

**PROCEEDINGS OF THE 57<sup>th</sup> MEETING OF RESEARCH ADVISORY COMMITTEE OF  
CSR&TI (CSB), BERHAMPORE HELD DURING 19-20 JULY 2023**

The 57<sup>th</sup> meeting of the Research Advisory Committee (RAC) of the CSRTI, Berhampore was held during 19-20 July 2023 in physical mode to review the progress of the R&D projects/programmes under the chairmanship of Dr. Chirantan Chattopadhyay, Principal Scientist, CSRSJAF, ICAR - Central Research Institute for Jute & Allied Fibres, Bud Bud, Purba Bardhaman, West Bengal (*Formerly Vice Chancellor, Uttar Banga Krishi Viswavidyalaya, Coochbehar, West Bengal*).

At the outset, Dr. Dipesh Pandit, Scientist-D (PMCE) welcomed the chairman, members of the RAC, The Director of the CSR&TI-Berhampore, scientists, DoS representatives and other participants to the 57<sup>th</sup> RAC meeting. The chairman extended warm greetings to all the members, The Director and scientists of CSR&TI Berhampore in his opening remarks. Further, he urged everyone to participate actively, since this would be the last meeting of the committee (2021-23). Prof. Varatharajan expressed his gratitude for being part of this Committee. Dr. Nirmal Kumar advised the scientists to formulate more new projects. Shri Surajit Chaudhuri, Dy. Director, DoS, WB thanked The Director of the CSR&TI-Berhampore and chairman for the invitation. The chairman also suggested for active contribution of the DoS officials for improvement of sericulture in West Bengal that remained far behind from that of South Indian states.

Dr. C.M. Kishor Kumar, The Director of the CSR&TI-Berhampore presented the highlights of research outcome, extension and training activities of the Institute. The Director also briefed the house on the progress of seri-entrepreneurship in chawki rearing (CRCs), research publications and as well as publications by the institute. A handbook on “Commercial Chawki Rearing in West Bengal” (Bengali and Hindi) and Farmers’ handbook on “Entrepreneurship Development in Sericulture” (Bengali and English) published by the Institute were released by Chairman during the meeting.

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 56<sup>th</sup> MEETING OF RAC HELD DURING 17-18 January, 2023 AT CSRTI BERHAMPORE**

As no comments were received from members of RAC, the minutes of 56<sup>th</sup> RAC meeting were confirmed.

**AGENDA NO. 2: FOLLOW-UP ACTION ON THE GENERAL RECOMMENDATIONS/ DECISIONS OF THE 56<sup>th</sup> RAC MEETING**

Action taken report on the general recommendations of the 56<sup>th</sup> RAC meeting was presented by Dr. Dipesh Pandit, Sci-D.

**AGENDA NO. 3: FOLLOW-UP ACTION ON THE PROJECT-SPECIFIC RECOMMENDATIONS/ DECISIONS TAKEN AT THE 56<sup>th</sup> MEETING OF THE RAC**

Action taken report on the recommendations of the 56<sup>th</sup> meeting of the RAC under different projects and activities were presented by respective PIs.

ATR on the two concluded projects were discussed in detail. On the antimicrobial peptides (AMP) developed from mulberry under concluded project AIC02004CN, Dr. Pooja presented the rearing and reeling data after AMP treatment. The committee appreciated the technology developed. Further, suggested to explore Government (DST/ DBT/ BIRAC/ Govt of West Bengal) or private agencies for commercialization of products / technologies developed by the institute in future.

On extraction of pharmaceutical grade chlorophyllin (concluded pilot study), Dr. Mihir Rabha explained the observations. The Committee was informed on the results of mass spectrometry analysis

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and NMR data along with the opinion of Prof. Sankhajit Roy (BCKV). Due to impurities, extraction of pharmaceutical grade chlorophyllin on a large scale was not found economically feasible. The proposal is closed.

**AGENDA NO. 4: REVIEW OF CONCLUDED PROJECTS**

**PIE 02002 SI: Evaluation of performance of mulberry genotype C-9 under red and laterite soils**

The PI presented the detailed observations and results. The Committee complimented the team who contributed to the development of the new variety C9. The Chairman enquired on the reason for high leaf yield of C9 in Imphal. The Committee suggested to find association of leaf yield with soil attributes and to find the local impact of the variety. The RAC recommended for an action plan to multiply and popularize C9 in red and laterite soils. The project is concluded and C9 variety is recommended for the specific regions.

**Action: Dr. K. Suresh, Sci - C**

**AIT08005MI: Development and evaluation of Bidsenovirus resistant silkworm hybrids developed from marker assisted breeding lines-Phase II (in coll. with SBRL, Kodathi)**

Dr. Mihir Rabha, CI presented the detailed observations and results from the concluded project. SBRL suggested an OST program with the objective “To assess the field performance of SK6R X SK7R silkworm hybrid resistant to BmBDV (Viral Flacherie) at designated stations under CSRTI, Berhampore” based on the outcome of the project. The same was presented before the committee and approved.

**Action: Dr. Mihir Rabha, Sci – C**

**AGENDA NO. 5: NEW RESEARCH PROJECTS**

Nil

**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 PI presented the progress of the project and the title was modified as “Evaluation of promising high yielding mulberry genotypes for Eastern and North-Eastern India” as suggested by the RAC. No specific comments were made.

**PIE13001MI: All India co-ordinated experimental trial for mulberry varieties (Phase –IV)**

Dr Suresh K presented the progress of the AICEM program. The committee suggested including expenditure of different units involved in the total project fund utilized.

**Action: Dr. K. Suresh, Sci - C**

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

Dr. Deepika KU, PI presented the progress of the project which was as per milestone. The RAC suggested to perform the experiments (specific formulation) at farmers’ field in two seasons as well as to include multilocational trials at places where leaf senescence is more (Kalimpong and Dimapur). It is suggested to workout techno-economics in comparison to Morizyme and Poshan. The RAC advised to find relation of senescence with spacing and larval feeding. It was also advised to refer the work of Prof. Zora Singh (email: z.singh@ecu.edu.au; Edith Cowan University; earlier Foundation Professor Postharvest Horticulture, Curtin University, Perth) on the shelf life of horticultural products.

**Action: Dr. Deepika K.U., Sci - C**

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

Dr. Deepika KU, CI presented the progress of the project which was as per schedule. Dr. Nirmal Kumar suggested to find out the yield output and percent increase in comparison to the bench mark values of check varieties.

**PPA02005SI: Optimization of spacing and nutrient dose for newly developed high yielding mulberry variety C 2038 under irrigated condition**

Dr. Deepika KU, CI presented the progress of the project and was found to be as per milestone. The Chairman suggested to find out the reason behind increased leaf yield at Manipur.

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

Dr Deepika KU, CI presented the progress of the project that was found satisfactory.

**Action: Dr. Yallappa, Sci – C**

**APS02020MI: Improvement of seed crop productivity in West Bengal**

Dr. Satadal Chakraborty, PI presented the progress of the project. The Chairman emphasized the importance of quality seed cocoon production in West Bengal and indicated the need to make seed cocoon sector developed within the respective states as per the model of seed village being practiced in India for field and horticultural crops. He further informed the house that the project has been approved in the previous meeting of the RCC held in June 2023 after thorough discussion. During presentation, the PI informed the house about limitations including lack of training to farmers, poor quality of mulberry leaf, low technology adoption, low cocoon price, technology gap, marketing of seed cocoon, etc., which may be the factors responsible for poor quality seed cocoon production especially for bivoltine in West Bengal. The Director asked to collect information about grainage data from SSPC and DoS, W.B. The Chairman opined to explore Odisha for bivoltine seed cocoon generation as a temporary arrangement. Within WB and other NE states, there is need to develop comprehensive package for availability of disease-free seed cocoon (along with protocol for seed health standards, scale for quantification of seed vigour) along with post-harvest cost-effective energy-efficient storage and transportation technology.

The PI proposed an additional project assistant for supervision of crop/s and data collection due to addition of more farmers (96 out of 200) from the North Bengal area as per the suggestions of RCC and RAC. The Director (Tech) has admitted it as an important project dealing with seed production in West Bengal and advised to submit the proposal along with progress of the project. The RAC recommended the additional PA position subject to approval from CO.

**Action: Dr. Satadal Chakraborty, Sci - D**

**ARE01028MI: Recommendation of novel fungicidal and insecticidal application for mulberry**

Mr. Khasru Alam, PI presented the progress of the project and the committee suggested to test Sulphur as a fungicide and acaricide. It is also suggested to use standard/technical grade fungicides for experiments which may be purchased from the reputed manufacturers.

**Action: Mr. Khasru Alam, Sci - C**

**AIB02006MI: Improvement of Nistari lines for survival and silk productivity**

PI presented the progress of the project. Dr Nirmal Kumar suggested to present results of rearing and reeling traits from unselected batches (control) along with selected batches across the generations. The Committee observed that in Nistari, cocoon traits are improved after selection till certain generations followed by negative trend. The RAC advised to compare the data of selected batch (improved lines through directional selection) with that of original Nistari lines (Unselected) to observe the impact of directional selection on various traits over generations.

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The PI informed that sequence analysis (NGS) was proposed in the last meeting of the RAC that was approved utilizing available budget. After discussion, the RAC advised to perform genome sequencing of the selected and non-selected (control) lines of Nistari only if improvement is observed in the selected lines. Also, it is advised to obtain prior permission from CO in this regard.

**Action: Dr. Thangjam Ranjita Devi, Sci - C**

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

Dr. Satadal Chakraborty, PI, presented the progress of the project. The committee enquired the reasons for low cocoon traits as well as ERR of the bivoltine breeds and foundation crosses. In response, the investigators explained the climatic factors prevailing during the experiment. However, The Director explained that the project objective was to find out superior bivoltine foundation cross as productive male component; in this regard, high value of single shell weight as observed from the experiments implies good performance of cross-breed cocoons. On-station trial (OST) of short-listed cross breed is progressing as per milestone.

**Action: Dr. Satadal Chakraborty, Sci – D**

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

Dr. Raviraj, PI presented the progress of the project which was as per schedule. It is suggested to present yield parameter data in the form of frequency distribution.

**Action: Dr. Raviraj VS, Sci - C**

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

Dr Pooja M, PI presented progress of the project. She informed the house about the training in genome editing at Japan and initiation of genome editing work at the institute after IBSC recommendation.

Since survival after microinjection is at lower level and in order to complete the work plan, an extension of the project period upto one year is proposed by PI and recommended by RAC. It is requested for reallocation of the budget among different 'heads' to meet the expenditure of JRF fellowship and travel. Committee advised to request the CSB for approval of extension and budget reallocation.

**Action: Dr. Pooja Makwana, Sci - C**

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

Dr. Raviraj VS, PI presented progress of the project and was found as per milestone. PI requested for permission to perform RNA sequence analysis to study expression variation of multiple genes associated with high humidity / temperature tolerance and susceptibility. RAC approved the proposal and suggested to send work plan to CSB for approval within the available budget.

**AIB02019MI: Development of bivoltine double hybrids suitable for different regions of India (in coll. with CSRTI-Mysore, CSRTI-Pampore, RSRM Manipur)**

PI presented progress of the project. Prof. Bhattacharya advised to use robust phenotype and to test whether the improvement in tolerance is sufficient at field level or not.

**Action: Dr. Raviraj VS, Sci – C**

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**MOE02011EF: Development of seri-entrepreneurship in chawki rearing [NABARD funded project]**

Dr. Shafi, Sci - C & PI presented the progress of the project and the committee appreciated the achievements. Prof. Basu suggested to draft a plan for phased withdrawal of support to the CRC owners to enable appreciate the impact of the project.

**MTS13002MI: Impact assessment of mulberry sericulture technologies in India**

Dr. Shafi, Co-PI presented the progress of the project. The Committee suggested to analyze cost of mulberry cultivation, to discuss with farmers about the technologies and estimate percent contribution as well as improvement through different technologies, which could also be achieved through frontline demonstrations using the technologies as treatments keeping the farmers' practice as constant.

**Action: Dr. Shafi Afroz, Sci – C**

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

The PI presented the progress of the project that was as per schedule. He explained that all the necessary hand-holding supports have been supplied to the beneficiaries and two rearings will be conducted in the forthcoming Aug-Sept (Autumn) season. The committee appreciated the progress and achievements.

**Action: Dr. Parameswara Naik, Sci – C**

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

Dr Harish Babu, PI presented the progress which was not found to be as per the milestone. The Committee discussed about the poor performance from the principal investigator's part who failed to collect and compile the data required under the study for which the PI apologized. However, the committee advised him to collect necessary data from the farmers immediately, compile and analyze the same at CSR&TI, Berhampore in consultation with co-investigators and submit the report within a month.

**Action: Dr. Harish Babu, Sci – C, RSRS, Kalimpong**

**MTL 01025MI: Life cycle assessment of mulberry silk: A National assessment**

Mr. Khasru Alam, Co-PI briefed the progress of the project. He informed the house that data was collected from farmers/ weavers/ dying units and will be submitted to PI shortly. Director (Tech) informed that CSB-RCS will conduct a workshop very soon on this project wherein all CIs will be invited and decisions will be taken on different aspects accordingly. RAC suggested to develop a framework for the work plan.

**Action: Mr. Khasru Alam, Sci - C**

**AIE08011MI: Evaluation of NPV-tolerant bivoltine hybrids and cross breeds at farmers' level (in coll. with SBRL-Bangalore & CSRTI-Pampore)**

Dr. A. R. Pradeep and Dr. Satadal Chakraborty are the Co-Investigators proposed from this Institute. Dr. Pradeep presented the OFT program for evaluation of NPV-tolerant cross breed Nistari x MASN4 at farmers' level in West Bengal & Tripura with a budget of Rs. 8.1 lakhs. In the study, the DFLs will be produced by NSSO and distribution will be effected through DoS of West Bengal & Tripura. For the whole OFT program, 2.50 lakhs of DFLs are to be distributed to farmers in two years.

As per DoS West Bengal, 80000 DFLs will be supplied in the forth coming Agrahayani (2023 Nov) and Falguni (2024 Feb) crops. The Director (Tech) suggested to rear 50 DFLs in unfavorable seasons in REC- Mothabari and in any DoS units with permission. The Director informed that quality hybrid DFLs to be produced by NSSO in Southern region with ASRs to make the OFT programme's success. After discussion, the committee approved for the implementation of the OFT program.

**Action: Dr. A. R. Pradeep, Sci - D & Dr. S. Chakraborty, Sci – D**

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**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/BC259 & C-2028)**

Dr. Suresh presented the progress of the project that was as per milestone. The committee suggested to reallocate the target depending on use / demand of the variety.

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

Mr. Khasru Alam briefed about the progress of the project. He presented a video on *Chrysoperla* parasitization which was appreciated by the house and it was advised to upload the same in Institute's website with necessary copyright protection. The Chairman suggested for an impact study on field / farmers' level. The effects on withdrawal of the technology may be studied. Prof Varatharajan suggested for an inundative release of the biocontrol agent by mass multiplication.

**Component III: Popularization of eco-friendly disinfectant, NIRMOOL**

Dr. Mihir Rabha presented the progress that was as per schedule.

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

Dr. Shafi Afroz presented the progress that was as per schedule.

**Component V: Popularization of Sampoorna**

Dr. Mihir Rabha presented the progress that was as per milestone. The DoS officials have raised concern about the rising cases on non-spinning syndrome in West Bengal and enquired whether Sampoorna treatment can overcome the same. Dr. Nirmal Kumar briefed the house that non-spinning may be due to spraying of juvenile hormone analogue (JHA) - based third generation insecticides in nearby agriculture fields. It is suggested to change mulberry leaf (source) that may help the farmers to restore normal development in silkworms.

**Action: Dr. K. Suresh / Mr. Khasru Alam / Dr. Mihir Rabha / Dr. Shafi Afroz**

**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 and low temperature stress tolerant varieties C-2060 & C-2065**

**Component III: Low cost drip fertigation system for mulberry**

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

The progress of different components (I - IV) was presented by respective PIs and was found as per milestones.

**Action: Dr. Deepika KU/ Dr. Suresh K / Dr. Yallappa/ Dr. M. Rabha, Sci C**

**The committee suggested following comments on OST/OFT programmes**

1. Share the data from different projects and find the gain achieved at the field level
2. Find the replacement rate after implementation of new technologies
3. Follow the concept of socio-technical innovation bundles (STIBs) for developing seri-entrepreneurship
4. Suggested for mass multiplication of biocontrol agents and release at required time
5. Advised to use CSB-developed technologies/ instruments/ double hybrids, etc. for popularization in future programs if possible.

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**AGENDA NO. 7: EXTENSION (ECP) AND OTHER PROGRAMMES**

Dr. Shafi briefed on the various extension programs organized including *Resham Krishi Mela* (Kalimpong, Jorhat, Koraput and Berhampore), farmers' field day, awareness programs, ECP, technology demonstration, technical workshops. A farmers' meet (online) was also conducted on 18 May 2023 by the Institute in which sericulturists from different parts of the country participated to discuss the pros and cons of sericulture in the respective regions. Committee appreciated the progress of the divisional activities.

**Action: Dr. Shafi Afroz, Sci - C**

**AGENDA NO. 8: TRAINING (CBT) AND OTHER PROGRAMMES**

Dr. Naik presented different capacity building training programs conducted by the institute. He also mentioned about the faculty constraint for conducting PGDS course. The committee suggested to invite retired scientists in and around Berhampore for lectures. Dr. Basu suggested to develop a second line of experts from the trained people / PGDS course and their expertise may be used for teaching new batches.

**Action: Dr. Parameswara Naik, Sci - C**

**AGENDA NO. 9: ANY OTHER POINTS FOR DISCUSSION**

1. DoS (WB) has agreed to include 12Y x BFC1 DFLs in DoS distribution program. The Chairman suggested to exploit the possibility of funding by NABARD for production of 12Y x BFC1 eggs for distribution in West Bengal.
2. Regarding training of KVK scientists, Dr. Manjunath, Sci - C, RCS informed that certain modalities are being developed by Central Office for KVK training and their support for sericulture. New training programs will be taken up after communication of the modalities by CO.
3. The RAC suggested to invite Principal Investigators of collaborative projects from other Institutes for the meeting.
4. Large demand for C2038 is noticed from West Bengal due to high yield and better rearing performance. The Director suggested to DoS to raise seed plots in Govt Seri Farms of C2038 and supply the planting materials for expansion of the variety.
5. The RAC enquired on the leaf yield variability of different established varieties of mulberry.
6. The projects involving region or location-specific technologies may mention the exact location in the title instead of broader term E and NE.
7. The budget should not be over-estimated while submitting project proposals and the scientists were advised to spend the proposed amount in the projects effectively.
8. Seri-entrepreneurship (seed producers/ suppliers of bio control agents, etc.) may be encouraged.
9. It is suggested that the state agencies undertake necessary measures to establish a cocoon marketing system and provide minimum support price as well as infrastructure to the farmers.
10. The Chairman suggested to invite Prof. Basu for SEEM meets.
11. The Committee suggested to create an incubation facility in the Institute campus to facilitate seri-entrepreneurs in developing their business along with effective linkage with industry.

**Action: All concerned**

**AGENDA NO. 10: CONCLUDING REMARKS FROM RAC MEMBERS AND INVITEES**

**Deputy Director, DoS, West Bengal**

1. The Deputy Director informed that DoS is going to initiate eight CRCs in Murshidabad, each with 5000 DFL capacity.
2. The schemes that encourage sericulture activities in the state including pensions for the elderly farmers and assistance for sericulturists must be initiated and supported.

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**Prof. Debabrata Basu**

1. Analyze value chain to find gaps
2. Average age of sericulturists is 45 years and hence technologies suitable and useful for elderly sericulturists must be developed
3. Improving the PGDS program to match with employers' requirement and demand

**Prof. Varatharajan**

1. Congratulated The Director and team of scientists for taking up basic and advanced research employing molecular biology tools
2. Appreciated the extension and training activities conducted by the Institute
3. Suggested to take-up projects based on farmers' requirement
4. To understand the field problems and follow *land to lab to land* approach
5. Contribution from both small- and large-scale farmers is to be considered
6. He informed that at Manipur University, soil data of the state is available and can be made use of

**Dr. Nirmal Kumar**

1. Bench mark values have to be projected for check varieties during presentations
2. Gain over control and actual values are to be presented
3. Cost of production per kilogram of cocoons to be worked out

**Prof. Somnath Bhattacharya**

1. Entrepreneurship should be encouraged only after replacing old technology with a new one
2. Absolute data should be collected before introducing any new technology
3. Popularization of technology may be continued till demand from farmers arise

**Dr. S Manthira Murthy, Dir (Tech)**

1. Appreciated the Institutes work
2. Take necessary action to improve the reeling technology in West Bengal
3. To discuss with senior scientists on different research topics

**Shri. Kaushal Kumar Singh, Dy. District Manager, NABARD (Invitee)**

1. Develop more number of Seri-entrepreneurs
2. Required to address the communication gap regarding farmers' needs
3. Need-based schemes have to be developed
4. Credit schemes for developing seri-activities have to be explored
5. A workshop inviting all the stake holders may be organized probably at Kolkata involving institutions such as NABARD, DoS West Bengal and the CSB

**Dr. Chirantan Chattopadhyay, Chairman**

1. Bridge the gap between South Indian and sericulture West Bengal and NE states
2. Need to strengthen the CSR&TI, Berhampore with manpower across disciplines with special reference to Breeding, Soil Sc. and Economics for better bridging of technological, economic and area-oriented gaps among the seri-farmers
3. Seed health standards should be followed; seed cocoon is a major problem apart from policy issues viz., market linkage, minimum support price, insurance, infrastructure, etc.
4. The DoS (WB) should intervene in developing cocoon storage and transportation facilities for small and marginal farmers
5. Farm mechanization has to be implemented through designing cost-effective, energy efficient leaf harvesters for small and marginal farmers to improve crop productivity, harvest efficiency, reduce human drudgery and cost of labour in the farmers' fields



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6. Carbon foot print in mulberry has to be assessed along with possibility of use of potassic solubilizers, micro-nutrient solubilisers, residue managers, liquid fertilizers, custom consortia.
7. In case it is still not being done, CSR&TI may consider testing the varieties for Distinctiveness, Uniformity and Stability (DUS) in coordination with the PPV&FRA.
8. Mr. Arunkumar, Sci B (R&S) is advised to draft a project on silk quality improvement and submit.
9. The gradual improvement in research activities and presentations have been noted over the different meetings, which need to be sustained and improved further for individual, organizational and national benefit.

The Director in his concluding remarks thanked The Chairman and Members of the RAC for their critical comments on each project. He expressed his gratitude to The Chairman and Members for their consistent support over the past three years in improving the Institute's research activities. He advised the Scientists to address problems of farmers from Eastern and NE region.

The meeting ended with Vote of thanks to all concerned by Dr. Srinivasa G., Scientist D, SEEM Division.

**Approved the minutes**

  
Chairman

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*Annexure - I*

**LIST OF PARTICIPANTS AT THE 57<sup>th</sup> MEETING OF RESEARCH ADVISORY COMMITTEE  
(RAC) HELD ON 19 AND 20 JULY 2023**

#	NAMES	DESIGNATION
1	Dr. Chirantan Chattopadhyay	Chairman, RAC
2.	Dr. Somnath Bhattacharya	Professor, BCKV, Member
3.	Dr. R. Varatharajan	Professor, Manipur University, Member
4.	Dr. Debabrata Basu	Professor, BCKV, Member
5.	Dr. Nirmal Kumar	Former Director, CSB, Member
6.	Dr. S. Manthira Moorthy	Director (Tech), CO, Bangalore, Member
7.	Dr. Kishor Kumar C.M.	Director, CSR&TI, Berhampore, Member Convenor
8.	Dr. Manjunatha G.R.	Scientist-C, RCS, CO, Bangalore
9.	Shri Surajit Chaudhuri	DDS, Murshidabad. (Rep. of DoS, West Bengal)
10.	Shri Deb Kumar Dutta	D.O., DoS, Murshidabad
11.	Dr. Srinivasa G.	Scientist - D (SEEM), CSR&TI, Berhampore
12.	Dr. A. R. Pradeep	Scientist - D, CSR&TI, Berhampore
13.	Dr. Dipesh Pandit	Scientist - D (PMCE), CSR&TI, Berhampore
14.	Dr. Satadal Chakraborty	Scientist - D, CSR&TI, Berhampore
15.	Dr. Suresh K.	Scientist - C, CSR&TI, Berhampore
16.	Dr. Pooja Makwana	Scientist - C, CSR&TI, Berhampore
17.	Dr. Shafi Afroz	Scientist - C, CSR&TI, Berhampore
18.	Dr. K. Rahul	Scientist - C, CSR&TI, Berhampore
19.	Dr. Parameshwar Naik	Scientist - C, CSR&TI, Berhampore
20.	Dr. Mihir Rabha	Scientist - C, CSR&TI, Berhampore
21.	Dr. Deepika Kumar Umesh	Scientist - C, CSR&TI, Berhampore
22.	Dr. Th. Ranjitha Devi	Scientist - C, CSR&TI, Berhampore
23.	Shri Khasru Alam	Scientist - C, CSR&TI, Berhampore
24.	Dr. Raviraj V.S.	Scientist - C, CSR&TI, Berhampore
25.	Dr. Harish Babu	Scientist - C, RSRS, Kalimpong
26.	Mr. Arun Kumar	Scientist - B, CSR&TI, Berhampore
27.	Md. Shahin Hossain	JRF, CSR&TI, Berhampore
28.	Ms. Sabina Khatun	JRF, CSR&TI, Berhampore
29.	Md. Anowar Hossain	PA, CSR&TI, Berhampore
30.	Ms. Susmita Devi	PA, CSR&TI, Berhampore
31.	Ms. Y. Surjalata Devi	PA, CSR&TI, Berhampore
32.	Ms. M. Goyari	PA, CSR&TI, Berhampore
33.	Ms. Lipika Mardi	PA, CSR&TI, Berhampore
34.	Md. Manjarul SK	PA, CSR&TI, Berhampore
35.	Shri Subhojit Pal	PA, CSR&TI, Berhampore
36.	Shri Shuvam Kumar Mandal	PA, CSR&TI, Berhampore
37.	Smt. Mahua Chattopadhyay	Sr. Tech. Asst.
38.	Shri Subrata Sarkar	Sr. Tech. Asst.
39.	Smt. Subhra Karmakar Mustafi	Sr. Tech. Asst.
Absentee:		
1.	Director, DoS-Manipur	Member
2.	Director (HHF), DoS, Tripura	Member
3.	Sri Bikash Chandra Roy	Rearers Representative, Member
4.	Md. Salaudun Momin	Reelers Representative, Member