



ASSOCIATION OF RETIRED INDIAN COUNCIL OF AGRICULTURAL RESEARCH EMPLOYEES (ARICARE)

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ARICARE *news*

*Connecting Experiences,
Inspiring Excellence,
Enriching Lives.*

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GOVERNING BODY

Office Bearers

- Dr Mrinmoy Datta (President)
- Dr Sitangsu Mohan Deb (Vice President)
- Dr Dulal Chandra Nayak (Secretary)
- Dr Gautam Bose (Asstt. Secretary)
- Mr Binoy Kumar Saha (Treasurer)
- Dr Debabrata Das (Asstt. Treasurer)

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- Dr Sudhansu Sekhar Pal
- Dr (Ms) Syamali Chakraborti
- Dr Krishnendu Das
- Dr Alok Nath Roy
- Dr Sankar kumar Mahapatra
- Dr Asok Biswas
- Dr (Ms) Tapati Banerjee
- Mr Balaram Chatterjee
- Mr Subhash Chandra Sheet
- Mr Subrata Kumar Pal

Permanent Invitee

- Dr Krishna Kishore Satapathy
- Mr Sumitranjan Sarkar

EDITORIAL

Dr . M. Datta, Dr A. Biswas



Honouring the Past • Serving the Present • Shaping the Future

President's Desk

Based primarily in Kolkata, *Aricare* (Association of Retired ICAR Employees) is one of the prominent registered welfare body for ICAR Pensioners not only for Employees retired from ICAR Institutes present in West Bengal but also from other ICAR Institutes located across India. Being associated with Aricare since 2019 , I have been witnessing the growth of this organization from a close corner and presently I am entrusted with responsibility of managing the affair of our association as President.

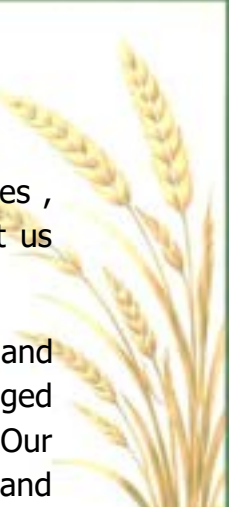
It gives me immense pleasure to welcome you to this latest edition of *Aricare News*. As I reflect on the past few months , I am continually inspired by the resilience , energy and ongoing camaraderie that defines our retired Agri Community .Retirement is not a final destination , but a vibrant new chapter and together we are constantly trying to make it an impactful and joyous one .

Further, it is with great joy and a sense of pride that I get connected with you all through the pages of *Aricare News*. This publication of Aricare News is more than just pages of information . It is indeed the voice of our shared journey through decades spent in Laboratories , Fields and Classrooms , dedicated to the service of Indian Agriculture and Farmers. In this Journey , not only Scientists are involved but also all staff including Administrative , Technical and Supporting Staff are equally absorbed in the task of Agri- activities . Even after retirement , that spirit of ' *Jai Kisan , Jai Vigyan* ' continues to bind us together in one single frame.

Aricare today stands as a strong support system for more than an organization of retired ICAR Staff across the country .We do make our presence in many gatherings which remind us that retirement is not a withdrawal but a new opportunity to engage , learn and contribute .

Our primary mission remains the protection and enhancement of our own well – being. We have nos of Sub- Committee within the framework of Aricare which has been actively working behind the scenes on behalf of all of us . We are closely monitoring all developments related to Pension ,Family Pension and Medical Benefits.We are also exploring group health check –up camps and discussions with empanelled Hospitals of ICAR Institutes located in Kolkata for use of our Medical IPD Cards to make geriatric and specialized care more accessible to our members.

Many of you continue to guide young researchers / Students , write for journals and work with farmers and NGOs. This is true legacy of ICAR . In this issue of *Aricare News*, you will read inspiring professional engagements / achievements , Scientific



reflections /Research Thoughts etc. I appeal to all members for sending your articles , photographs , achievements and even simple life experiences , if interesting . Let us document our Institutional memory before it fades from your memory.

We have a very strong *Aricare* Tour Committee being responsible to make and plan Tours for Domestic / International / Short Travel thus making us engaged particularly for our members who use to harvest lots of enjoyment in travelling . Our Social and Cultural Activities are also remarkable with yearly participation in Picnic and Bengali New Year/ Vijaya celebration . Our members do perform cultural activities to spend joyful time in these gatherings. We have not forgotten our Social Commitment and thus do perform Community Services among the rural people in collaboration with Krishi Vigyan Kendra and ICAR Institutes.

We have an exciting lineup of activities planned for the upcoming days, including our Sub-Committee meeting, a dedicated health and wellness seminar, and several local cultural excursions. I strongly encourage all members, especially those who have recently joined our ranks, to actively participate and share your valuable ideas. Your experience and insights are the foundation upon which this association stands.

I want to extend my heartfelt gratitude to the editorial team for putting this newsletter together, and to all of you for your continued trust and support.

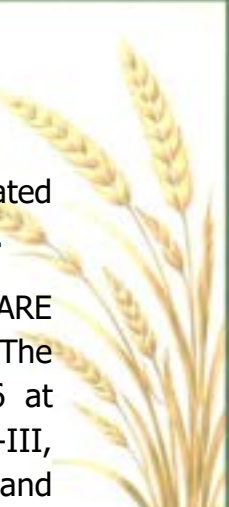
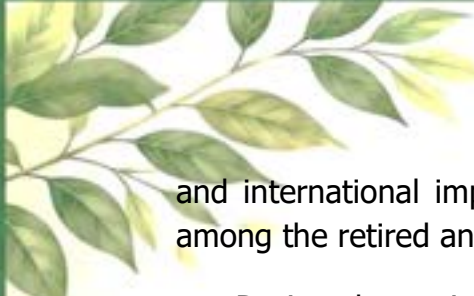
Dear Friends , as we grow older , let us also grow wiser and healthier . Take regular walk , eat well , stay socially active and keep your mind engaged. Call a colleague you have not spoken to in a while . Share a memory .Laughter and Connection are the best medicines .

On behalf of Office bearers and Executive Committee I express my sincere gratitude to each one of you for your trust , support and goodwill.Let us continue to uphold the dignity of ICAR and serve Society in whatever way we can .

May you all be blessed with good health, happiness and peace. Looking forward to meeting many of you at our upcoming Sub- Committee meets. With Warm Regards and Respect.

Secretary's Desk

The ARICARE news is a half yearly e-publication of our Association covering the information of various activities of ARICARE and important scientific news of national



and international importance in agriculture and allied subjects. It is widely circulated among the retired and serving employees/organisations of ICAR and other institutes.

During the period, the Governing Body and different Sub-Committee of ARICARE have performed various activities successfully with full cooperation of all members. The third Governing Body Meeting of ARICARE (2025-2026) was held on 25.3.2026 at Scientist's Home, ICAR-NBSS & LUP, Bhumi Vihar Complex, Block-GB, sector-III, Salt Lake, Kolkata-700097 and 10 members were present. In the meeting, the date and venue of the 12 th Annual General Meeting (2025-2026) was discussed. The decision for the election of the Office-bearers and 10 executive members of the Governing Body of ARICARE for the period 2026-2027 through the election procedure was taken. Then the financial status of the Association and new membership position of the current year was discussed.

The Fourth Governing Body meeting of ARICARE was held on 07.4.2026 through online Google Meet and 9 persons joined in the meeting. In the meeting, the venue and date of AGM of ARICARE was finalized. The date of the AGM was fixed on 04 th July, 2026 (Saturday) and the venue at ICAR- Central Institute of Fisheries Education (CIFE), Regional Station, Sector-V, Salt Lake, Kolkata-700091. The Fifth Governing Body Meeting of ARICARE was held on 08.5.2026 through online Google calendar and 14 persons joined in the meeting. The main discussions were (1) finalization of the recommendations of Digital Subcommittee for smooth functioning of Aricare.in website and (2) approval of the payment of the website vendor. As per the recommendations of Digital Subcommittee, the new Vendor, Mr. Sandip Saha was selected for maintenance and upgradation including restoring all data of files and documents etc., of the website. Smt. Jayashree Nath and Dr. (Mrs.) Tapati Banerjee would act as the Admins of the Website of ARICARE.

The first GB meeting (2026-2027) was held on 15.7.2026 at Scientist's Home, ICAR- NBSS & LUP, Bhumi Vihar Complex, Salt Lake, Kolkata and different Sub-Committee and editorial boards for the period 2026-2027 were formed.

Several meetings of all Sub- Committee were held both physically as well as on virtual mode during the period. Various important administrative/pension/medical issues, tour programmes, community services, celebration of Bengali Barsha Baran, membership drive etc were discussed and most of the programmes were performed successfully.

Important events organised during the period are: (1) with the initiative of Pension, administration and medical subcommittee of ARICARE, a Health Check-up camp of ARICARE members and their family was organized on 25.02.2026 at ICAR-

CIFE, 32, GN Block, Sector V, Bidhannagar, Kolkata, West Bengal-700091 in collaboration with B.P.Podder Hospital and Medical Research Ltd., New Alipore, Kolkata. 70 persons were present in the programme. (2) Health Awareness lecture on "Cancer" was organized by ARICARE in association with Peerless Hospital, Kolkata held at ICAR-NINFET, Tollygunge on 24.06.2026. Dr. D.B. Shakyawar, Director, ICAR-NINFET graced the occasion and delivered the inaugural address. The Lecture was delivered by Dr. Rajib Bhattacharjee, Eminent Oncologist of Peerless Hospital on interactive mode. About 50 persons were present including some staff members of ICAR-NINFET, Kolkata.

(3) During the period, various activities were undertaken by the Social and Cultural sub- committee of ARICARE. The Bengali Barsha Baran (1433) programme was organized on 14 th May, 2026 at "Indumati Sabhagriha", National Council of Education Bengal (NCEB), Jadavpur University Campus. About 75 persons were attended the programme. (4) The Illish Utsav was held on 26.07.2026 at ICAR-CIFE, 32, GN Block, Sector V, Bidhannagar, Kolkata, West Bengal-700091 and 24 persons with family members were present on the occasion.

(5) The Tour Sub-Committee organized one short trip (2 days and 1 night) at Ishani Resort at Ghatakpur on 18-19 th March, 2026 and 5 persons participated. (6) a short trip to visit Deoghar, Madhupur and Giridih was organised from 16-19 th July, 2026 and 13 persons joined in the tour.

(7) The Community Service Sub-committee undertook "an Awareness Programme and Goat Kid distribution for Rural Livelihood Development" on 20.05.2026, jointly by ICAR-IVRI, Eastern Regional Station, Belgachia, Kolkata; Sasta Shayamala Krishi Vigyan Kendra, Ramkrishna Mission Vivekananda Educational & Research Institute (RKMVERI), Arapanch, Sonarpur, South 24-Pgs. and ARICARE, Kolkata and 3 Goat Kid per head were distributed among the 22 farmers identified in Sonarpur block. (8) Dr Mrinmoy Datta, President, ARICARE, on behalf of the organisation donated an amount of Rs. 5000/- to Shri Sandipan Mahapatra, Secretary, Anweshan Bigyan Sanstha (Garia) on 16.05.2026 for promotion of science education literacy among school children under Community Development programme at a Science Fair programme organized at Balia Nafar Chandra Balika Vidyalaya, Garia.

(9) The 12 th Annual General Meeting of ARICARE for the year 2025-26 was held on 4.7.2026 at ICAR- CIFE, Regional Centre, 32, G. N. Block, Sector- 5, Salt Lake City, Kolkata and 50 members attended the meeting. In the AGM, the office bearers and Executive Committee members were elected for the period 2026-2027.

During the period, only few retired ICAR employees have joined in the ARICARE as life member and they are heartily welcomed to the Association. It is hoped



that ARICARE will be enriched with their innovative ideas and active participation in various activities.

All the Members of ARICARE were very much shocked on the sudden demise of Mr. Ratan Das, life member of ARICARE on 24.06.2026. We expressed our heartfelt condolences to the bereaved family members.

I wish to express sincere thanks to the members of the Editorial Board for their best efforts to publish this Volume 10 (2), 2026 of ARICARE news in time.

My sincere thanks to the President, Vice-President, Treasurer, Assistant Treasurer, the members of the Governing Body; the Chairman, Convener and members of all Sub- committee for organising the above events successfully and also thankful to the all members including their families for the active participation to make the events more attractive and meaningful.

Editorial

July issue of Aricare News (Vol 10 No 2) is now ready for official release and as done in the past , this issue of our Aricare News also contains all of our activities carried out for the last 6 months covering the period from February to July , 2026 . Our Retired Association is always a vibrant one with a deep commitment to serve all the members along with their families in whatever way we can make all of us in happy frame of mind as navigating through the present stage of life .This publication is a mirror of our vitality , warm and stimulating presence in our endeavour .

The structural scaffolding of a 9 to 5 routine is gone , replaced by the liberating yet sometimes daunting canvas of open time. Our activities do highlight how crucial it is to maintain our social networks and physical well- being . Isolation can quietly creep into our post – work life but associations like ours act as an antidote – a reliable anchor ensuring that we remain visible , valued and socially connected.

We encourage you to read these pages not just as passive updates but as an invitation . Let this association continue to be a platform where your participation is amplified in all of our activities .Thank you all for being the Heart of this community .The Editorial Board is expressing a deep sense of gratefulness to all with a special mention to office bearers (Vice President , Secretary , Treasurer and Asstt. Treasurer) and Executive Members, Permanent Invitees(Two) for lending support and encouragement to compile all our six (6) monthly activities in this July issue of Aricare News. All the best. Regards.

Meeting / Events

Annual General Meeting

A meeting of the members of Office Bearers of ARICARE (Dr M. Datta , Dr DC Nayak , Mr BK Saha , Dr Debabrata Das and Mr Sumitranjan Sarkar) with Dr. T K Ghoshal, Head, ICAR-CIFE, Sector -5, Salt Lake, Kolkata was held on 05/06/2026 at CIFE office to finalize the programmes regarding the facilities of meeting room and refreshments/ Lunch etc. during the forthcoming AGM of ARICARE.

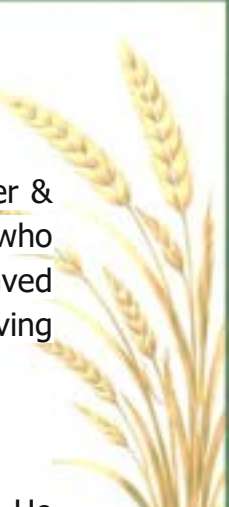
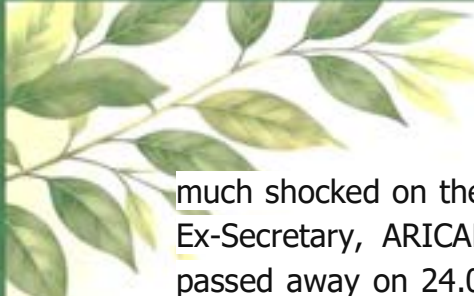


Meeting with Head of ICAR – CIFE , Kolkata

The 12th Annual General Meeting of ARICARE for the year 2025-26 was held on 04.07.2026 (Saturday) in the Auditorium of ICAR-Central Institute of Fisheries Education (CIFE), Regional Centre, 32, G. N. Block, Sector- 5, Salt Lake City, Kolkata - 700091. The registration of delegates of ARICARE was started at 10.30 AM. Total 50 members of ARICARE attended the AGM. After the tea, the meeting of AGM was started at 11.00 AM in the Auditorium. The meeting was anchored by Dr Krishnendu Das, the Chairman of Social and Cultural Sub-committee. The proceedings of the meeting were mentioned hereunder as per the programme/agenda.

Agenda-1: Welcome Address

Dr. Sitangsu Mohan Deb, Vice-President, welcomed all the members present in the hall, especially the 6 new members mentioning their names and Institutes who joined in ARICARE till date. Dr. Deb also highlighted the importance of this type of Association for retired persons. He informed the house that the members of ARICARE were very



much shocked on the sudden demise of Dr. B. K. Bandyopadhyay, Founder member & Ex-Secretary, ARICARE on 11.12.2025 and Mr. Ratan Das, Member, ARICARE who passed away on 24.06.2026. We expressed our heartfelt condolences to the bereaved family members. The members paid a homage to the departed souls by observing silence for two minutes.

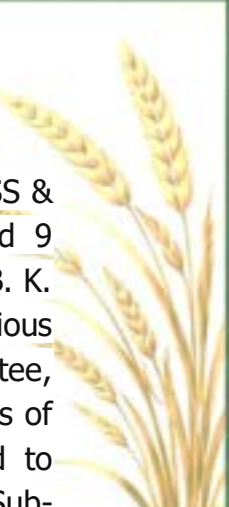
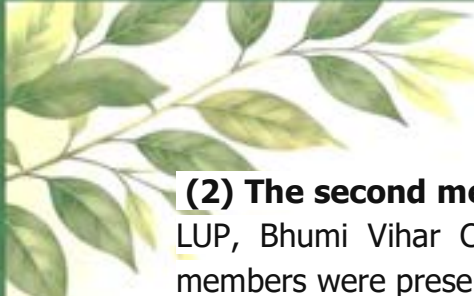
Agenda-2: Confirmation of the Proceedings of the last AGM (2024-2025)

Dr. D. C. Nayak, Secretary, welcomed the members of ARICARE in the its 12th AGM. He read out some of the salient points of the minutes of 11th Annual General Body Meeting held on 12.7.2024 for the period 2024-25 for discussion and remarks. After discussion, it was accepted and confirmed by the house.

Agenda-3: Secretary's Report for the period 2025-2026

Dr. D.C. Nayak, the Secretary presented the report in the house mentioning the important activities /decisions taken during the reported period. The Secretary's report for the period 202526 was also circulated to all members by WhatsApp prior to AGM for the reference. He informed the house that the felicitation programme to the Senior Members who attained the age of 75 years or more has been changed. It will be organized in Pensioner's Day on 17th December, 2026. The major activities of ARICARE performed during the period are briefly given below. During the period, five Governing Body (GB) meetings were held. The minutes of each meeting were circulated among the members by e-mail and ARICARE Official WhatsApp.

(1) The first Governing Body Meeting of ARICARE was held on 25.07.2025 at Scientist's Home, ICAR-NBSS & LUP, Bhumi Vihar Complex, Block-GB, sector-III, Salt Lake, Kolkata700097 and 11 members were present. In the meeting, the chairman, Convener and members of different Sub-Committee for the period 2025-2026 was formed, namely (1) Pension, administration and medical sub-committee, (2) Social and Cultural Sub- committee, (3) Tour Subcommittee, (4) Community Service Sub-committee and (5) Digital Media Sub-committee. Besides the above-mentioned 5 Sub-Committee, (a) Editorial Board of "ARICARE e-Newsletter", (b) Editorial Board of e-Magazine "ANWESHA", (c) Administrators of 'WhatsApp'; (d) Administrators of 'Face book' and (e) Administrators of 'ARICARE Website'. The Chairman of Social and Cultural Sub- committee informed that the Illish Ustav would be organized at ICARCIBA, Regional Station, Kakdwip, South 24-pgs or another suitable place in the third or fourth week of August, 2025. It was also decided unanimously that an appeal is to be made to all members of ARICARE to contribute Rs. 500/- (Rupees five hundred only) /or more generously for the period 2025-2026 as Annual Development or/ Maintenance fee to meet the expenditure of various programmes throughout the year.



(2) The second meeting was held on 23.12.2025 at Scientist's Home, ICAR-NBSS & LUP, Bhumi Vihar Complex, Block-GB, sector-III, Salt Lake, Kolkata-700097 and 9 members were present. The condolence was observed on sudden death of late Dr. B. K. Bandyopadhyay, Founder member and Ex-Secretary, ARICARE. The activities of various Sub-Committee were discussed. In Pension, administration and medical sub-committee, it was decided to organize free medical check-up camp and arrangement of lectures of different health issues specially for senior citizens. Tour Sub-committee decided to organize an international tour in Sri Lanka. The Chairman of Social and Cultural Sub-committee informed that the Annual picnic of ARICARE will be held on 05.01.2026. For Digital Media Sub-committee, it was decided that the vendor will be changed for updating and maintenance of ARICARE Website. The Chairman of Community Service Subcommittee informed that the joint ventures of ARICARE and Sasya Shayamala Krishi Vigyan Kendra, Sonarpur, for Goat Kid distribution Programme may be continued in more villages of Sonarpur block, South 24 Pgs District to popularize the programmes in collaboration with ICARIVRI, Eastern Regional Centre, Belgachia, Kolkata. He had a discussion with the Head of the Regional Centre, IVRI for some fund allocation and the proposal was sent to its Head Quarters for approval.

During the discussion of the financial position of ARICARE, the Treasurer informed that **Rs. 88,011/- was raised from generous contribution** of 62 members of ARICARE for maintenance and development of the Association in response to the circular, dated:10.8.2025. I wish to express sincere thanks to the contributing members for their great support in fund generation. It is also expected from the rest members of ARICARE for their generous contribution to this fund in the coming time to carry out various non-contributory programmes.

(3) The third Governing Body Meeting of ARICARE was held on 25.3.2026 at Scientist's Home, ICAR-NBSS & LUP, Bhumi Vihar Complex, Block-GB, sector-III, Salt Lake, Kolkata-700097 and 10 members were present. In the meeting, the date and venue of the 12th Annual General Meeting (2025-2026) was discussed. It was unanimously decided that the venue of the AGM will be at ICAR- Central Institute of Fisheries Education (CIFE), Regional Station, Sector- V, Salt Lake, Kolkata-700091 as in the previous year. The tentative date was fixed in the last week of June /or first week of July, 2026. It was decided that the Secretary would contact to Dr. T K. Ghoshal, the Head, ICAR-CIFE, Regional Centre, Salt Lake for the confirmation of the venue and date and after that the final date of the AGM would be notified. The decision was taken for the election of the Office-bearers and 10 executive members of the Governing Body of ARICARE for the period 2026-2027 through the election procedure. For the election purpose, Dr. Nemai Chandra Pan (the Returning Officer) and Mr. Sumit Ranjan Sarkar

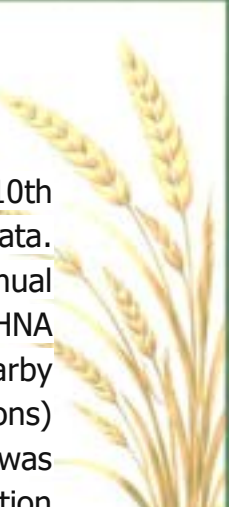
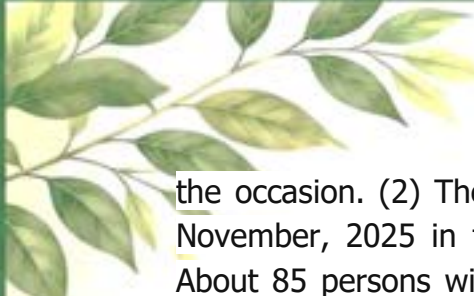
(the Assistant Returning Officer) were selected unanimously. Then the financial status of the Association and new membership position of the current year was discussed.

(4) The Fourth Governing Body Meeting of ARICARE was held on 07.4.2026 through online Google Meet and 9 persons joined in the meeting. In the meeting, the venue and date of AGM of ARICARE was finalized. The venue of the AGM will be at ICAR- Central Institute of Fisheries Education (CIFE), Regional Station, Sector- V, Salt Lake, Kolkata-700091 and the date was fixed on 04th July, 2026 (Saturday).

(5) The Fifth Governing Body Meeting of ARICARE was held on 08.5.2026 through online Google calendar on urgent basis. Total 14 persons joined in the meeting. The main discussions were (1) finalization of the recommendations of Digital Subcommittee for smooth functioning of Aricare website and (2) approval of the payment of the website vendor. As per the recommendations of Digital Subcommittee, the new Vendor is Mr. Sandip Saha and Admins of the Website of ARICARE are Smt. Jayashree Nath and Dr. (Mrs.) Tapati Banerjee. The vendor Mr. Saha negotiated with a bill amount of Rs. 34000/- for all activities including upgradation of Version 2.0 to 14.0, restoring all data of files and documents etc., and the said amount was approved by the members present in the meeting. Besides the GB meetings, several meetings of different sub-committee were held from time to time to organize the various programmes in this period. The Chairman/ Convenor of the respective sub-committee will highlight the activities performed throughout the year. Some of the activities of different sub-committee were briefed below.

1) With the initiative of Pension, administration and medical subcommittee of ARICARE, a Health Check-up camp of ARICARE members and their family was organized on 25.02.2026 at ICAR-CIFE, 32, GN Block, Sector V, Bidhannagar, Kolkata, West Bengal-700091 in collaboration with B.P.Podder Hospital and Medical Research Ltd., New Alipore, Kolkata. 70 persons were present in the programme. Health Awareness lecture on "Cancer" was organized by ARICARE in association with Peerless Hospital, Kolkata held at ICAR-NINFET, Tollygunge on 24.06.2026. Dr. D.B. Shakyawar, Director, ICAR-NINFET graced the occasion and delivered the inaugural address. The Lecture was delivered by Dr. Rajib Bhattacharjee, Eminent Oncologist of Peerless Hospital on interactive mode. About 50 persons were present including some staff members of ICAR-NINFET, Tollygunge.

(2) During the period, various activities were undertaken by the Social and Cultural subcommittee of ARICARE. The following programs were organized successfully. (1) The Illish festival was held on 20.08.2025 at Bhuribhoj Restaurant, Nalban Food Park, Salt Lake, Kolkata. 23 persons with family members were present on



the occasion. (2) The Bijoya Sammilani, 2025 program of ARICARE was held on 10th November, 2025 in the Indumati Savagriha at Jadavpur University Campus, Kolkata. About 85 persons with their families were present in the programme. (3) The Annual Picnic of ARICARE was held on 5th January, 2026. The venue was at RAMKRISHNA KUTHIR, Ranikhal Co-operative, S. N. Ghosh Avenue, Kolkata-700103, nearby Narendrapur Ramkrishna Mission. The members along with families (total 68 persons) participated in the picnic. (4) The Bengali Barsha Baran (1433) programme was organized on 14th May, 2026 at "Indumati Sabhagriha", National Council of Education Bengal (NCEB), Jadavpur University. About 75 persons were attended the programme and performed the songs, recitation, music, Sruti Drama etc with great enthusiasm. We are thankful to all performers of cultural activities and also the audiences for patience hearing and support.

(3) The Tour Sub-Committee was very active and enthusiastic during this year. Several meetings were held to finalize various local, national and international tours. Domestic/ Local Tour (1) National tour was organized in different parts of Gujarat state from 17.11.2025 to 27.11.2025 and 14 persons with families were in the group, (2) The short trips were also arranged (a) at Mahishadal Rajbari and Geokhali, East Medinipur district from 12th November to 13th November, 2025 (2 days 1 night) and 7 members with their families were present and (b) at Bakkhali and Frazerganje, South 24 Pgs district from 9 to 10th December, 2025 and 13 members with families were present; (c) one short trip (02 days) and 01 night) was organized at Ishani Resort at Ghatakpur on 18-19th March, 2026 and 5 persons were participated.

International Tour One International tour was arranged in Sri Lanka from 25.01.2026 to 03.02.2026 (10 days). Total 13 persons with family and guest participated in the tour covering important visiting places of Sri Lanka (Colombo, Sigiriya, Trincomale, Anuradhapura, Kandy, Nuwara Eliya, Yala National Park, Bentota, Galle etc).

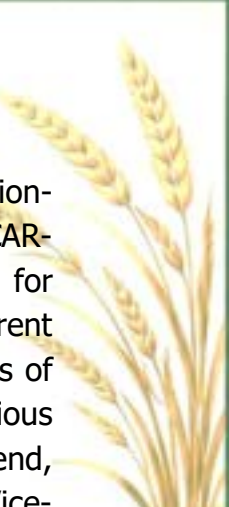
(4) The Community Service Sub-committee undertook many good initiatives and activities during the period. The activities were started through some Welfare organisations /NGO/KVK covering the important issues mainly (1) Education, (2) Health and (3) Agricultural/rural development. On 20.05.2026, an Awareness Programme and Goat Kid distribution for Rural Livelihood Development was held jointly by ICAR-IVRI, Eastern Regional Station, Belgachia, Kolkata; Sasta Shayamala Krishi Vigyan Kendra, Ramkrishna Mission Vevekananda Educational & Research Institute (RKMVERI), Arapanch, Sonarour, (S) 24-Pgs. and ARICARE, Kolkata and 3 Goat Kid per head were distributed among the 22 farmers identified in Sonarpur block. On 16.05.2026, Dr Mrinmoy Dutta, President, ARICARE, on behalf of the organisation donated an amount

of Rs. 5000/- to Shri Sandipan Mahapatra, Secretary, Anweshan Bigyan Sanstha (Garia) for promotion of science education literacy among school children under Community Development programme in the presence of Dr. Amitabha Bandyopadhyay, Dr. Krishnendu Das and Dr. Bijoy Kali Mohapatra at a Science Fair program organized at Balia Nafar Chandra Balika Vidyalaya, Garia.

(5) The Digital Media Sub-Committee also conducted some meetings as and when required. Our website was updated through a new vendor, Mr. Sandip Saha from the month of March, 2026. The important events and activities/information were posted on Face book and also circulated through WhatsApp group to all members. • During the period, the 'e-newsletter' July, 2025 and January, 2026 issues were published in time by the Editorial board of "e-newsletter". Our sincere thanks to Dr. Mrinmoy Datta and other members of the Editorial Board and also to the contributors of the write-up for 'enewsletter' on different current issues of agriculture and allied subjects as well as social/general subjects of national and international importance. • The Editorial board of "e-Magazine" published the "Sharadia" issue of "ANWESHA", 2025. Sincere thanks to the members of Editorial Board (Dr. S. S. Pal and Dr. Ashok Biswas) and all contributors who send their write-up in time to the Editorial board of the magazine.

The Audit and Accounts of the ARICARE were properly maintained by Mr. Binoy Kumar Saha (Treasurer) and Dr. Debabrata Das (Assistant Treasurer). The account was audited by the appointed Auditor which will be placed in the AGM. We are thankful to them for their constant services during the period. It is a pleasure to inform that during the period, 6 (six) persons retired from different Institutes of ICAR have become the member of ARICARE during the period namely (1) Dr. Partha Pratim Pal (ICAR-ATARI, Kolkata), (2) Mrs. Rita Bandyopadhyay (Family Pensioner), (3) Dr Baidya Nath Paul (ICAR- Central Institute of Fresh Water Aquaculture, Rahara, West Bengal, (4) Dr. Anandamoy Kundu (ICAR-CIARI, Port Blair), (5) Dr. Sambhu Nath Chattopadhyay ((ICARNINFET, Kolkata) and (6) Dr. Sanjay Kumar Ray (ICAR-NBSS & LUP, Regional Centre, Kolkata). We heartily welcome them in our Association and hope that the society will be benefited with their active participation and new ideas in various activities of ARICARE.

All the Members of ARICARE were very much shocked on the sudden demise of Dr. B. K. Bandyopadhyay, Founder member & Ex-Secretary, ARICARE on 11.12.2025. Shri Ratan Das, Member, ARICARE passed away on 24.06.2026. We expressed our heartfelt condolences to the bereaved family members. The members of ARICARE wish to express sincere thanks to Dr. Tapas Kumar Ghoshal, the Head, ICAR-CIFE, Regional Centre, Salt Lake, Kolkata-700091 and the staff of the centre for providing us all facilities to organize the 12th AGM. Our sincere thanks to the Director, ICAR- ATARI,



Salt Lake, Kolkata; the Head, ICAR-NBSS & LUP, Regional Centre, Kolkata; the Station-In-Charge, ICAR-IVRI, Eastern Regional Centre, Belgachia, Kolkata and the Head, ICAR-CIFE, Salt Lake, Regional Station, Kolkata, for their kind cooperation and support for organizing the meetings of Governing Body, Sub-Committee meetings and different programmes of ARICARE during the period 2025-2026. I hope that all the members of ARICARE and also family members are highly satisfied and enjoyed with the various successful activities and programmes /occasions held throughout the year. At the end, the Secretary is thankful to all the members of ARICARE specially the President, Vice-President, Treasurer, Assistant Treasurer, the members of the Governing Body and the Chairman, Convener and members of different subcommittee, members of Editorial Boards for their very active and sincere support and valuable suggestions in all occasions during the period.

Agenda-4: Remarks by President

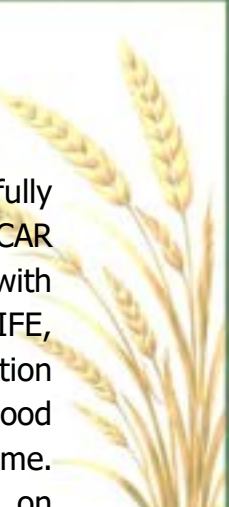
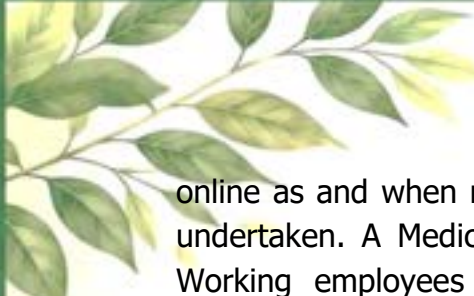
Dr Mrinmoy Datta, President of ARICARE, welcomed all members present in its 12th AGM of ARICARE. He was very much happy with the presence of many senior members as well as new members which indicates our society is going on right path. He mentioned that the secretary already briefed the important activities and decisions taken during last year. He emphasized that our major concern was pension and medical related issues. He requested to all members to be in touch with the members of Pension/Administrative/Medical Sub-committee. He also appreciated the members of the Governing body, the Chairman, Convener and the members of all Subcommittee for their sincere support in successful completion of various activities throughout the year. He completed his speech with a hope that all members including new members would come forward with new constructive ideas to achieve a new horizon/landmark in coming days.

Agenda-5: Auditor's Report

Dr. Debabrata Das, Assistant Treasurer, presented the Auditors Report and the statement of accounts including Receipt & Payment, Income & Expenditure and Balance Sheet of the Association for the financial year 2025-26. After discussion among the members, the statement of account was passed unanimously. (Enclosed scan copy of the Auditors report and the statement of accounts for the period 2025-26).

Agenda-6: Presentation of brief report by the Chairman of various Sub-committee

Dr. Sankar Mahapatra, the Chairman, Sub-Committee for **Pension/ Administration / Medical** and informed the house that several meetings were organized physically and



online as and when required. Among the activities, two programmes were successfully undertaken. A Medical Camp for ARICARE members and their family and also ICAR Working employees was organized on 25th February, 2026 in collaboration with B.P.Podder Hospital and Medical Research Ltd., New Alipore, West Bengal at ICAR-CIFE, 32, GN Block, Sector-V, Bidhannagar, Kolkata, West Bengal-700091 in collaboration with B.P.Podder Hospital and Medical Research Ltd., New Alipore, Kolkata. A very good response was observed among the members and their family in the programme. Another programme was organized on 24.06.2026 on Health Awareness lecture on "Cancer" in association with Peerless Hospital, Kolkata held at ICAR-NINFET, Tollygunge. The Lecture was delivered by Dr. Rajib Bhattacharjee, Eminent Oncologist of Peerless Hospital on interactive mode. About 50 persons participated including some staff members of ICAR-NINFET, Tollygunge. He requested all members to contact the chairman, convenor and any member of the Sub-Committee regarding pension and any kind of medical problems.

Dr. Krishnendu Das, the **Chairman, Social and Cultural Sub-Committee** told the house about the celebration of major four events viz. (1) Illish Utsav held on 20.08.2025 at Bhuribhoj Restaurant, Nalban Food Park, Salt Lake, (2) Vijaya Sanmilani celebration was held on 10th November, 2025 in the Indumati Savagriha at Jadavpur University Campus, Kolkata, (3) The Annual picnic of ARICARE was held on 5th January, 2026 at RAMKRISHNA KUTHIR, Ranikhal Co-operative, S. N. Ghosh Avenue, Kolkata-700103 and (4) Bengali Nababarsha celebration was organized on 14th May, 2026 at "Indumati Sabhagriha", National Council of Education Bengal (NCEB), Jadavpur University campus. He thanked all the members and their family members who participated in the different programmes and their whole hearted support throughout the year.

Dr. (Ms) Syamali Chakraborti, the Chairperson, **Tour Sub-Committee** informed the house that two short trips and one day out were undertaken in West Bengal. The proposed National tour in Chhattisgarh was not organized due to insignificant response of the members in time. Instead, National tour in Gujarat was undertaken in November, 2025. One International tour was organized in Sri Lanka from 25.01.2026 to 03.02.2026 (10 days) and 13 persons with family and guest participated in the tour covering important visiting places of Sri Lanka. She also informed that the domestic tour to Chhattisgarh in November, 2026 and Lakshadweep in January, 2027 may be organized in the coming season by the new Sub-Committee besides a few short trips.

Dr. Sitangsu Mohan Deb, the **Chairman of Community Services** told that three meetings were conducted for discussion and execution of various activities of the Sub-committee. He informed that the Goat Kid distribution for Rural Livelihood Development

was organised on 20.05.2026 jointly by ICAR-IVRI, Eastern Regional Station, Belgachia, Kolkata; Sasta Shayamala Krishi Vigyan Kendra, Ramkrishna Mission Vevekananda Educational & Research Institute (RKMVERI), Arapanch, Sonarour, (S) 24-Pgs. and ARICARE, Kolkata and 3 Goat Kid per head were distributed among the 22 farmers identified in Sonarpur block. In another event held on 16.05.2026, Dr Mrinmoy Dutta, President, ARICARE, on behalf of the organisation donated an amount of Rs. 5000/- to Shri Sandipan Mahapatra, Secretary, Anweshan Bigyan Sanstha (Garia) for promotion of science education literacy among school children under Community Development programme in the presence of ARICARE members namely Dr. Amitabha Bandopadhyay, Dr. Krishnendu Das and Dr. Bijoy Kali Mohapatra at a Science Fair program organized at Balia Nafar Chandra Balika Vidyalaya, Garia.

Dr. Gautam Bose, the **Chairman, Digital Media Sub-Committee** told the house that the members had done a commendable job regarding the upgradation of ARICARE Website. The website was updated through a new vendor, Mr. Sandip Saha from the month of March, 2026. Mrs. Jayashree Nath and Dr. (Mrs.) Tapati Banerjee were acting as Admin. of the website for uploading the various activities/events/information of ARICARE. He also mentioned that ARICARE Official WhatsApp is running well without posting of any disputed / undesirable matters.

Agenda-7: Election of the Office Bearers and Governing Body Members for 2026-27

The election of the six Office Bearers and ten executive members of the Governing Body for 2026-27 was done through election procedure. For the election purpose, Dr. Nema Chandra Pan (the Returning Officer) and Mr. Sumit Ranjan Sarkar (the Assistant Returning Officer) were selected in the third Governing Body meeting held on 25.3.2026. Dr. N.C. Pan and Mr. Sumit Sarkar took the Dais to complete the election procedure. Mr. Sakar read out the election procedure to elect the six office bearers and ten executive members of the Governing Body for 2026-27. Then Dr. Pan announced that 6 persons submitted their nomination for only one post in 6 Office Bearers post and 8 persons submitted the nomination for 10 executive member post. Two posts of Executive member are vacant and it would be filled up through proposal in the house. He declared the name of elected members and it was as follows: **Elected members of Office Bearers for 2026-2027**

1. Dr. Mrinmoy Datta -President
2. Dr. Sitangsu Mohan Deb -Vice President
3. Dr. Dulal Chandra Nayak - Secretary
4. Dr. Gautam Bose -Assistant Secretary
5. Mr. Binoy Kumar Saha -Treasurer
6. Dr. Debabrata Das - Assistant Treasurer

2. **Elected Members of Executive Committee for 2026-2027** (1) Dr. Sudhansu Sekhar Pal (2) Dr. (Ms) Syamali Chakrabarti (3) Dr. Krishnendu Das (4) Dr. Alok Nath Roy (5) Dr. Sankar Kumar Mahapatra (6) Dr. Asok Biswas (7) Mr. Balaram Chatterjee (8) Mr. Subrata Kumar Pal. The vacant two post of executive members were elected through proposal and seconded procedure. Dr. K. Das proposed the name of Dr. (Mrs.) Tapati Banerjee and it was seconded by Dr. Debabrata Das. The name of Mr. Subhas Chandra Sheet was proposed by Mr. B.K.Saha and seconded by Mr. Subrata Kumar Pal.
3. **The rest two executive members of the Governing body of ARICARE** was elected through selection procedure are: (9) Dr. (Mrs.) Tapati Banerjee (10) Mr. Subhas Chandra Sheet

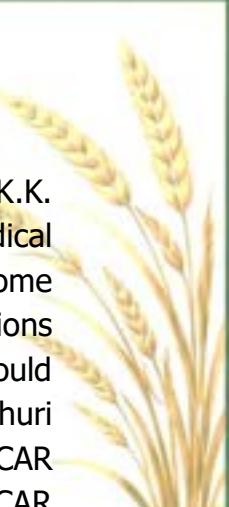
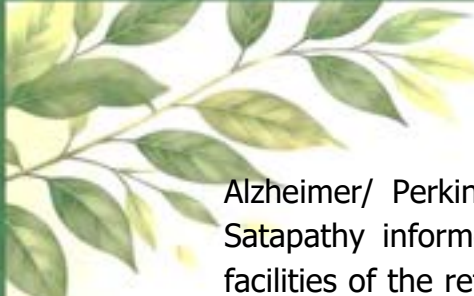
The following persons mentioned below are the elected Office Bearers and Executive Committee Members of the Governing Body of ARICARE for 2026-2027. Dr. Mrinmoy Datta -President, Dr. Sitangsu Mohan Deb -Vice President, Dr. Dulal Chandra Nayak - Secretary, Dr. Gautam Bose -Asstt. Secretary, Mr. Binoy Kumar Saha - Treasurer, Dr. Debabrata Das - Asstt. Treasurer (Office Bearers);

Dr. Sudhansu Sekhar Pal, Dr. (Ms) Syamali Chakrabarti, Dr. Krishnendu Das, Dr. Alok Nath Roy, Dr. Sankar Kumar Mahapatra, Dr. Asok Biswas, Mr. Balaram Chatterjee, Mr. Subrata Kumar Pal, Dr. (Mrs.) Tapati Banerjee and Mr. Subhas Chandra Sheet (**Executive Committee Members**).

Permanent Invitee of the Governing Body: (1) Dr. Krishna Kishore Satapathy and (2) Mr. Sumitranjan Sarkar.

Agenda-8: Discussion/Views of Members on Secretary's report, Audited account report and Chairman's report of various Sub-committee.

Dr. D. P. Sinhababu suggested that for the pension issue, one person should act as nodal officer. Mr. Sumitranjan Sarkar was selected unanimously as the nodal officer for pension related issues. Dr. Sinhababu also expressed his satisfaction for election procedure of GB members. Dr. Tapati Banerjee mentioned that the expenditure of printing of "ANWESHA" Magazine was high, the cost may be compensated through the collection of advertisements specially from the TRAVEL agents. Dr. M. Datta reacted that some fund was collected in last year from the advertisements. Dr. S.M. Deb suggested that some advertisements may be collected through the birthday wishes or special celebrations. Dr. Syamali Chakrabarty appreciated the initiative of health awareness lecture on cancer in recent time organised by ARICARE. She suggested that more lectures on health issues like



Alzheimer/ Parkinson disease etc for senior citizens may be organised. Dr. K.K. Satapathy informed that our association had been working seriously for medical facilities of the retired persons of ICAR from its inception, but we achieved to some extent. Every ICAR Institute have their own modalities of administrative operations and it is difficult to convince them regarding our problems. He hoped that we should continue our efforts and also explore alternatives. Dr. Subrata Ghoshal Choudhuri suggested that the representatives of ARICARE, Kolkata should meet the ICAR Officials (DG, DDG or Higher officials of Administration) during their visit of ICAR Institutes in Kolkata and discuss the medical treatment problems of the retired ICAR employees and their family members. Then the President expressed his satisfaction for the active participation of all members in interactive session. He assured that all proposals/suggestions will be taken up by the new Governing Body and different Sub-Committee to enrich our association.

Agenda-9: Presentation by CareKnight Services (Medical / Personal Care)

Dr. K. Das announced that the delegates of CareKnight services were present to elaborate their services mainly medical and logistics support for senior citizens. The manager explained the activities and different medical related services of their company with some examples. Then one doctor highlighted the importance of CPR (Cardiopulmonary Resuscitation). It is an emergency life saving procedure performed when a person's breathing or heartbeat has stopped. He demonstrated the different steps of CPR through ppt presentation. Then the interaction between the delegates and ARICARE members regarding the cost of various services and availability of the services for 24x7 etc. They provided the leaflets of the company to all members and also collected the mobile number of all ARICARE members for future interaction and any kind of services needed. Dr. M. Datta thanked them for their demonstration and interactions and felicitated them with a token of gift.

Vote of thanks

Dr. Gautam Bose, Assistant secretary offered vote of thanks at the end of the meeting. He expressed his sincere thanks to Dr. Tapas Kumar Ghoshal, the Head and all staff members of the Regional Centre, ICAR-Central Institute of Fisheries Education (CIFE), Regional Station, 32, G. N. Block, Sector- 5, Salt Lake City, Kolkata -700091 for providing us all facilities to organize the 12th AGM of ARICARE and refreshment in the training hostel. Our sincere thanks to the Director, ICAR-NINFET, Tollygunge; Director, ICAR- ATARI, Salt Lake, Kolkata; the Head, ICAR-NBSS & LUP, Kolkata Centre, Salt Lake; the Station-In-Charge, ICAR-IVRI, Eastern Regional Centre, Belgachia, Kolkata and the Head, ICAR-CIFE, Salt Lake, Regional Station, Kolkata, for their kind

cooperation and support for organizing the Governing Body, SubCommittee meetings and different programmes of ARICARE during the period 2025-2026. He thanked to the members of ARICARE who are directly or indirectly involved in organizing this Annual General Meeting. He also thanked all existing as well as new members for their presence and active participation in this AGM making it a grand success. He expressed his sincere thanks to the delegates of CareKnight services for the information of medical related services for senior citizens and the demonstration CPR in emergency. The meeting was declared closed on the permission of the President followed by Group Photo and lunch.



Inaugural Session of AGM



Members present in the meeting



Our Activities in AGM



Group Photo of all Participants (Members) at AGM held on 4th July

Governing Body (GB) Meeting

3rd meeting of the Governing Body (GB) of ARICARE for 2025-26 was held on 25.3.2026 (Wednesday) at Scientist's Home (Guest House), ICAR-NBSS & LUP, Bhumi Vihar Complex, Block-GB, Sector-III, Salt Lake, Kolkata-700097. Meeting was attended by Drs M. Datta , SM Deb , DC Nayak , G. Bose , AN Roy , SK Mahapatra , D Das , B K Saha , SK Pal and Invitees , Dr KK Satapathy and Mr Sumitranjan Sarkar The decision was taken for the election of the Office-bearers and 10 executive members of the Governing Body of ARICARE for the period 2026-2027 through the election procedure. For the election purpose, Dr. Nemai Chandra Pan (the Returning Officer) and Mr. Sumit Ranjan Sarkar (the Assistant Returning Officer) were selected unanimously.



An online meeting (4th) of the Governing Body (GB) of Aricare for 2025-26 was held on 7th April , 2026 (Tuesday) from 8.00 PM to 9.30 PM on Google Meet. Members present in the meeting were Drs M. Datta ,SM Deb , DC Nayak , SS Pal , Syamali Chakraborti , Asok Biswas , Debabrata Das , Mr BK Saha and Mr Sumitranjan Sarkar

The venue of the AGM would be , as decided in the online GB meeting , at ICAR- Central Institute of Fisheries Education (CIFE), Regional Station, Sector- V, Salt Lake, Kolkata-700091 and the date was fixed on 04th July, 2026 (Saturday).



Online GB Meeting

An Urgent meeting (5th) of the Governing Body Meeting (GB) of Aricare for 2025-26 was also held on 8th May , 2026 at 8 .00 PM via Google Meet . Members present in the meeting were Drs M. Datta ,SM Deb , DC Nayak , G. Bose ,K Das ,SK Mahapatra ,SS Pal , Syamali Chakraborti ,, Madhumita Das , Debabrata Das , Mr BK Saha and Mr Sumitranjan Sarkar. The main discussion held in the online GB Meeting was (1) finalization of the recommendations of Digital Sub- Committee for smooth functioning of Aricare website and (2) approval of the payment of the website vendor. As per the recommendations of Digital Sub - Committee, the new Vendor is Mr. Sandip Saha and Admins of the Website of ARICARE are Smt. Jayashree Nath and Dr. (Mrs.) Tapati Banerjee. The vendor Mr. Saha negotiated with a bill amount of Rs. 34000/- for all activities including upgradation of Version 2.0 to 14.0, restoring all data of files and documents etc., and the said amount was approved by the members present in the meeting.



Google Meet

1st Meeting of Governing Body of Aricare for 2026-27 was held on 15/07/2026 at ICAR – NBSS & LUP Scientist Home , GB Block , Salt Lake , Kolkata . The members (13 nos) , Dr M. Datta , Dr DC Nayak ,Dr G. Bose ,Dr Debabrata Das ,Mr BK Saha (Office Bearers) , Dr K Das ,Dr SS Pal , Dr (Ms) Syamali Chakrabarti , Dr Asok Biswas , Mr Balaram Chatterjee , Mr Subrata Pal (Executive members) and Dr KK Satapathy and Mr Sumitranjan Sarkar as Permanent Invitee of Aricare had attended GB Meeting .



1st GB Meeting held on 15th July , 2026

Different activities of GB Meeting are carried out by the various Sub – committee of Aricare which are constituted as such in the GB meeting to function in 2026-27 and Chairperson / Convener along with members are mentioned below.

DIFFERENT SUB-COMMITTEE of ARICARE (2026-27)

(1) Pension, administration and medical sub-Committee

Dr. Sankar Kr Mahapatra (Chairman) 2. Mr. Balaram Chatterjee (Convener) 3. Mr. Sumit Ranjan Sarkar 4. Dr. Alok Nath Roy 5. Dr Sitangsu Mohan Deb 6. Dr. Gautam Bose 7. Dr. Sambhu Nath Chattopadhyay 8. Mr. Subhas Chandra Sheet (2)

(2) Social and cultural Sub-Committee

Dr. Krishnendu Das (Chairman) 2. Dr. Debabrata Das (Convener) 3. Dr. Syamali Chakrabarti 4. Dr. Sachidulal Raychaudhuri 5. Mr. Swapan Kumar Sinha 6. Dr. (Mrs.) Tapati Banerjee 7. Mr. Binoy Kumar Saha 8. Dr. Partha Pratim Pal

(3) Tour Sub-Committee

Dr. Syamali Chakrabarti (Chairperson) 2. Mr. Binoy Kr Saha (Convener) 3. Dr. Nimai Chandra Pan 4. Dr. Sudhansu Sekhar Pal 5. Dr. Krishnendu Das 6. Dr. Sankar Kumar Mahapatra 7. Dr. Biplab Saha

(4) Community Service Sub -committee

Dr. Sitangsu Mohan Deb (Chairman) 2. Dr. Krishnendu Das (Convener) 3. Dr. Alok Nath Roy 4. Dr. Swarup Kumar Chakrabarti 5. . Dr. B. K. Mahapatra 6. Dr. Asok Biswas 7. Dr. Debabrata Das.

(5) Digital Media Sub-committee

1. Dr. Gautam Bose (Chairman) 2. Dr. (Mrs.) Tapati Banerjee (Convener) 3. Dr. Sudhansu Sekhar Pal 4. Mrs. Jayashree Nath.

(a) Administrators 'WhatsApp'

1. Dr. Gautam Bose 2. Dr. Sitangsu Mohan Deb 3. Dr. Krishnendu Das

(b) Administrators 'Face book'

1. Dr. Krishnendu Das 2. Mr. Binoy Kumar Saha

(c) Administrators 'ARICARE Website'

1. Mrs. Jayashree Nath 2. Dr. (Mrs.) Tapati Banerjee

A. Editorial Board "ARICARE" Newsletter

1. Dr Mrinmoy Datta 2. Dr. Asok Biswas

B. Editorial Board "ANWESHA"

1. Dr. Sudhansu Shekhar Pal 2. Dr. Asok Biswas

The Administrators of 'WhatsApp', 'Face book' and 'ARICARE Website' will be associated with the Digital Media Sub-committee.

* President, Secretary and Treasurer will be ex-officio member of all the Sub-Committee. The chairman of the different Sub-Committee is authorized to **induct any other member** in their committee as they deem fit.

It is also requested to the Chairman and Convener of all Sub-Committee to make separate WhatsApp group including President, Secretary and Treasurer as ex-officio member to communicate themselves as and when required.

Dr. K. Das, the Chairman of Social and Cultural Sub-committee informed that the Illish Utsav may be organized at ICAR-CIFE, Regional Centre, 32, G. N. Block, Sector- 5, Salt Lake City, Kolkata-700091 on 26.7.2026. The details of the programme may be circulated soon through WhatsApp. Dr. Syamali Chakrabarti, the Chairman of Tour Sub-committee informed that the short tours may be undertaken in Bankura, West Bengal in August, 2026; Mainpat from Jharkhand in September, Jhargram, West Bengal in November and the Sunderbans in December, 2026. The Domestic tour will be organised in MP (last week of October, 2026) and Lakshadweep in January, 2027. The finalization of the above programmes will be done in Tour Sub-committee meetings and

all details will be circulated in time. The President requested to Dr. Gautam Bose, the Chairman of Digital Sub-committee to organize its meeting as early as possible regarding the updating and AMC for the maintenance of ARICARE Website.

The President expressed that the financial condition of ARICARE is not up to the mark to meet the expenditure for the year-wise various programmes. The entry of new life membership in last year is very less. The matter was discussed thoroughly among the present GB members. After the discussion, the decision was taken unanimously that an appeal is to be made to all members of ARICARE to contribute minimum Rs. 500/- (Rupees five hundred only) for the period 2026-2027 **as Annual Development or/ Maintenance fee** to meet the expenditure of various programmes throughout the year. Some members may donate individually without limit. The money will be sent to our Association account through online transfer (Net banking/ G-pay/QR code etc.). A separate notice in this regard will be circulated as early as possible. Some members suggested that the cost of printing of e-Magazine "Anwesha" and e-Newsletter of ARICARE may be collected **through advertisements**. The rate of advertisements is fixed as follows: (a) Full back cover page-Rs.5000/-, (b) Full Back inner page- Rs. 4000/-, (c) Full back Inner page- Rs.4000/, (d) Full page -Rs.1000/- and (e) Half page-Rs.500/-. All members are requested to try their best to collect the **advertisements**. Dr. K. K. Satapathy suggested that all files of ARICARE regarding Original Bye-Laws, AGM minutes, Audit Reports, different committee in respective years etc. should be kept in one place preferably with the President / Secretary. The President, Dr. Mrinmoy Datta agreed to keep these files with him. It is requested to the present Secretary and present/ past Treasurer to take the necessary action. Mr. Sumitranjan Sarkar said that the **address of our Association should be changed** as our past Secretary, Dr. B. K. Bandyopadhyay had

expired in December, 2025. His family members desired that it would be better to change the address of ARICARE. The matter was discussed thoroughly among the members. **Dr. Gautam Bose, Asstt. Secretary, had agreed to provide his address as the office address of ARICARE and the necessary action will be taken in this regard. The address of Dr. Gautam Bose is: Block: AK-106, Sector-II, Salt Lake City, Kolkata-700091.**

Pension , Administration and Medical Sub- Committee

On 16.02.2026, the team of Sub – Committee , ARICARE, Kolkata visited at ICAR- Central Institute of Fisheries Education (CIFE), 32, GN Block, Sector V, Bidhannagar, Kolkata, West Bengal - 700091 for discussion to hold an Annual Health Check up of ARICARE members and their family in collaboration with B. P. Poddar Hospital and Medical Research Ltd. Members present in the meeting were Drs M. Datta , Dr K. Das , Mr Sumitranjan Sarkar and Mr B.K Saha discussing with Dr G.H. Pailan , Principal Scientist from ICAR- CIFE , Kolkata to provide suitable place for holding Annual Health

Check up Camp . Mr Amit Chandra from BP Podder Hospital & Medical Research Ltd , Kolkata was also present in the discussion for organizing this Medical Camp in the campus of ICAR – CIFE , Regional Centre for pensioners as well as Staff of ICAR Institute .



Sub-Committee Meeting at ICAR-CIFE

Annual Health Check up of ARICARE members and their family was held on 25.02.2026 at ICAR-CIFE, 32, GN Block, Sector V, Bidhannagar, Kolkata, West Bengal - 700091. Seventy (70) persons were present in the camp. Staff of ICAR – CIFE had also joined in the Health Check up Camp organized by Aricare. Blood Pressure , Sugar Test , ECG , Eye Test and Pulmonary Tests were conducted in the Camp.

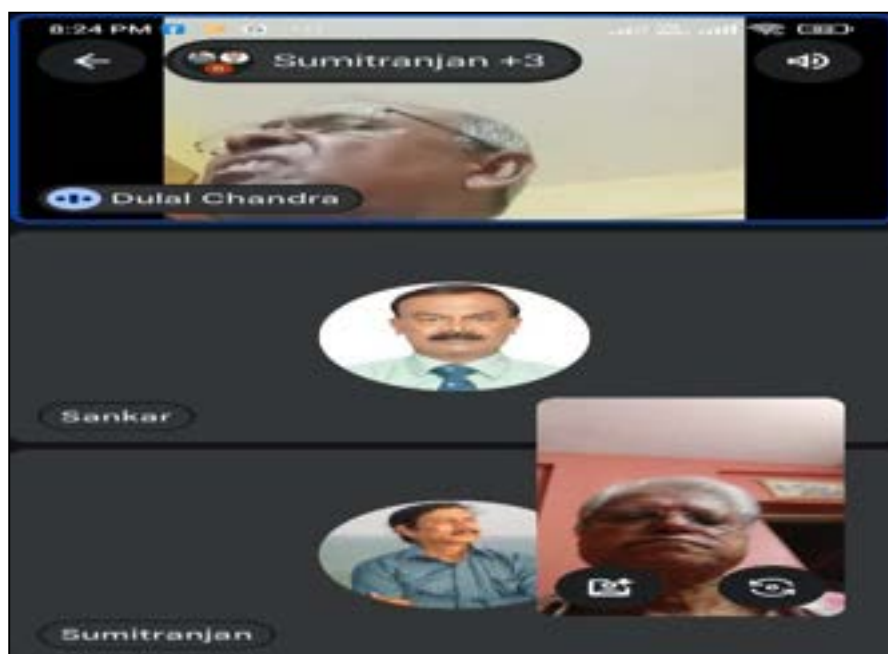


Medical Camp in operation at ICAR - CIFE



We are with Team of BP Podder Hospital & Medical Research Ltd, Kolkata

Online meeting of Pension , Administration and Medical Sub- Committee , ARICARE was held on Sunday, 24 May at 8:00 – 9:30 pm The members were present: Dr.D.C.Nayak, Dr. Sankar Mahapatra, Sh. Sumit Ranjan Sarkar and Sh. B. K. Saha. The meeting was held to decide for organizing a health awareness programme on Oncology shortly in the auditorium of ICAR – NINFET , Kolkata.



On line Meeting of Pension /Medical/Administrative Sub –Committee on 24th May, 2026

Health Awareness Session was organized by ARICARE in association with Peerless Hospital, Kolkata held at ICAR-NINFET, Kolkata on 24.06.2026. Speaker was Dr. Rajib Bhattacharya , Consultant , Oncologist , Peerless Hospital , Kolkata . The awareness session was inaugurated by Dr D.B. Shakyawar, Director , ICAR – NINFET , Kolkata . Fifty (50) members and their families from Aricare were present in the awareness Session.



Programme on Health Awareness Session at ICAR – NINFET , Kolkata



Members / their families, Aricare attended Oncology Awareness Session on 24th June, 2026.

Social and Cultural Sub-Committee

ARICARE Social and Cultural Sub-committee online WhatsApp meeting was held on 9th March, 2026 from 8 - 9 PM and the meeting was attended by Dr. M. Datta , Dr K.Das , Dr S. Raychoudhuri , Dr (Ms) Syamali Chakrabarti , Dr (Ms Tapati Banerjee , Mr Sumit ranjan Sarkar and Mr BK Saha regarding the plan to have Barsobaran festival in the time to come .



On line Meeting of Social and Cultural Committee

On 20.04.2026 the Members of ARICARE under Social and Cultural Sub-Committee (Dr M. Datta , Dr K.Das , Dr(Ms) Syamali Chakraborti and Mr B.K Saha) were present for a discussion meeting at the office of National Council of Education Bengal (NCEB),

Jadavpur University regarding this year Association's Barsobaran Utsav proposed to be held on 14th May, 2026 at Indumati Sabhagriha, Jadavpur.



Social and Cultural Sub- Committee Meeting to organise Barsobaran festival

"BARSOBARAN"(বর্ষবরণ) , Bengali Calendar 1433 , Programme of ARICARE was held on 14th May , 2026 at "Indumati Sabhagriha", National Council of Education Bengal (NCEB), Jadavpur University. Seventy five (75) members along with their family members had attended the programme. Members had performed Integrating songs , recitation to make all engrossed in cultural activities. Children had also performed Dance along with songs from background and expressive Rhymes . Story telling in a dramatic way was also performed here in Barsobaran festival. Programme came to an end after offering Tea / Biscuits (Interval) and Snacks in packets.



Glimpse of Our Cultural Activities on 14th May, 2026.



Members/ families present in Bengali Barsoboron , 1433 (বর্ষবরণ)

Ilish Utsav (ইলিশ ভোজ) was held in the campus of ICAR – CIFE , Kolkata Regional Office on 26th July , 2026 (Sunday) and 24 persons (Members of Aricare/ their families /friends) attended to relish the various preparation made out of ilish fish.



Ilish Utsav



Members of Aricare and their families present in Ilish Utsav at Kolkata

Tour Sub- Committee

Aricare , Tour Sub –Committee had organized a short tour for 2 days /1 night on 18-19 th March , 2026 to Ishani Resort near Ghatakpur , Science City , Kolkata and Dr KK Satapathy , Dr M. Datta ,Dr (Ms) Syamali Chakraborti along with their spouses had spent the natural environment in rural Bengal.



A short Tour organized by Aricare

A meeting of the ARICARE Tour Sub- Committee was held on 8th June 2026 at Metropolis MALL, Food Court, Highland Park , Kolkata to discuss about the Society's future tour programme and finalisation of the programme. Meeting was attended by Dr M. Datta , Dr (Ms) Syamali Chakrabarti , Dr SK Mahapatra , Dr D. Barman , Dr Biplab Saha and Mr BK Saha .



Tour Sub- Committee Meeting held on 8th June , 2026.

ARICARE Tour Sub- Committee had organised a short trip to visit Deoghar, Madhupur and Giridi from 16th to 19th July, 2026. Places visited by Members (13 persons) of Aricare , Dr KK Satapathy , Dr M. Datta , Dr (Ms) Syamali Chakrabarti , Dr Subrata Biswas , Dr Monoranjan Saha , Dr SS Pal , Dr KK Datta , Dr BK Mahapatra along with their spouses , were Dhumka , Deoghar (Tapovan Hill , Thakur Anukul Chandra Ashram , Baba Baidyanath Temple, Naulakha Temple) , Madhupur , a Tranquil Health Resort , Jharkhand (Pathrol Kali Temple , Kapil Munir Math , Vivekananda Math) and Giridih (Usri Falls , Khandoli Nature Resort).



We were at Madhupur



On way to Tapovan Hills in Deoghar

Community Services Sub –committee

A Goat Distribution Programme was held on 20th May , 2026 by Sasya Shyamala Krishi Vigyan Kendra , Sonarpur in Collaboration with ICAR – IVRI Regional Station , Belgachia , Kolkata and Aricare.



Goat Distribution at KVK , Sonarpur

Twenty (22) Tribal Farmers from Gosaba under Sonarpur Block got 3 5 month old goat kids each arranged under TSP fund of ICAR – IVRI . Officials present in the goat distribution were Dr Swagat Ghosh and Dr Saboswroup Ghosh , KVK , Dr Arnab Sen , Head , Regional Station , ICAR – IVRI , Dr Tapas Biswas Dr Samiran Bandopadhyay from ICAR – IVRI , Dr M. Datta , Dr SM Deb , Dr K.Das , Dr Debabrata Das , and Mr BK Saha from Aricare. Scientists from ICAR – IVRI had also rendered valuable talk /advice to rear Goat in a Scientific way and Medicines were also distributed free to the farmers.

An amount of Rs 5000/- was donated by Aricare to Shri Sandipan Mahapatra, Secretary, Anweshan Bigyan Sanstha (Garia) for promotion of Science Education Literacy among School Children under Community Development Programme at a Science Fair programme organised on 16th May , 2026 at Balia Nafar Chandra Balika Vidyalaya, Garia. The Science Fair Programme was attended by Dr M. Datta , Dr. Amitabha Bandopadhyay, Dr. Krishnendu Das and Dr. Bijoy Kali Mohapatra.



Science Fair in Garia , Kolkata



Donation from Aricare



Science Models / Exhibits in a School

Digital Sub – Committee

The Digital Sub-committee (2025-26) meeting of ARICARE, Kolkata was held on 07/03/2026 (Saturday) at ICAR- NBSS & LUP Guest House premises. Meeting was attended by 8 Members of Aricare , Dr M. Datta , Dr SM Deb , Dr DC Nayak , Dr G. Bose , Dr K. Das , Dr. (Ms) Tapati Banerjee , Dr SS Pal , Mr BK Saha.



Digital Committee Meeting



There was a discussion regarding the Aricare Website which was not functioning for the last two months during that period and attempt was made in the meeting to contact the previous person (Web Designer) over phone to obtain all related information to make the system working.

2nd meeting of the Digital Sub-Committee (2025-26) was held on 06.05.2026 (Wednesday) at Scientist's Home (Guest House), ICAR-NBSS & LUP, Bhumi Vihar Complex, Block-GB, Sector-III, Salt Lake, Kolkata-700097 to discuss functioning of the new website of ARICARE prepared by the present Web Designer and two persons, Ms Jayshree Nath and Dr (Ms) Tapati Banerjee were proposed to act as Admin of our new version of Aricare Website. Meeting was attended by Dr M. Datta, Dr SM Deb, Dr DC Nayak, Dr G. Bose, Dr K. Das, Ms Jayshree Nath and Dr (Ms) Tapati Banerjee along

with New Web Designer (Mr Sandipan Saha) . Following were the steps undertaken for the present form of Aricare Website.

- Domain name and Hoisting registration for one year from March ,2026
- Previous website hosting and admin newly developed with updated php My- sqri 12.0 version from an old 2.0 version.
- Fix all odd codes , newly developed admin Databases and live website with all existing contents , files and images .
- Https certification for website



Meeting Of Digital Committee Meeting held on 6th May , 2026

Life Member

Two retired Scientists have enrolled as Life Member of Aricare 1. Dr. Sambhu Nath Chattopadhyay, Principal Scientist, ICAR-NINFET, Kolkata. 2. Dr. Sanjay Kumar Ray, Principal Scientist & Head, ICAR-NBSS & LUP, Kolkata.



Dr Sambhu Nath Chattopadhyay



Dr Sanjay Kumar Ray

Our Achievements / Engagements

Following are the Professional Engagements of **Dr P. Das** , Former Deputy Director General , Agricultural Extension , ICAR , New Delhi during the reported period.

Sl. No.	Date	Particulars
1.	6.3.2026	-Chaired the Pre-Conference briefing of the Consultative Workshop on "Transforming Agricultural Extension Education and Advisory Service System in North-East India: Policy Perspectives for Viksit Bharat 2047" Barapani, Meghalaya.
2.	6.3.2026	-Guest of Honour at the South India Cultural Show, held at Barapani, Meghalaya.
3.	7.3.2026	Presented a Keynote Address on "Agricultural Innovation System (AIS) @ 2047 -Strategic Vision for Aligning Agricultural Extension with the Physical and Economic Geography of North-East India"at the Consultative Workshop.
4.	8.3.2026	Participated as an observer at the Group Exercises at the Consultative Workshop
5.	9.3.2026	Worked with various groups on various themes of the Agricultural Extension Service and Agricultural Extension Education.
6.	10.3.2026	Delivered an interactive lecture to the Heads of the KVKs and scientists of ATARI, Omain on Strategic Vision for aligning Agricultural Extension with physical and economic geography of North-East India.
7.	21.3.2026	Delivered a Keynote Address on " in Technical Session-I on "Agri-Startups and Entrepreneurial Ecosystems in North-East Bharat" held at CAU, Imphal, Manipur
8.	21.3.2026	Worked as Session Coordinator, Session 1. Agri-Startups and Entrepreneurial Ecosystems in North-East Bharat.
9.	22.3.2026	Chaired, Technical Session III: Farm-to-Market System, Value Chain and Market-Led Agriculture.
10.	23.3.2026	Chaired, Judges' Committee, Student's Oral and Poster Presentation
11.	23.3.2026	Participated in the Valedictory Session. A policy paper entitled, "Agricultural Extension Innovation for Achieving US \$ 1.3 Trillion North-East India Economy @ 2047", edited by P.Das and Loukham Devarani; was released by the Hon'ble Chief Minister of Manipur.
12.	22-6.2026 To 24-6.2026	--Participated in the inauguration of 15th Research Council & 11th Extension Education Council Meeting of the Central Agricultural University, Imphal. --A policy paper was released by the Hon'ble Governor of Mizoram, entitled " STATE STRATEGIC FRAMEWORK POLICY BLUEPRINT: TRANSFORMATION OF THE MIZORAM ECONOMY US\$ 540MILLION ---USD 6,394 MILLION @

		2047" Edtd. P.Das and Narmada Hidangmayum. --Chaired all the technical sessions from 22-6.2026 to 24.6.2026 -Participated in the Validictory Session on 24-6.2026.
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Following are the Professional Engagements of **Dr Swarup Kumar Chakrabarti** , Former Director , ICAR – CTCRI and Former Vice Chancellor , UBKV , Cooch Behar, West Bengal.

- Nominated as Convener, Sectional Committee X: Agriculture and Forestry of the West Bengal Academy of Science and Technology (WAST) for the period 2026–2029.
- Attended the third Advisory Committee Meeting of the NASF Project: "Global Value Chain Analysis of Plantation Crops in India-with special emphasis on food safety standards" at ICAR-CPCRI, Kasaragod on 7th March 2026 as Chairman.
- Chaired the session on "Current Perspectives on Crop Health and Sustainable Plant Disease Management" organized by Indian Phytopathological Society, New Delhi on 18 th February 2026 at Bidhan Chandra Krishi Viswavidyalaya (BCKV), Kalyani, Nadia.
- Chaired CAS Evaluation Committee meeting of ICAR-CRIJAF, Barrackpore on 2 nd March 2026 for the discipline of Agricultural Biotechnology, Genetics and Plant Breeding and Agricultural Microbiology.
- Chaired CAS Evaluation Committee meeting of ICAR-CPRI, Shimla on 12th March 2026.
- Attended the Finance Committee of CAU, Imphal on 17th March 2026.
- Chaired the 62 nd Research Advisory Committee meeting of CSB-CSRTI, Berhampore on 27 th and 28 th March 2026.
- Attended the Board meeting of Mahindra HZPC Private Limited (MHZPC) on 13th April 2026.
- Attended the 35th Annual General Meeting of the West Bengal Academy of Science Technology 23rd May 2026 at the Main Auditorium, IIT Kharagpur Research Park Plot No. III B12, Action Area III, New Town, Kolkata 700 160.

Dr Madhumita Das , Former Acting Director and Principal Scientist , ICAR – IIWM , Bhubaneswar , Odisha had published the following Technical Bulletin.

Das M. and Ghosh D. (2026). Wastewater Potential and Safe Use Perspective in Irrigated Agriculture. In Safe Use of Wastewater in Agriculture, Technical Bulletin No. 93, ICAR-Indian Institute of Water Management, Bhubaneswar. Page 1 – 13.

Following are the Professional Engagements as well as Publications of **Dr Baidyanath Paul** , Former Principal Scientist , ICAR – CIFA , RRC , Rahara , West Bengal .

Date	Engagement
28.02.26	➤ Evaluated the Ph.D. thesis, entitled 'Influence of dietary lipids and micronutrients on omega 3 fatty acid biosynthesis and tissue deposition in rohu <i>Labeorohita</i>(Hamilton, 1822)' in Fisheries Science submitted by Mrs. Mamata Mahapatra, Utkal University, Vani Vihar, Bhubaneswar.
18-19 March 26	➤ Participated as an invited speaker at the National Conference on Recent Advances in Animal Sciences (RAAS-2006) and presented a lead paper on 'Role of Farm made feeds in Sustainable Aquaculture Production' in the Fish Biology and Aquaculture Session organized by the Department of Zoology, University of North Bengal, Siliguri. ➤ Served as a judge for the selection of the Best Poster and Best Oral Presentation Awards across different scientific sessions of RAAS-2006.
02.05.26	➤ Conducted sessions of Fisheries and Aquaculture for journalists of Dainik Bhaskar School of Journalism, Bandra, Mumbai-400051
22.05.26	➤ Acted as External Examiner and conducted the M.V.Sc. Viva-Voce Examination of Ms. D. Bhavya Spoorthy (Animal Nutrition) on 'Evaluation of dermal wound healing in Rat supplemented with zinc and Probiotics' at the Animal Nutrition Department, West Bengal University of Animal and Fishery Sciences, Belgachia, Kolkata
29.05.26	➤ Served as an Expert Member in Fisheries Science at the 9th Meeting of the Research and Extension Education Council (REEC) of the West Bengal University of Animal

	and Fishery Sciences, Belgachia, Kolkata.
22.06.26	➤ Acted as External Examiner and conducted the Ph.D. Viva-Voce Examination of Mr. Vibhor Agrawal (Animal Nutrition) on 'Assessing the potential of the Conch Shell (<i>Turbinellapyrum</i>) powder as source of minerals on Growth performance in Crossbred jersey calves and Bengal kids' at the Eastern Regional Station (ERS), ICAR-National Dairy Research Institute (ICAR-NDRI).
10.07.26	➤ Invited as Guest of honour at the celebration of National Fish Farer's day on 10 th July 26, at ICAR-Central Institute of Freshwater Aquaculture, RRC, Rahara, Kolkata 700126

Publications

- Das,A., Hoque,F., Mandal,R.N., Adhikari,S., **Paul,B.N.**, Hussan,A., D.N.Chattopadhyay.,Chakrabarti,P.P. and P. K.Sahoo.(2026). Applied Effect of feeding Tubifex worms, mixed zooplankton, and a combination of both, and habitat enrichment on the growth and survival of barred spiny eel (*Macrogynathus pancalus*, Hamilton, 1822) Juveniles Journal of Applied Aquaculture.38:200-217.
- Mandal,R.N., Bala,K., **Paul,B.N.**, Das,A., Adhikari,S., Hoque,H., Hussan,A., Sarkar,S. and P.K Sahoo. (2026). Improved larval rearing of *Heteropneustes fossilis* with live food organisms-a method practised in the farmers's field. Aquaculture Asia.30: 3-10.
- Chanda,S.,**Paul,B.N.**,Singh,P.,Ghosh,K and Giri,S.S. 2026. Comparative study of Proximate Composition, Minerals, Vitamins and Fatty acid Contents in *Labeo rohita* (Hamilton, 1822) reared in Freshwater and Treated Wastewater. Indian Journal of Animal Nutrition. 43(1);102-109. doi:10.56093/IJAN.v42i3.12.
- Hoque, F., **Paul,B.N.**, Samanta, M. and Sahoo,P.K. (2025) Latest Advances in Aquatic Animal Health: Innovative Tools and Methodologies for Aquaculture. Nilitima. 25: 70-73 (**Hindi Publication**).

Following are the Professional Engagements/ Publication /Award of **Dr B.K. Mahapatra** , Former Principal Scientist & Regional Head , ICAR- CIFE , Kolkata

Sl No.	Date	Achievements
1.	02.02.2026	Evaluated the doctoral thesis and conducted the Ph.D. Viva voce examination of Mr. Mitesh H. Ramteke as an Examiner, providing critical scientific assessment and constructive recommendations for the award of the Ph.D. degree in

		Aquaculture.
2	11.02.2026	AIR Recording on Adhunik Maachh Chase Pukur Prastuti o Maachh Chharar Bigyan Bhittik Podhati. First broadcast on 4 th March 2026
3	13.02.2026	Delivered a lecture in the District-Level Krishi Mela, organised by the Sasya Shyamala KVK, Narendrapur, on the theme "Coastal Agriculture".
4	19.02.2026	Delivered an invited lecture at the seminar-workshop on "Interactive Life Forms on Earth: Technologies and Opportunities", organised by Sadhu Ramchand Murmu University of Jhargram.
5	19.02.2026	Moderation of the Question paper at Vidyasagar University
6	28.02.2026	Attended the celebration of National Science Day organized by The Science Association of Bengal (SAB)
7	07.03.2026	Speaker and Panelist on "Good Management Practices in Aquaculture" during the Bengal Fish Fest 2026, organized by the Department of Fisheries, Government of West Bengal
8	10.03.2026	Attended PhD committee meeting as external Expert at VU
9	10.03.2026	Attended RAC as a member Research Advisory Committee at Raja Narendralal Khan Womens College
10	11.03.2026	Appointed as a Member of the Board of Examiners by Sambalpur University for the evaluation of the Doctor of Science (D.Sc.) dissertation entitled " <i>A Systematic Study on Indigenous Freshwater Fishes of Undivided Paschim Medinipur, West Bengal, India</i> ".
11	30.03.2026	Member of the Board of Studies (Undergraduate) in Fishery Science at Vidyasagar University.
12	16.04.2026	Attended BOS meeting at Vidyasagar University, Mednipore
13	22.04.2026	Webinar lecture on Management Practices on Ornamental Fisheries at NCDC Linac , Gurugram
14	06.05.2026	Acted as an Expert in the Aquaculture Discipline by ICAR–Central Institute of Fisheries Education (ICAR-CIFE), Mumbai, to serve on the Assessment Committee for the CAS, entrusted with evaluating the academic achievements, research contributions, and professional performance of ARS Scientists for promotion.
15	17.05.26	Question paper setting for 6 th semester examination in Fishery Science of VU
16	21.05.2026	Recognised by Vidyasagar University as a Moderator for the UG 6th Semester Examination 2026 (CCFUP-NEP/CBCS) in <i>Aquaculture Management</i> , entrusted with maintaining the academic integrity, consistency, and standard of university examination question papers.
17	22.05.2026	Contributed as an Expert Member of the Assessment

		Committee for the Discipline of Fisheries at Dr. Rajendra Prasad Central Agricultural University, Pusa, Bihar, evaluating the academic achievements, research contributions, and professional credentials of teachers and scientists for CAS promotions.
18	27.05.26	Moderator in aquaculture (M.F.Sc) for the 1 st sem postgraduate examination 2025 in VU
19	09.06.2026	Moderator/ External Examiner in Aquaculture Management, for the UG 4 th Sem. (CBCS&NEP) Examination 2026 (1 st Half)
20	24..06.2026	Resource person in the IRRI Philippines Project Sponsored Training Organised by Sasya Shyamala KVK, Narendrapur
21	29.06. 26	Expert Member for taking an interview for the CAS of Dr B. K. Chand for the Jt. Director of Research under WBUAFS
22	08.07.2026	Attended RAC meeting as a member of the Research Advisory Committee under Vidyasagar University.
23	10.07.2026	Resource Person on "Entrepreneurship Opportunities in Quality Seed Production of Alternative Indigenous Ornamental and Food Fishes" during the 26th National Fish Farmers' Day and Farmers-Scientists Workshop, organized by the North East Society for Fisheries and Aquaculture (India) and the College of Fisheries, CAU (Imphal).

Publication

- **Mahapatra, B.K.** (2026). Biofloc Installation and Management- Principles and Practices. Narendra Publishing House, New Delhi, (ISBN: 978-93-7763-971-6).
- **ডঃ বিজয় কালী মহাপাত্র** ও দীপক কুমার দাঁ (সংকলন ও সম্পাদনা), ২০২৬ বিজ্ঞানসাধক নরেশচন্দ্র দত্ত -জীববিজ্ঞানী-বিজ্ঞানপ্রচারক-আদর্শ শিক্ষক, দ্য সায়েন্স আসোসিয়েশন অফ বেঙ্গল ; ISBN: 878-93-94091-2-28.
- **Mahapatra, B.K.** (2026). Complete Handbook on Breeding -Fish Prawn Crab (In Bengali), 2 nd Edition-20 th May 2026, Sargachi, Murshidbad.

Award

- Received the Excellent Educationist Researcher Award (2025) from RIFACIMENTO INTERNATIONAL
- Received the Professor Dr Naresh Chandra Datta Memorial Award from The Science Association of Bengal (SAB) during the National Science Day on 28.02.2026 .

Dr Sankar Kumar Mahapatra , Former Principal Scientist/ Head , ICAR –IARI had the following engagements.

- Attended National Seminar on Micronutrients and Speciality Fertilizers held at ITC , Royal Bengal , Kolkata on April 15, 2026.
- Attended Global Micronutrient Summit 3.0 held at Hotel Taj Palace , New Delhi during July 13-14 , 2026.

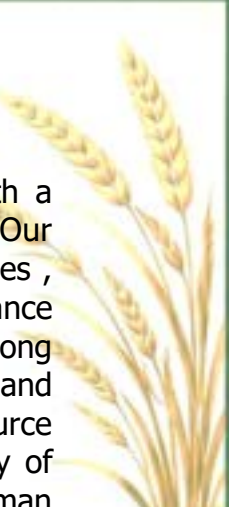
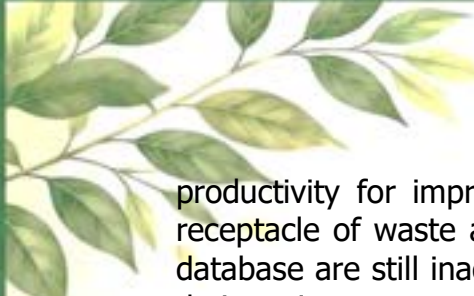
Research Thoughts

Aquatic Bioresources in West Bengal

Pratap Kumar Mukhopadhyay , Former Principal Scientist , ICAR – CIFA , RRC , Rahara , West Bengal

India and more specifically the state of West Bengal is endowed with vast and varied aquatic resources . Besides streams, rivers and reservoirs, there are ponds ,pools & tanks, beels,jheels , canals ; karanjalis , deepwater rice aquatic system and many shallow impoundments. These are not just idle water bodies as such but provide a range of invaluable services like promoting nutritional security, providing uncultivated food and fodder sources , enabling livelihood and employment opportunities to many people in the vicinities rendering multiple ecological functions (cultural, regulatory, supporting, provisioning) upholding the life support system, recharging groundwater reserve- to mention a few. With the strong gene pool of varied floral and faunal bio-resources which we have in our possession in the form of amazing species diversity as well as physical resources for farming , viable technology and extension back up, local availability of critical inputs and innovative capability of our farming communities/resource users in transforming knowledge into productivity, it is our onus and responsibility to ensure that with the application of scientific principles focused on sustainable natural resource management , overall production ,income and nutrition are enhanced and diversified both in terms of quality and quantity with promotion of climate change adaptation, mitigation and coping without much constraint .These have relevance in the present context since till now, the farming practices emphasize only on a few selected species perhaps overlooking the unique potential of so many others which also need to be appropriately harnessed for future benefit.

The vast array of natural food organisms, for example, which encompasses plankton, periphyton, nekton, benthos etc. exemplify the richness of aquatic biodiversity. Phytoplankton as the primary producer constitutes the basis of nutrient cycle of an aquatic ecosystem while zooplankton are the primary consumers which convert plant biomass for the first time into animal tissue and further become food for consumers of higher order in the ecosystem. Benefit of such cycle of nutrient generation system are to be continuously utilized to the fullest for supporting the supply of good quality plant & animal groups and services given the availability of abundant sunlight , favourable temperature during most part of the year. Besides all these, pragmatic water resource planning also is of value to facilitate sustainable



productivity for improving climate-resilient livelihood initiatives since water is both a receptacle of waste and the vital source for production of human food resources. Our database are still inadequate with regard to the various precious aquatic bioresources , their optimum potential for host of human benefits including the source of sustenance and security of nature. There is an urgent need , therefore, to ascertain linkages among the different components of biodiversity , input recycling, existing needs, goals and aspirations including establishment of a sense of community empowerment for resource productivity . This article emphasizes to document the uniqueness and potentiality of some of the aquatic floral and faunal bioresources in the context of better human health and economic prosperity in general and strengthening rural development in the region in particular.

Aquatic floral bioresources : Our freshwater habitats sustain diverse plant communities starting from microalgae to different higher plants as potential bioresources. Aquatic vegetations directly used as human food resources include – water lily, lotus, makhana, ipomoea, water chestnut to mention only a few. There are many other aquatic macrophytes including azolla, duckweeds which can form cattle and fish feed components also apart from having their role as organic manure . As an aquatic bioresource, lotus , a rooted floating macrophyte needs special mention to be harnessed appropriately from economic viewpoint since it has substantial societal importance also. A great part of our vast waterbodies remain either under-utilized or in weed choked conditions. Even in such perennial waterbodies and fallow seasonal waters, lotus may be cultivated following a package of practices as a source of secondary income . Its rhizomes are used as food having medicinal values, leaves are used as plates in hotels/restaurants and the flower is in continuous demand from various sources throughout the year.

Makhana, an aquatic herb with floating leaves (with green on top and purple beneath) can be an alternative cash crop. This plant needs hardly any attention except that during harvesting (period : June-August) some care and expertise are required . The puff made out of it forms delicious food items and is highly esteemed in northern India including Bihar and Jharkhand.

Water lily(commonly called sapla) is found in several attractive colours like lotus. The long flowering stalk develops directly from the rootstock and bears single flower which opens up during daytime and closes as evening approaches. All part of the flora are preferred as food and fodder . It is a common experience that waterbodies where sapla and lotus are grown form the natural breeding place for some of the prized catfishes like magur and singhi.

TWO IMPORTANT FLORAL AQUATIC BIO-RESOURCES OF VALUE



Water lily (Sapla) _ *Nymphaea nouchali*

Trapa or water chestnut is an annual herb ,the kernel of which is both delicious and nutritious. Seedlings generally take three months for flowering followed by fruiting. Though the potential of this cultivable species is recognized but it is yet to be fully explored. The fallow rural ponds can be used for intensive farming as a remunerative venture. Azolla occupies a prominent place for its unique role as bio-fertilizer in both agriculture and aquaculture. Its high fixing capacity for atmospheric nitrogen ,rapid propagation and fast decomposition rate result in quick release of nitrogen in the field making it an ideal biofertilizer in the farming system.

Azolla is a free floating fern in symbiotic association with a cyanobacterium, *Anabaena azollae*, present in its dorsal leaves. The entire vegetation appears to be a mat floating freely on water surface and grows in varied range of ecological factors . Azolla enriched feed elicits excellent growth in all the carp species. Nutritive evaluations indicated this to be high in crude protein and carotene. Ipomoea is a common perreneal aquatic plant which can be propagated by seeds(viable seeds are easily available in market) or stem cutting. First time harvest may take place one month after seed sowing but then it can be done on a weekly basis. Its efficacy as an ideal leafy vegetable component is reflected by its richness in nutritional content.

Shola (*Aeschynomene aspera*),a species of flowering plant in the family Fabaceae,is an aquatic plant .Seeds are sown in the April which grow up into matured plant within six months and the stems are collected before the waterbody dries up. The outer brown skin is removed to get cortex which has lusture, malleability and sponginess . Without the use of any specialised tool (only simple knives are needed), the artisans(generally known as Malakars can create superb handicrafts having aesthetic values.



Shola (*Aeschynomene aspera*) Product

Again despite having high demands, cultivating shola has not generated any interest and people have to depend on sola from wild sources thus the artisans are compelled to adopt new livelihood means leaving behind their in born talent. The shrub, *Schumannianthus dichotomus* belonging to the family Marantacea(known commonly as 'Pati Bet') grows in the swampy and derelict waterbodies mostly in the northern part) of West Bengal (particularly in Coochbehar district). Very high value handicrafts can be made out of the bark of the mature stem of the plant. Again artisans depend on the wild ones because cultivation is yet to be taken up on a large scale. The 'sital pati' is one such widely used household product . If the pati bet can be made available through the systematic cultivation, the craftsmanship can also survive with high revenue earning. Similarly other aquatic vegetations are potentially nutritious and have medicinal properties also. Without care and management measures ,these can thrive and grow and continue to provide nourishment to rural and urban people alike. These are rich in antioxidants and simultaneously free from trans fats –qualities which can ;protect the vulnerable ones in particular without any extra effort or expenditure. **The common leafy vegetables** are grown naturally without any special effort or systematic culture; some of these are well known for their medicinal properties as well as general nutritive values . **Duckweeds** in the bioremediation of domestic sewage :

Certain aquatic macrophytes have been found to be extremely useful in bioremediation processes of waste effluents like domestic sewage. An aquaculture sewage treatment plant comprising duckweeds (*Spirodela polyrrhiza*; *Lemna minor*; *Wolffia arrhiza*) can significantly reduce the BOD ; COD levels of sewage effluents transforming it fit for use in fish culture. Such wastewater based aquaculture system will have immense relevance in the foreseeable future especially in regions where water shortages are imminent.



Aquatic Macrophytes (Emergent / Floating leaves /Free Floating / Summerged species)

All these autotrophic aquatic vegetations as well as some others like the green manure, *Sesbania roxburghii* can be considered as potential support to the rural economy and therefore need conservation through better understanding of the sustainable provision of ecosystem goods and services. Aquatic faunal bioresources : Large number of indigenous fish species form the prime aquatic bioresources .Production of fish through aquaculture accounts for almost 50% of the total fish production and consumption in the country and is perceived as having the highest potential to meet the growing demand for fish. The bulk of this production is generated through small scale farming It is estimated that at least 40 million tonne of additional fish will be required by 2030 to maintain the current per capita consumption. There is a large amount of scientific literature on the merits of eating fish for human health such as supply of animal protein with high biological value, reduction of cardiovascular ailments due Shola (*Aeschynomene aspera*),a species of flowering plant in the family Fabaceae,is an aquatic plant .Seeds are sown in the April which grow up into matured plant within six months and the stems are collected before the waterbody dries up. The outer brown skin is removed to get cortex which has lusture, malleability and sponginess . Without the use of any specialised tool (only simple knives are needed), the artisans(generally known as Malakars can create superb handicrafts having aesthetic values. Again despite having high demands, cultivating shola has not generated any interest and people have to depend on sola from wild sources thus the artisans are compelled to adopt new livelihood means leaving behind their in born talent. The shrub, *Schumannianthus dichotomus* belonging to the family Marantacea(known commonly as 'Pati Bet') grows in the swampy and derelict waterbodies mostly in the northern part) of West Bengal (particularly in Coochbehar district). Very high value handicrafts can be made out of the bark of the mature stem of the plant. Again artisans depend on the wild ones because cultivation is yet to be taken up on a large scale.The 'sital pati' is one such widely used

household product . If the pati bet can be made available through the systematic cultivation, the craftsmanship can also survive with high revenue earning.



Pati Bet (*Schumannianthus dichotomus*) used for weaving Shital Pati Mats.

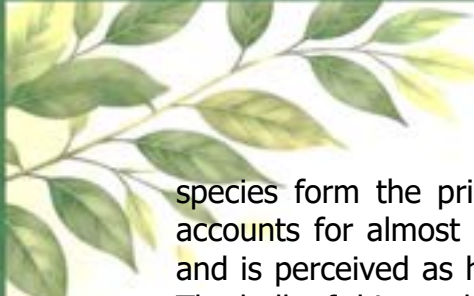
Similarly other aquatic vegetations shown in Table-1 are potentially nutritious and have medicinal properties also. Without care and management measures ,these can thrive and grow and continue to provide nourishment to rural and urban people alike. These are rich in antioxidants and simultaneously free from trans fats –qualities which can ;protect the vulnerable ones in particular without any extra effort or expenditure. Table-1 summarises the common leafy vegetables grown naturally without any special effort or systematic culture; some of these are well known for their medicinal properties as well as general nutritive values .

Table 1 Certain aquatic vegetations contributing towards household nutrition , health benefit in rural West Bengal

Scientific name	Family	Local Name (Bangla)	Parts used	Purpose as food item	Current status	Traditional use
<i>Ipomoea aquatica</i>	Convolvulaceae	Kalmi	Entire plant	Leafy vegetable	Wild and partially cultivated	for relief of general constipation
<i>Centella asiatica</i>	Apiaceae	Thankuni	Leaves	Leafy vegetable and medicine	Wild	Remedy for chronic Amoebiasis and blood purification

<i>Hygrophilla auriculata</i>	Acanthaceae	Kulekhar a	Leafy twigs	Leafy vegetable and medicine	Wild	Use for remedy of anemia, especially female
<i>Bacopa monneiri</i>	Scrophulariaceae	Brahmi	Leafy twig	Leafy vegetable and medicine	Wild & non conventional management	Increase memory function for children
<i>Mollugo cerviana</i>	Ficoidaceae	Nalte	Leafy twig	Leafy vegetable and medicine	Wild	Remedy of common skin rashes and maintenance of blood pH
<i>Polygonum plabejum</i>	Polygonaceae	Kharkol	Leafy twig	Leafy vegetable	Wild	Use for remedy of bowel complaints
<i>Enhydra fluctuans</i>	Asteraceae	Gime	Leafy twig	Leafy vegetable and medicine	Wild	Remedy of skin disease and purification of blood
<i>Marsilea minuta</i>	Marsiliaceae	Susuni	Foliages	Leafy vegetable and medicine	Wild	Remedy for insomnia
<i>Colocasia esculanta</i>	Araceae	Kachu	Rhizome & Petiole	Vegetable	Wild & cultivated	Remedy for bowel complaints
<i>Alternanthera sessilis</i>	Asteraceae	Sachi Sak	Entire plant	Leafy vegetable	Wild	Use for remedy of constipation

Duckweeds in the bioremediation of domestic sewage : Certain aquatic macrophytes have been found to be extremely useful in bioremediation processes of waste effluents like domestic sewage. An aquaculture sewage treatment plant comprising duckweeds (*Spirodela polyrrhiza*; *Lemna minor*; *Wolffia arrhiza*) can significantly reduce the BOD & COD levels of sewage effluents transforming it fit for use in fish culture. Such wastewater based aquaculture system will have immense relevance in the foreseeable future especially in regions where water shortages are imminent. All these autotrophic aquatic vegetations as well as some others like the green manure, *Sesbania roxburghii* can be considered as potential support to the rural economy and therefore need conservation through better understanding of the sustainable provision of ecosystem goods and services. Aquatic faunal bioresources : Large number of indigenous fish



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Aquatic ecosystem prevailing in the stste of West Bengal possesses rich diversity of biological origin which includes several economically useful plant and animal resources. Besides benefiting us through generous supply of food, fodder, vital bio-active components, recreational support, thatching materials, scope of new raw material also provide multiple ecological functions. These resources form the foundation on which the gene pool of species stock and strain are based. Floral group comprises wide range of organisms starting from micro-algae to different higher plants like- *Nymphaeaceae*, *Hydrocharitaceae*-(major submerged flora), *Convolvulaceae* , *Azollaceae*, *Lemnaceae*, *Trapaceae*, *Papillionaceae*; in the faunal group starts from zoo-plankton to rich ichthyofaunal diversity , crustaceans, molluscs, amphibians and so on .

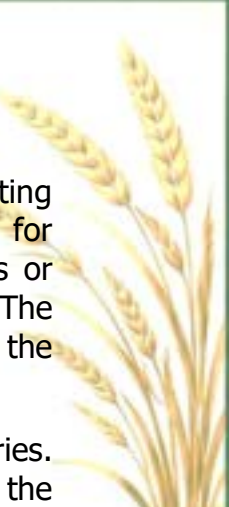
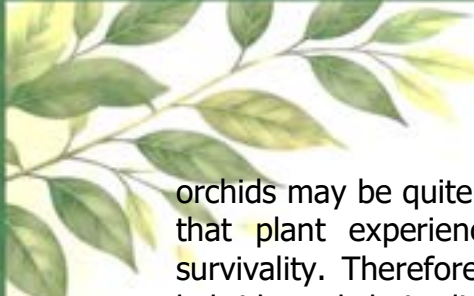
Orchids suitable for West Bengal

Dwijen Barman, Former Principal Scientist / Head , ICAR- IARI , Regional Station, Kalimpong, West Bengal

Orchids are known for their exquisite beauty and trade in global floribusiness. The Netherlands is the pioneer in production and export of temperate orchid while Thailand and Hawaii are the world leader in Tropical orchids respectively. The orchid industry is expanding in terms of magnitude in some of the major producing nations.The development of new hybrids and commercial production of cut flowers and potted flowering plants have expanded tremendously in Europe, USA, South America, Thailand, Singapore, Malaysia, Japan and Sri Lanka. India with its large reservoir of genetic resource (more than 1300 species) is making a foray in ever expanding domestic markets with an eye on export of these flowers. Some of our orchid species contributed in developing modern day hybrids. Although, India has huge germplasm and some hybrids but not a single hybrid capture world market. West Bengal hosts over 460 species of orchids in110 genera. Among them 321 are epiphytic, 142 terrestrial, 2mycoheterotrophihic and 1 saprophytic.

Climatic requirement of orchids and management:

The most important environmental variables controlling orchid production are to be light, temperature, humidity and nutrients. The climatic requirements for epiphytic



orchids may be quite different from terrestrial. The wide distribution of plants indicating that plant experiencing numerous set of macro and micro climate required for survivality. Therefore it is very much essential to know the various orchid groups or hybrids and their climatic requirement for cultivating in green house or captivity. The development of the green-house structures and environmental control systems are the key techniques for the orchid cultivation.

The green house industry has been developed for many years in European countries. However the green-house designed for temperate weather can not meet the requirement of subtropical countries or tropical countries. The most important function of green house is to cool the inside temperature in summer month.

Temperature

Broadly orchids are grouped as warm climate, intermediate and cool climate orchids. Warm climate orchids require warm humid conditions and slightly cooler winter temperatures. Most of the tropical orchids can tolerate temperature ranges of hybrids of warm orchids are in summer 21⁰C to 29⁰C and 18⁰C to 21⁰C at night and in winter 20⁰C to 25⁰C in day and 15⁰C to 18⁰C at night. Species and hybrids of Phalaenopsis, Paphiopedilum and Vanda etc grow well in these ranges of temperature. The intermediate orchids grow in climate that is neither too hot nor too cold. The temperature is subtropical in nature. Orchids of this group prefer bright and partial sunlight. The best range of temperature in summer is 18⁰C , maximum dry temperature up to 35⁰ C and minimum night temperature 15⁰ C temperature. Cattleyas, Laelias, Oncidiums, Dendrobium and Miltonias are grown in these ranges of temperature. Cool climate prefer lower temperature for growth and development. A temperature range of 16⁰C to 21⁰C at day and 13⁰C at night in summer and in winter 13⁰C to 16⁰C at day and 7-10⁰C at night are congenial for cool climate orchids. Species and hybrids of Cymbidium, Masdevallia, Mittonia, Oncidium, Phalaenopsis etc prefer cool climate.

Light

Light is the simple most factors which play an important role in growth and flowering of orchids. Three dimension of light i.e. duration, quantity and quality are very much essential for orchids. The cycle between light and dark and the length of each period is crucial to blooming plants because it trigger flowering. Many orchids flower in response to short day condition. However, a light period ranging from 12hours to maximum 16hrs is essential for flowering. The amount of light that an orchids needs and withstand is independent on where it growth. Appropriate amount of light is necessary for proper growth and nutrient storage. Most orchids require 1500 to 3000 ft candle light for growth and flowering but some do well in 500foot-candle light for growth and flowering but some do well in 500foot-candle light and other can tolerate more that 4000 foot-candle light. Quality of light is crucial when orchids growing under artificial light.

Humidity: It is one of the important climatic factors governing the growth of plants. Most of the orchids prefer 50-60% relative humidity. Some orchids prefer higher humidity. Requirement of relative humidity is 70-75% for Phalaenopsis and Vanda, 70-80% for Odontoglossum, 40-50% for Cattelya and Laelia, 60-70% for Cymbidium and Dendrobium

Climate of West Bengal

West Bengal has a varied climatic conditions-ranging from the hot coastal plains of South Bengal to the cool temperate Eastern Himalaya in North Bengal like Darjeeling. Temperatures vary widely and there are five distinct season. Some area is vulnerable to heavy rain and some are cyclone prone area. The mountain area are generally cold throughout the year.

Orchids suitable for West Bengal

The suitable orchids are vary significantly by region.

Suitable orchids for South Bengal (Kolkata and adjacent District) .The plains experience intense summer hot, a heavy monsoon season and mild winters. Orchids preferring warm temperature, high humidity can be grown successfully.

Dendrobium: Tolerate local summer temperature and thrives beautifully. Hybrids like Sonia-16, Sonia-17, Sonia-28,Genting Blue, Singapore Blue, Sakura, Snow White, White Angel etc. are common in market.



Dendrobium

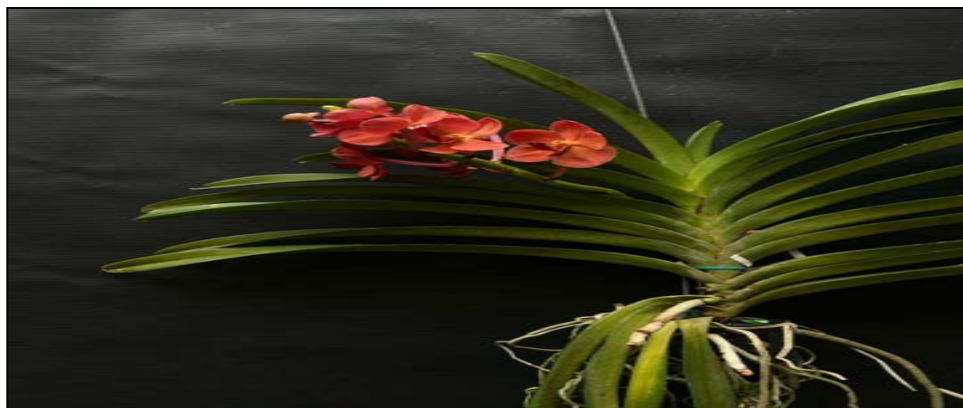
Vanda: These thrives in high humidity and temperature and do not require any potting soil. Development of aerial roots is peculiar characteristics of Vanda. These roots absorb nutrients from atmosphere.They are hung in baskets with aerial roots . Among the hybrids, Fuchs Delight 'Black', Gordon Dillon 'Lea',Bangkok Blue, Kultana, Kasem's Delight and Roberts Delight etc.are common.

Cattleya: They can be grown nicely under partial shade. Hybrids like Cella Bella, Christ Church 'Newberry Snow', Chocolate Drop 'Kodama', Daphne, Day Tripper, Bow Bells 'Honolulu' etc are common.



Cattleya

Mokara: Mokara is a trigeneric hybrid. Mokara hybrids are robust and sun loving. They require 21°C to 32°C temperature during day and 15°C at night and prefer relative 50% to 80% humidity. Hybrids are Chark Kuan 'Pink', Chark Kuan 'Orange', Dinahn Shor red, Mak Chin On red, Sayan dark pink, Mokara Red, Mokara Yellow etc dominating in the market.



Mokara

OtherVandaceous like Arachnis, andAranthera are also can be grown in tropical and subtropical West Bengal. Orchid cultivation is not advisable for coastal belt as frequent visit of storm will destroy costly plant materials and growing structure.

Orchids for North Bengal(Hills and Dooars)

The mountainous northern region has a cool, misty sub-tropical climate perfect for cool growing orchids .

Cymbidiums:Cymbidiums are most important commercial cold loving orchids. They require distinctively temperature difference of 10°C for better growth. During winter temperature drops found in Darjeeling, Mirik and other places trigger their vibrant, long lasting floral spikes. Plenty of hybrids are available in market. Some of them are Valley 'Temptation', Valley 'Emperor', Lunegrad, Angelica, Valley' Pink Perfetion', Sensational Dream, Winter Fair etc.



Cymbidium

Phalaenopsis: They perform excellently in the indoor conditions and mild temperature condition. Some of the hybrids are 'Joy Fairy Tale Joy', 'Kirsten Touve', 'Alberla', 'Bataan', 'Blue Ridge Quartet', 'KS Super Zebra Peter' etc.



Phalaenopsis

Native orchid species: Plenty of orchid species are there in West Bengal . these can be grown easily in shade house.

Growing media

The main purpose of growing media is to hold the plant in place and supply sufficient amount of nutrients and water. Cymbidium prefers fairly open compost. The growing media should be durable at least for three years and free from water-logging. A number of combinations are being used and found successful. Commonly used materials in the compost mixture are tree bark, peat, moss, charcoal, osmunda fibre, pumice, perlite, bricks chips and coconut husk. In West Bengal coconut husk, beetle nut husk, brick pieces, stone chips, leaf mould etc are easily available for growing different orchids.

Shading

Shading of plant is an important component to regulate excessive sun light and heat during summer month in greenhouse. The extent of shade requirement may vary from location to location or altitude and seasonal variation of light and temperature. In the hot summer particularly April to June, the intensity of light is very high. Higher light intensity coupled with higher temperature also prevails in rainy season. Usually 50 per cent UV stabilized shade net is sufficient to protect the plant from scorching heat under mid hill situation (1500 m msl. Shading is not required in cloudy weather or in winter months.

Growing structure

Various types of green house designs are now available for growing orchids. It should provide suitable environment with adequate temperature, humidity, light and air circulation. Simple type of polyhouse covered with 200 micron UV stabilised transparent sheet with sufficient ventilation is suitable in our West Bengal. Flat roof lath house or



shade net house which are not expensive are suitable for growing warm type orchids. The size of structure depends on the purpose of growing orchids. However, for commercial venture at least 500sq.m. area required for cultivation of hybrids. Plants are accommodated in benches made of steel pipe, bamboo or woods.

Feeding

Optimum nutrition involves a complex balance of essential elements and other beneficial elements required for plant growth. Orchids like other plants require NPK and other trace elements for healthy growth. Use of balanced nutrition NPK 20:20:20 or 15:15:15 diluted to ½ strength at weekly interval during active growth phase (1st and 2nd year) is advisable. During winter or dormancy no need to apply plant nutrition.

The richness in Orchid diversity in West Bengal is split primarily between the cold to temperate Himalayan climated of the North and the tropical /deciduous pockets across the southern / western districts .High value temperate commercial varieties like Cymbidium thrive well in these hill tracts.Tropical and Sub- tropical orchids , particularly Dendrobium and Cymbidium cultivars enjoy high demands as cut flowers.

Vaccines and Diagnostic Kits Developed by ICAR Aquaculture and Fisheries Institutes

Asok Biswas, Former Chief Technical Officer , ICAR – CIFE, Regional Centre , Kolkata

Introduction

Fish vaccines are preventive biological tools used in aquaculture to induce immunity against bacterial, viral, and parasitic diseases. By replacing or reducing antibiotic use, vaccination lowers mortality rates, stabilizes seafood supply chains, and supports environmental sustainability. Fish disease diagnostic kits include field-portable rapid lateral-flow assays, PCR kits for detecting specific viral/bacterial pathogens, and ELISA spot agglutination kits. These kits allow for on-site, rapid testing of water quality and active fish infections. I have tried to compile precise information of vaccines and diagnostic kits developed by ICAR Aquaculture and Fisheries Institutes to aware fish farmer, entrepreneurs, students and other stakeholders. For actionable details of technology, procurement, application, and updates, stakeholders can approach the resource-specific ICAR Aquaculture and Fisheries Research Institutes. These institutes maintain regional centers across India to assist fish farmers, entrepreneurs, students and researchers with scientific guidance and technical support.

A. Central Institute of Brackishwater Aquaculture (CIBA), Chennai and ICAR-Central Marine Fisheries Research Institute, Kochi

In a joint venture these two ICAR institute developed a viral vaccine and CIBA developed diagnostic kits and commercialized through private biotech firms for manufacturing and marketing.

1. Vaccine

In a joint venture these two ICAR institute developed diagnostic kits and vaccine *Nodavac-R*

Nodavac-R is a landmark achievement as India's first commercial-scale fish vaccine. It is a recombinant vaccine that prevents vertical transmission of the Viral Nervous Necrosis (VNN) virus, which is responsible for massive losses in larval and juvenile finfish (e.g., Asian Seabass).

Partner / Licensee: Indian Immunologicals Ltd (IIL)

2. Diagnostic Kits

Diagnostic kits are primarily categorized into highly sensitive, lab-based molecular kits and rapid, farm-level point-of-care tools.

a) Molecular Diagnostic Kits (PCR & qPCR)

These are widely commercialized for hatcheries, seed screening, and export-compliance testing:

i) *WSSV & EHP Nested PCR Kits*: Originally developed by ICAR-CIBA, these indigenously designed kits prevent "false negatives" by incorporating a decapod β -actin gene as an internal control. The technology was commercialized to top Indian biotech firms like Bangalore Genei and Aura Biotechnologies.

ii) *Real-Time qPCR Kits*: Highly sensitive, singleplex, and multiplex real-time kits are widely marketed by private players (such as *Aura Pure* and specialized private testing facilities). They target a broad spectrum of pathogens under 90 minutes. Shrimp pathogens: White Spot Syndrome Virus (WSSV), *Enterocytozoon hepatopenaei* (EHP), Infectious Myonecrosis Virus (IMNV), and Infectious Hypodermal and Hematopoietic Necrosis Virus (IHHNV). Finfish pathogens: Megalocytivirus, Tilapia Lake Virus (TiLV), and Nervous Necrosis Virus (NNV).

iii) *White Muscle Disease (WMD) RT-PCR Kits*: Dedicated molecular kits for diagnosing nodavirus infections in giant freshwater prawns (*Macrobrachium rosenbergii*).

b) Rapid Field Diagnostic Kits (Point-of-Care)

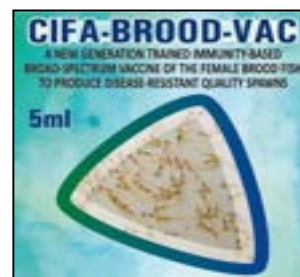
Lateral Flow Amplicons (LFA): Strip-based antigen kits that allow shrimp farmers to detect WSSV or EHP pond-side within 15–20 minutes without needing complex laboratory equipment.



Nodavac-R (CIBA)



WSSV & EHP Nested PCR Kits (CIBA)



CIFA-Brood-Vac

B. ICAR-Central Institute of Freshwater Aquaculture (CIFA), Bhubaneswar

1. Vaccine

i) *Aeromonas Septicemia Vaccine*

Aeromonas Septicemia caused by the bacterium *Aeromonas hydrophila*, hemorrhagic septicemia is a major threat to Indian carps (Rohu, Catla, Mrigal). Years of research at CIFA led to a highly effective recombinant vaccine candidate, representing a major milestone as one of India's first commercial freshwater fish vaccines.

Partner / Licensee: M/S Smruti Agency, Bhubaneswar.

ii) *CIFA-Brood-Vac*

A vaccine for preventing & controlling diseases in spawns & fry, will ensure the production of healthy and disease-resistant fish seeds.

2. Diagnostic Kits

i) *Spot Agglutination Kit*: A low-cost, rapid diagnostic tool that farmers can use pond-side to quickly diagnose common bacterial infections in carps, specifically *Edwardsiellosis*, *Aeromoniasis*, and bacterial gill disease.

ii) *Dot-ELISA Kit*: Used both on farms and in laboratories, this kit detects bacterial antigens in infected fish tissues (even up to 72 hours post-mortem) and screens blood serum for routine health certification.

iii) *White Tail Disease (WTD) RT-PCR Diagnostic Kit*: A highly sensitive, nested RT-PCR kit designed to screen broodstock and seeds of the Giant Freshwater Prawn (*Macrobrachium rosenbergii*) to detect latent viral carriers before stocking.

iv) *Species-Specific PCR Kits*: Highly targeted molecular kits developed by CIFA for laboratory and hatchery surveillance, including: i) *Argulus* Detection Kit (identifying devastating *A. siamensis* and *A. japonicus* fish lice),

v) *Koi Herpes Virus (KHV) PCR diagnostic kit*

vi) *Spring Viraemia of Carp (SVC) PCR diagnostic kit*

The Licensing Model: Private biotech manufacturers or farmer cooperatives looking to produce these formulations can obtain a non-exclusive license from ICAR-CIFA through its Agri-Business Incubation (ABI) Centre, which includes training and technical know-how transfer.

c. ICAR-Central Institute of Fisheries Education, Mumbai

1. Certified Vaccines (Ready for Licensing)

CIFE has developed and certified several inactivated vaccines targeting devastating bacterial pathogens. These formulations are classified as "*Certified Technologies*" and are actively promoted for commercial licensing to private pharmaceutical companies:

i) *CIFE-FLAVAC*

Flavobacterium columnare is causative agent of Columnaris disease, which causes high mortality, skin lesions, and gill necrosis in freshwater fish. CIFE-FLAVAC is an inactivated (killed) vaccine that triggers a protective immune response, reducing juvenile mortality.

ii) *CIFE-Aeromonas V vac*

Aeromonas veronii is an emerging bacterial threat causing septicemia and severe ulcerative syndromes in carps and catfishes. CIFE-Aeromonas V vac is a highly specific inactivated vaccine formulation tested extensively for safety and efficacy.

iii) CIFE-Ed-Vac

Edwardsiella tarda causes Edwardsiellosis, which leads to internal organ putrefaction and gas-filled lesions in fish. CIFE-Ed-Vac is an inactivated vaccine designed to provide systemic immunity in farmed fish species.

2. Diagnostic Kits

CIFE's diagnostic pipeline focuses on highly targeted molecular identification tools to prevent disease vectors from entering stocking systems:

i) WSSV Genomic Fragment Detection Kit

This detection kit features novel primers and spacers developed to identify genomic fragments of the White Spot Syndrome Virus (WSSV). It is designed for ultra-sensitive, in vitro screening of shrimp larvae and broodstock.

ii) Tilapia Lake Virus (TiLV) PCR Identification Kit

This identification kit is a specialized molecular PCR diagnostic kit featuring custom primers and spacers to rapidly verify the presence of Tilapia Lake Virus (TiLV), shielding the rapidly expanding tilapia farming sector in India from systemic crashes.

iii) Miniaturized MPN RT-PCR Kit for Arcobacter butzleri

This diagnostic kit is a cutting-edge, miniaturized most probable number (MPN) Real-Time PCR diagnostic kit designed to detect *Arcobacter butzleri*—an emerging zoonotic, waterborne pathogen that poses risks to both fish health and food safety.

iv) Clarias Hybrid Identification Kit

This identification kit is not a "disease" treatment, this diagnostic kit uses nuclear DNA markers to authenticate indigenous *Clarias magur* (walking catfish) and distinguish them from illegal, disease-carrying *Clarias gariepinus* (African catfish) hybrids, preventing biosecurity leaks.

D. ICAR-National Bureau of Fish Genetic Resources (NBFGR), Lucknow

NBFGR is also the national referral laboratory for exotic aquatic animal diseases and leads India's quarantine surveillance; its fish health division has developed highly specialized molecular diagnostics, biological tools, and green-therapeutic alternatives.

Diagnostic Kits

As the frontline defender against exotic pathogens entering Indian waters, NBFGR has developed and commercialized several vital diagnostic kits:

i) Tilapia Lake Virus (TiLV) RT-PCR Diagnostic Kit

NBFGR was the first to report TiLV in India. They rapidly developed and commercialized a highly sensitive single-step and nested RT-PCR kit to screen tilapia hatcheries and farms, preventing vertical transmission of the virus.

ii) Koi Herpesvirus (KHV) and Spring Viraemia of Carp (SVCV) PCR Kits

These kits are designed for quarantine officers, exporters, and high-value ornamental fish breeders to screen imported koi and common carp for these highly lethal, OIE-listed (World Organization for Animal Health) exotic viruses.

Iii) Viral Nervous Necrosis (VNN) Multiplex PCR Kit

It is a multiplex molecular diagnostic tool that can simultaneously identify different genotypes of Nodavirus (VNN) affecting marine, brackishwater, and freshwater fish species.

E. ICAR-Central Inland Fisheries Research Institute, Barrackpore

Diagnostic Kit

CIFRI- TiLV one step PCR Kit

CIFRI- TiLV one step PCR Kit used for the diagnosis of Tilapia Lake Virus in Tilapia. The kit offers a rapid, specific and sensitive detection system from RNA of the infected tissue in three hours.

Conclusion

Vaccine strain variations refer to the genetic differences between the weakened or inactivated pathogens used in vaccines (vaccine strains) and the currently circulating wild-type strains and its diagnostic kits. Mismatches of strain and serotypes of pathogen can significantly reduce vaccine efficacy, driving the need for continuous monitoring and annual updates. In India, aquaculture disease management is actively evolving through indigenous vaccine development and upgraded diagnostic tools. Major institutions of ICAR have partnered with firms to commercialize vaccines targeting highly specific local pathogen strains, while diagnostic capabilities are shifting toward rapid, field-usable kits.

News/ Technology Summary

Climate Forecast for Khariff, 2026

The climate forecast for Kharif 2026 in India indicates below average monsoon rainfall influenced by El Nino conditions. Active El Nino development increases the likelihood of uneven rainfall distribution and mid season dry spells. Early season deficits are across East, Northeast and Central India, while Northwest and Southern Peninsular regions have mixed or delayed coverage.

(Source : www.agrijob.in)

New Agri -Technologies

New technologies are **43 improved crop varieties** including Basmati rice and climate-resilient rice varieties tolerant to saline and alkaline soils, export-oriented mango production technology, India's first indigenous **African swine fever vaccine**, a digital swine disease atlas, and an affordable cassava harvester for small farmers. It is informed that increased production in the crop, horticulture, livestock and fisheries

sectors generated additional economic value of approximately ₹1.70 lakh crore during the year, with agricultural research contributing an estimated ₹55,000 crore. Farmers are the soul of agriculture, while scientists are its brain – Said Hon'ble Union Minister of Agriculture and Farmers Welfare and Rural Development.

(Source: ICAR-Directorate of Knowledge Management in Agriculture, New Delhi)

Waste to Wealth

In "Waste to Wealth" Publication , Agro-Industrial Wastes are converted into Cost-Effective, Sustainable Fish Feed—A Circular Economy for Aquaculture. The technology has successfully harnessed a diverse range of agro-industrial wastes, including rice bran, tapioca waste, oil cakes, brewer's spent grain, Black Soldier Fly (BSF) larvae, and silkworm pupae meal, to produce high-performance feeds for freshwater aquaculture. Field demonstrations have delivered impressive results, achieving 20–30% reduction in feed costs, replacement of 75–100% fish meal, and 15–20% higher fish production, with an estimated annual economic benefit of ₹1,200–1,400 crore for India's aquaculture sector.

(Source: ICAR-Central Inland Fisheries Research Institute, Barrackpore)

Obituary

On demise of Mr Ratan Das , Former Chief Technical Officer (T9) , ICAR Research Complex for NEH Region , Barapani , Meghalaya , We , Members of Aricare do express our heartfelt condolences to his Wife/ Daughter and other bereaved family members with a solemn appeal to the Almighty to render mental strength in these moments of profound sadness. May his departed Soul rest in eternal Peace .



Late Ratan Das (14-01-1959 – 24-06-2026)
