for each enterprise. The data may be used to support new proposals on IFS. PI was advised to promote adoption of these models through ECPs.

RAC approved the conclusion report, providing the aforementioned advice to the PI

(Action: Dr. Harish Babu, Sci-C)

AIB01009MI: Evaluation of new bivoltine double hybrid, TT21 X TT56 at farmers' level for authorization for commercial exploitation (coll. with CSB CSRTI - Mysore)

Budget and expenditure (Rs. in lakhs): Budget – Rs. 5.194 L; Expenditure – Rs. 3.016 L

Dr. Raviraj, Sci – C presented the project's conclusion report outlining its utility and outcome

Utility of outcome and future course of action

The target of evaluating 57,000 dfls (CSB CSRTI-Berhampore) has been met, with the double hybrid demonstrating superior survival (>65%) and yield (>50 kg) during unfavorable seasons in the Eastern and Northeastern regions. The double hybrid will be promoted in the upcoming seasons.

The committee recommended endorsing the most suitable silkworm hybrid for temperate climate and unfavorable climatic conditions, which could be utilized in the Eastern and Northeastern regions. The results should be communicated to the PI at CSB-CSRTI, Mysore, for inclusion in the final report.

RAC accepted the conclusion report

(Action: Dr. Raviraj V.S., Sci-C)

AGENDA NO. 6: REVIEW OF THE PROGRESS OF ONGOING PROJECTS

PIB02010SI: Final yield trial of promising high yielding mulberry genotypes for Eastern and North Eastern India

The committee suggested presenting yield parameters, larval weight, leaf-to-cocoon ratio and ERR% along with comparison to regional and local check varieties

(Action: Dr. Suresh, Sci-C)

PIE13001MI: All India Co-ordinated Experimental Trial for Mulberry Varieties (Phase –IV)

The committee recommended conducting silkworm bioassay experiments for two years and incorporating leaf-to-cocoon ratio and ERR% along with other rearing parameters

(Action: Dr. Suresh, Sci-C)

PIB02007SI: Improvement of mulberry leaf longevity in Eastern and North Eastern states of India

The committee suggested to reassess the cost of the formulation. It is advised to verify the bioassay data with the assistance of scientists with a background in sericulture. Additionally, the palatability of the sprayed leaves to silkworms should be evaluated. The chairman appreciated the outcome and advised to present the detailed economics (cost: benefit ratio) of the developed formulation. He suggested considering patenting the new formulation (Hariyali) following CSB guidelines.

(Action: Dr. Deepika K U, Sci-C)

PIE02013SI: Final yield trial (FYT) of newly identified mulberry genotypes for leaf productivity and quality

The committee suggested presenting fundamental details such as the source of genotypes and statistically analyzed data.

(Action: Dr. Yallappa H, Sci-C)

PIB03013SI: Development of high yielding quality mulberry (*Morus* spp.) genotypes under sub-tropical conditions of Northern India (coll. with RSRS Jammu)

The committee inquired about the availability of germplasm at CSRTI-Berhampore. Given that additive gene effects are not anticipated in mulberry crosses, mutation breeding or alternative breeding methods could be employed to develop new varieties with varying ploidy levels

(Action: Dr. Yallappa H, Sci-C)

APS02020MI: Improvement of seed crop productivity in West Bengal

The committee suggested developing 'package of practice' to enhance seed crop productivity in West Bengal. It was proposed that the Department of Sericulture distinguish between the seed zones and commercial zones. It was also advised to assess the requirement of seed cocoons across different crops.

(Action: Dr. Satadal Chakraborty, Sci-D)

ARE01028MI: Recommendation of novel fungicidal and insecticidal application for mulberry

The committee advised to test the control of powdery mildew disease also using the same dose of fungicide.

(Action: Dr. Khasru Alam Sci-C)

MTL01025MI: Life cycle assessment of mulberry silk: A national assessment

The Chairman emphasized the importance of completing the project within the allotted time frame and ensuring proper utilization of funds. The project's PI was cautioned to collect the carbon emission data meticulously. It was also stressed that socio-economic data should be collected with great care to strengthen the study. Any publication of the data must only be done after obtaining consent from the Competent Authority.

(Action: Dr. Khasru Alam Sci-C)

AIB02006MI: Improvement of Nistari lines for survival and silk productivity

The committee suggested preserving the original Nistari stock by maintenance breeding to prevent any deterioration. Improved Nistari (marked or plain) may be supplied for seed production. It is advised to provide the survival rate of control and improved Nistari in each rearing. The chairman queried on the stability of selection and advised to check the genetic stability for at least four generations. The committee also suggested that maintenance breeding of the multivoltine parental stock be strictly monitored in order to preserve the genetic purity of the breeds/hybrids.

(Action: Dr. Th. Ranjita Devi, Sci-C)

AIE02018SI: Identification of superior bivoltine foundation cross as a male component to improve cross breed productivity in E & NE India

The committee appreciated the development of new productive breeds and advised evaluating their performance at the farmers' level before making final recommendations

(Action: Dr. Satadal Chakraborty, Sci-D)

OST Program: On station evaluation of *Bombyx mori* bidensovirus (BmBDV) resistant SK6R X SK7R silkworm hybrids (coll. with CSB SBRL-Kodathi)

The Committee suggested to present the ERR% and reeling data

(Action: Dr. Mihir Rabha/ Dr. K. Rahul, Sci-C)

AIT02012CI: Characterization of mulberry silkworm, *Bombyx mori* L. mutants for tolerance to flacherie syndrome trough genome editing tools (DST-JSPS project)

The committee queried about SDN level of the study. The PI responded that it is SDN1. The committee appreciated the efforts and advised informing the RCGM about the developments to obtain necessary approval

(Action: Dr. Pooja Makwana, Sci-C)

SIB01038MGC: Utilization of Japanese genetic resources for the development of productive bivoltine hybrids (coll. with CSB-CSRTI-Mysore)

The project was initiated only in January 2024. No specific comments were made

AIT02008SI: Identification of high humidity tolerant silkworm breeds/hybrids for Eastern & North-Eastern India

The committee inquired about the role & contribution of *Pyrexia* and *Painless* genes in humidity tolerance

(Action: Dr. Raviraj V.S., Sci-C)

AIB02019MI: Development of bivoltine double hybrids suitable for different regions of India

The committee suggested comparing the survival rate and cocoon parameters across various locations, especially in high humidity regions.

(Action: Dr. Raviraj V.S., Sci-C)

AIE08011MI: Evaluation of NPV tolerant bivoltine hybrids and cross breeds at farmers' level (coll. with SBRL, Bangalore)

First rearing is underway in various locations of West Bengal and Tripura. The Chairman inquired about the level of NPV infection, to which it was reported as resulting in a 20% crop loss. The performance of NPV-tolerant hybrids will be assessed in the upcoming RAC meeting.

(Action: Dr. A R Pradeep/ Dr. Satadal Chakraborty, Sci-D)

MOE02014SI: Popularization of improved technologies developed in the field of mulberry sector for Eastern & North-Eastern India

Component I: Popularization of new mulberry varieties (C-2038, Tr-23, C776 & C-2028)

No specific comments were made

Component II: Popularization of bio-control agents for the management of mulberry pests

The committee suggested developing a demonstration plot for the use of *Chrysoperla zastrowi sillemi* as a biological control agent to manage mulberry thrips. It is recommended to arrange a visit of ATMA (Agriculture Technology Management Agency) to CSRTI, Berhampore, and subsequently organize farmer's meets through ATMA. The committee suggested commercializing the technology through a PPP model after obtaining the necessary permission from NBAIR.

(Action: Dr. Khusru Alam, Sci-C)

Component III: Popularization of eco-friendly disinfectant, NIRMOOL

The popularization program was completed within the scheduled timeline, and the effectiveness of the product is demonstrated by the presented data. The committee advised reaching out to the Departments of Sericulture for popularization on their end and also to incorporate it into their schemes.

(Action: Dr. K. Rahul, Sci-C)

Component IV: Popularization of chawki, shoot/shelf rearing & plastic collapsible mountages

The committee suggested calculating the cost-benefit ratio. It also recommended including exposure visits for farmers, publishing success stories, booklets, leaflets, and utilizing social media platforms to disseminate information on technologies among farmers, such as short messages and regular WhatsApp updates.

(Action: Dr. Srinivasa G, Sci-D)

Component V: Popularization of Sampoorna

The committee suggested popularizing the usage of Sampoorna only during the winter months

(Action: Dr. K. Rahul, Sci-C)

MOE02015MI: Evaluation of improved technologies developed in the field of mulberry sector for Eastern & North Eastern India

Component I: Evaluation of high yielding & bacterial leaf spot resistant mulberry variety C-2070

Component II: Evaluation of high yielding & low temperature stress tolerant varieties C-2060 & C-2065

No specific comments were made

Component III: Low cost drip fertigation system for mulberry

The committee advised presenting photos of the drip irrigation system established at various units. It is advised to reassess leaf yield parameters using both drip irrigation and conventional irrigation methods.

(Action: Dr. Yallappa H, Sci-C)

Component IV: Evaluation of eco-friendly silkworm rearing bed disinfectant Seri-Win

The committee emphasized highlighting the "eco-friendly" nature of Seri-Win during popularization programs and field demonstrations.

(Action: Dr. Mihir Rabha, Sci-C)

MTS13002MI: Impact assessment of mulberry sericulture technologies in India

No specific comments were made

Dr. G. Srinivasa briefed the progress of extension communication programs and other activities of SEEM division [main Institute and nested units]. Dr. P. Naik briefed the progress of CBT activities. The progress was found to be satisfactory.

Communication received from DoS, Govt. of Assam regarding improvement of mulberry sericulture

The committee recommended that a meeting be scheduled with the Director, Department of Sericulture, Government of Assam, to discuss the necessary technological interventions required from CSRTI-Berhampore for the improvement of sericulture in the state.

(Action: PMCE/ SEEM)

General comments from the members

Dr. Debasish Chattopadhyay

1. Requirement for superior quality yarn, which relies on the availability of high-quality cocoons
2. Emphasized the improvement in cooking technology
3. Cocoon cooking wastewater from nearly 3500 units around Malda is being discharged which can be utilized for sericin extraction

Dr. Atul Kumar Saha

1. Opined that there is an imbalance in the number of scientists between the mulberry division and sericulture, indicating a need for balance
2. Suggested to propose new concepts since many of the ongoing projects are nearing completion
3. The concerns raised by the rearer representative regarding diseases of mulberry should be addressed
4. Research involving development of productive silkworm hybrids must be taken up
5. Director may present silk production statistics from the 13 E & NE states

Dr. Sukhen Roy Chowdhary

1. Assess the field issues prior to developing new concepts
2. Proposed to utilize productive MV and BV breeds to fulfill the demands of farmers and seed production
3. Suggested to popularize mulberry tree plantations for their fruits

Dr. Siddhartha Deb Mukhopadhyay

1. Director may present a flow chart depicting categorization of projects into different domains for better comprehension. This chart could also depict linkages between various research projects and how they complement each other for the improvement of sericulture. Further, it may also illustrate the gaps identified from previous projects and demonstrate how present projects are addressing the same

2. Identification of research needs or gaps should precede the proposal of new projects. Concluded projects may highlight areas where further research is needed
3. Integration of projects to improve sericulture
4. Assess the extent of technology adoption to prioritize research needs, including understanding the reasons behind non-adoption

Dr. Prabir Kumar Bhattacharyya

1. Suggested the registration of mulberry varieties with PPVFRA (Protection of Plant Varieties and Farmers' Rights Authority)
2. Suggested to prepare passport data of characters for all varieties to be registered
3. Highlighted the necessity of ensuring proper maintenance of germplasm
4. Participatory plant breeding (PPB) may be promoted
5. Recommended reducing the fertilizer dosage and testing nano-urea. Proposed formulating a trial with nano-urea and assessing its efficacy
6. New breeding approaches, including mutation breeding, should be pursued

Dr. Swarup Kumar Chakrabarti, Chairman

1. Appreciated the efforts of the Institute to comprehensively address diverse aspects
2. Proposed undertaking studies on natural farming in mulberry for sustainable silk production in West Bengal or Assam
3. Suggested conducting studies on endophytes
4. Recommended initiating a project on the gut microbiome of different silkworm races
5. Suggested identifying technologies from the projects to be concluded in the upcoming RAC meeting

Dr. Jula S Nair, Director

Director thanked the Committee and the participants for their active deliberations and meaningful interaction. She highlighted the importance of identification of research priorities in alignment with the needs of the industry and emphasized the need for guidance and timely reorientation. The valuable suggestions provided by the Research Advisory Committee would be carefully examined and considered. The institute would specifically address a few areas as highlighted, including soil reclamation measures, fertilizer dose standardization, nano-urea application technology, novel mulberry breeding methodologies, silkworm gut microflora analyses, endophytes characterization etc. along with the strategic decisions. These will also be among the key discussion points when formulating future research directions to explore the uncharted territories with high potential for sericulture development. The Director also expressed her confidence that with the esteemed guidance of the committee, the Central Sericultural Research and Training Institute, Berhampore, would scale new heights in its mission to serve the sericulture sector.

The meeting ended with vote of thanks

Minutes approved

Dr. Jula S Nair
Director

Dr. Swarup Kumar Chakrabarti
Chairman

Annexure - I

List of participants in the 58th meeting of Research Advisory Committee (RAC) held on 27 and 28th March 2024

#	Participants	Designation
1	Dr. Swarup Kumar Chakrabarti	Former Vice-Chancellor, Uttar Banga Krishi Viswavidyalaya & Chairperson, RAC
2.	Dr. Prabir Kumar Bhattacharyya	Associate Professor, BCKV, Member
3.	Dr. Siddhartha Deb Mukhopadhyay	Professor, Visva-Bharati University, Member
4.	Dr. Sukhen Roy Chowdhary	Former Director, CSB, Member
5.	Dr. Atul Kumar Saha	Former Scientist-D, CSB, Member
6.	Mr. Surajit Chaudhuri	Deputy Director of Sericulture, Govt. of West Bengal (Representative of Commissioner, Textiles & Sericulture, WB)
7.	Md. Abdur Rashid	Rearer Representative, Member
8.	Mr. Ansarul Sk.	Reeler Representative, Member
9.	Dr. Jula S. Nair	Director, CSRTI-Berhampore, Member Convener
10.	Dr. Jhansi Lakshmi	Scientist-D, RCS, CO, Bangalore [virtual]
11.	Dr. Debasish Chattopadhyay	Scientist – D, RSTRS, Malda [Permanent Invitee]
12.	Dr. Srinivasa G.	Scientist - D, CSRTI-Berhampore
13.	Dr. A. R. Pradeep	Scientist - D, CSRTI, Berhampore
14.	Dr. Satadal Chakraborty	Scientist - D, CSRTI, Berhampore
15.	Dr. Manjunatha G.R.	Scientist - C, RCS, CO, Bangalore [virtual]
16.	Dr. Suresh K.	Scientist - C, CSRTI, Berhampore
17.	Dr. Pooja Makwana	Scientist - C, CSRTI, Berhampore
18.	Dr. K. Rahul	Scientist - C, CSRTI, Berhampore
19.	Dr. Parameshwara Naik J.	Scientist - C, CSRTI, Berhampore
20.	Dr. Deepika Kumar Umesh	Scientist - C, CSRTI, Berhampore
21.	Dr. Yallappa Harijan	Scientist - C, CSRTI, Berhampore
22.	Dr. Th. Ranjita Devi	Scientist - C, CSRTI, Berhampore
23.	Dr. Khasru Alam	Scientist - C, CSRTI, Berhampore
24.	Dr. Raviraj V.S.	Scientist - C, CSRTI, Berhampore
25.	Dr. Harish Babu	Scientist - C, RSRS, Kalimpong
26.	Mr. Arun Kumar	Scientist - B, CSRTI, Berhampore
27.	Ms. Harshitha B.S.	Scientist - B, CSRTI, Berhampore
28.	Ms. Sanghmitra Aditya	Scientist - B, CSRTI, Berhampore
29.	Dr. Oshin	Scientist - B, CSRTI, Berhampore
30.	Mr. Ravi Saini	Scientist - B, CSRTI, Berhampore
31.	Mr. Pradeep S.D.	Scientist - B, CSRTI, Berhampore
32.	Dr. Javid Ur Rahman	Scientist - B, CSRTI, Berhampore
33.	Ms. Reshma R.	Scientist - B, CSRTI, Berhampore
34.	Mr. Ranjith Kumar	Scientist - B, RSRS Koraput (Online)
35.	Md. Shahin Hossain	JRF, CSRTI, Berhampore
36.	Ms. Sabina Khatun	JRF, CSRTI, Berhampore
37.	Mr. Ranadip Das	PA, CSRTI, Berhampore
38.	Ms. Y. Surjalata Devi	PA, CSRTI, Berhampore
39.	Ms. Shahnaz Khatun	PA, CSRTI, Berhampore
40.	Md. Manjarul SK	PA, CSRTI, Berhampore
41.	Mr. Shuvam Kumar Mandal	PA, CSRTI, Berhampore
42.	Ms. Nikita Mandal	PA, CSRTI, Berhampore
43.	Ms. Sugantichik Barik	PA, CSRTI, Berhampore
44.	Smt. Mahua Chattopadhyay	Sr. Tech. Asst., CSRTI, Berhampore

45.	Mr. Subrata Sarkar	Sr. Tech. Asst., CSRTI, Berhampore
46.	Smt. Subhra Karmakar Mustafi	Sr. Tech. Asst., CSRTI, Berhampore
47.	Trisha Das	Project Intern
48.	Tamalika Mondal	Project Intern
Absentee		
1.	Dr. Sailesh Chattopadhyay	Professor, Birsa Agricultural University, Ranchi, Member
2.	Director (Tech)	Member
3.	Director (NSSO)	Member
4.	Director, DoS-Manipur	Member
5.	Director (HHS), DoS, Tripura	Member
6.	Director, DoS-Assam	Member
7.	Representative (SMOI)	Member