ASSOCIATION OF RETIRED INDIAN COUNCIL OF AGRICULTURAL RESEARCH EMPLOYEES (ARICARE)
C-43 New Garia Development Co-operative Housing Society , Kolkata – 700 094
M0b : +91-89106 52712/96743 55898 , E.mail : aricarekolkata@gmail.com
(Registration No.S/2LNo. 29668 of 2014-15)

Vol. 8 No. 2, July, 2024

ARICARE news

Contents

President's Desk

Artificial Intelligence: Boon or Bane

The idea of machines outsmarting humans has long been the subject of science fiction. Rapid improvements in artificial intelligence (AI) programme over past decade have led one to conclude that science fiction could become reality. Artificial intelligence is a method of making a computer, a computer-controlled robot or a software that perform automated tasks mimicking human cognitive functions like learning, reasoning, problem solving, decision making and taking action in a situation it never faced earlier. The AIs rely on a process called machine learning to develop complex algorithms that constitute their ability to act intelligently. AI has already made significant impact with application in various fields viz. self-driving cars, facial and speech recognition, natural language processing including machine translation and the like. It can hold conversation with people, draft legal documents, write medical prescription and so on. Some AI program is making waves in the creative writing, acting as coauthors taking starting point from a human writer and continuing the story in a coherent and interesting way. The technology is currently advancing at a breakneck speed. The distinction between artificial intelligence and human intelligence, therefore. getting blurred. It is said that ASI or artificial super intelligence may develop thinking skills more advanced than any humans. Advance AI systems would learn on their own, or self-learn without help from humans. Nightmare scenarios are depicted where super intelligent machines take over and permanently alter human existence through enslavement and eradication.

The social impact of AI is complex and multifaceted. The transformative impact of artificial intelligence on our society will have far reaching economic, legal, political and regulatory implications that we need to be prepared for. Artificial intelligence has the potential to revolutionize society in many ways bringing both positive and negative impacts. AI can automate repetitive tasks 24x7 reducing human error freeing human workers to focus on more complex and creative endeavors. AI can analyze vast amounts of data to identify patterns and trends that human might miss. There is virtually no major industry that modern AI has not already affected – manufacturing, health care, finance, education, media, customer service, transportation and also agriculture. As AI automates tasks, some jobs are becoming obsolete leading to unemployment and inequality. It is believed that now almost one third of employee's tasks could be performed by AI. According to a 2023 IBM survey in USA, 42 percent of enterprise scale business have adopted AI to varying degrees and 40 percent are considering AI for their organization. Between 2023 and 2028, 44 percent of workers skill will be disrupted. According to PWC 7 million existing jobs will be replaced by AI in the UK from 2017 to 2037, but 7.2 million jobs could be created. If the companies don't have steps in place to upskill their workforce, the proliferation of AI could result in higher unemployment and decreased opportunity. The vast amount of data collection and analysis raises privacy concerns. There are also concerns regarding disinformation, the spread of deep fakes to blur the lines between fiction and reality. Also, the gap between the rich and poor will be widened. It is crucial to develop and implement AI responsibly, focusing on mitigating negative impact and maximizing the benefits for society as a whole. One of absolute prerequisite of AI to be successful in many areas that we invest tremendously in education

Secretary's Desk

The ARICARE news is a half yearly e-publication of our Association covering various information and views of national and international importance.It is widely circulated among the retired and serving employees/organisations of ICAR and it has gained its name and fame since January, 2017. I am very much glad that the Editorial Board members have tried their best for the publication of Volume 8 (2), 2024 of ARICARE news in time.

During the period, the Governing Body and different Sub-Committee of ARICARE have performed various activities with the cooperation of all members. All meetings of the Governing Body and different Sub-Committee were held physically at different ICAR Institutes in Kolkata. Two Governing Body meeting was held on 06.2.2024 atICAR-IVRI, Eastern Regional Station, 37 Belgachia Road, Kolkata and on 19.06.2024 at the Scientist's Home, ICAR-NBSS & LUP,Bhumi Vihar Complex, Salt Lake,Kolkata; several meetings of all Sub-Committee were also held during the period. Various important administrative/medical issues, tour programmes, social activities,celebration of Naba Barsha Baran,membership drive etc were discussed and some programmes were performed successfully.

Important events performed during the period are: (1) The national tour in Kerala state was undertaken from 27th January to 6th February, 2024; (2) One International tour was arranged in Indonesia from 02.05.2024 to 09.05.2024. About 14 persons participated in the tour covering important visiting places of Jakarta, Yogyakarta and Bali Islands. (3) the celebration of Bengali Barsha Baran (1431) was organised at ICAR- NBSS & LUP, Regional Centre, Kolkata on 24.5.2024, (4) the e-publication of the Nababarsha issue of "ANWESHA"in April,2024 and (5) the social work plan on three aspects mainly (a) Education, (b) Health and (c) Agricultural/rural development was finalized by the Community Service Sub-committee.

During the period, a good number of retired ICAR employees have joined in the ARICARE and the Association is thankful to them. It is hoped that ARICARE will be enriched with their new ideas and active role in various activities.

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 participants for their active participation to make the events more enjoyable and memorable .

Editorial

July Issue (Vol 8 No 2) of ARICARE NEWS is already prepared with the inclusion of all our activities carried out during the period from February to July , 2024 and the journey of our Association being initiated from July ,2014 has completed 10 long years. In this decade long journey , 137 nos. ICAR retirees have come under the umbrella of this vibrant platform with respite and confidence restored over the years of remaining together and marching forward in the present leg of our life . Now , physical health is of utmost importance to all of us. We

should regularly careof our health and maintain it. There is a need to seek medical treatment when ill. Engaging in activities can help prolong our life as they are pleasant and provide fulfillment in life. Activities , which , of course, we desire to have, should align with our economic and social circumstances. This ensures a trio of desirable factors , physical health ,emotions and social well-being.People experience peak level of happiness from ages 55 to 75 , though variable , untill their health starts to fade.

Sometimes we may reflect on our past.We have met success differently , have different memories we can be proud of , or some failures.The void of job title , workplace and colleagues could leave us with a sense of isolation and require significant emotional adjustment to achieve a good state of mind.

Over the years , it is noted that in the event of common programmes as arranged by Aricare , such as Barshabaran , Bijaya Dashami and Annual Picnic , there is large assemblage of our members mostly along with their spouses for spending the day with ICAR colleagues and many of us may not know others but our connectivity reclines in ICAR. It is also observed that we , the members of our Association try to remain present in Annual General Meeting (AGM) as we want that the Association of which we are life members , should flourish and prosper in terms finances, performances and all other activities and this message will be percolating to ICAR employees for becoming encouraged to become Members after their superannuation. Responses , which we have received in Annual Development / Maintenance Fund , are highly appreaciable as it indicates our craving to keep our beloved Association to function properly in the time to come.

Many of us are having keen interest to see places of our interest and thus Aricare is regularly organizing Tour and Travels in domestic as well as International destinations . Some of us are regularly travelling to various places through different Tour Operators but to travel together in a group of ICAR retired employees , arranged by Aricare , is also enjoyable and our recently conducted Tour to Indonesia by a group of 14 people is an illustration of our beautiful moments spent by us together in foeign land.

We have diverted our attention to raise fund to do Community Services under the banner of our association and our members had voluntarily donated an amount of Rs 1.18 lakh to do work for the people who are in need of help and support for Health , Education and Rural Development etc. This fund under Community Services are being generated in Aricare right from the Covid period (2020-21) and we are having a lot of satisfaction to do a little service for the needy people.

We could welcome নববর্ষ – ১৪৩১ by an impressive presence of our Members in large nos. with their participation in singing and recitation and the event had turned out to be a memorable one. We have been felicitating our Sr Members after attaining 75 years of age mostly during AGM but this time we had felicitated 4 members who are now more than 80 years of age. It may be pertinent to mention that in our country , only 6 % people can survive upto 80 years and we all hope that our members should make a good health and energetic state of mind in their journey to achieve Super Sr. Citizens.

We have been receiving support/assistance to prepare the documents of e- ARICARE NEWS from all of you and Editorial Board extends heatfelt thanks to all of you particularly President , Secretary , Asstt. Secretary ,Treasurer and Asstt. Treasurer . Two of our Scientist Colleague who had contributed their writings for Our Research Thoughts , are profusely thanked for enriching this issue of Aricare News. **Let us all wish to increase our energy and live a happier ,healthier and more productive life for the time to come.**

Meetings and Events

Governing Body Meeting

Governing Body Meeting (2nd) of ARICARE for the year 2023-24 was held at 2.30 P.M. on 06.2.2024 (Tuesday) in ICAR-IVRI, Eastern Regional Station, 37 Belgachia Road, Kolkata-700037. 12 members were present namely Dr. K. K. Satapathy, Dr. Mrinmoy datta, Dr. D. C. Nayak, Dr. Goutam Bose, Mr. Sumitranjan Sarkar, Mr. Binoy Saha, Dr. S. S. Pal, Dr. Sankar Kumar Mahapatra, Dr. Krishnendu Das, Dr. Asok Biswas, Dr. B K Bandyopadhaya and Mr. Subrata Kumar Pal. The President, Dr. K.K. Satapathy welcomed the members of GB. Then one minute condolence was observed in the memory of Late Dr. Prasanta Kumar Ganguly (NINFET, Tollygunge) and Late Dr. Abhindra Day (NINFET, Tollygunge), the members of ARICARE. After the condolence, Dr.Mrinmoy Datta, Vice-President gave a proposal that a framed photo with condolence message of the deceased member of ARICARE may be prepared and arrange to send it to his/her residence. The Members of GB supported the proposal and the President requested the Secretary to take the initiative.
The meeting was started as per agenda.

Agenda-1: Confirmation of the minutes of the Last GB meeting
The Secretary mentioned that the last GB meeting was held on 29.8.2023 at ICAR-IVRI, Eastern Regional Station, 37 Belgachia Road, Kolkata-700037. The minutes of the last GB was read out by the Secretary, discussed and confirmed by the members.

Agenda-2: Discussion on the utilization of the fund raised for social activities
The President informed that a good amount of fund (about Rs.1,11,100/- contributed by 63 members) has been raised after the circulation of the appeal of fund raising for social activities, reminder by the Chairman of Community Service SUB-Committee and the President in the financial year 2023-24. He also emphasized that the fund should be used mostly under the banner of ARICARE instead of handing over the cheques to the different Welfare Societies/ NGOs. In this context, the members of the house mentioned the various proposals /activities like (1) Educational development in Primary School in Backward areas, (2) Health related works, (3) Agriculture/Rural development which can be done solely by ARICARE or by joint venture with other social Welfare Organizations/ NGOs / KVK. The President mentioned that the members of ARICARE also send the new ideas in this regard by WhatsApp/ e-mail to the Secretary/ President as early as possible to include in the social activities. He also added that one more appeal may be circulated for raising the fund of Community Service in this financial year to remind the members who have not contributed yet. The President requested the Chairman and the Convener of Community Service Sub-Committee to held a meeting as early as

possible for making good and acceptable proposals of social activities which will be approved by the extended GB for implementation in this year.

Agenda-3: Discussion on the activities of ARICARE during 2023-24.

The President mentioned that the different sub-committee are working well in various activities throughout the year.

He again informed that the progress of the online submission of the modified Bye-Laws is not satisfactory though it was tried from different sources. The difficulties of the process were discussed and the Secretary will take necessary actions with the help of some members.

The other activities like the upgradation of Web-sites and the issues of Pension/ Administration were also discussed in depth and the action may be undertaken by the respective Sub-Committees.

The new membership drive was discussed and the President requested to all GB members to take initiative in this regard.

Agenda-4: Miscellaneous

There was no other matter to discuss and as such , the meeting came to an end with the vote of thanks to the Chair.

A view of GB Meeting held on 6th February ,2024

Governing Body Meeting (3rd) of ARICARE for the year 2023-24 was held at 2.30 P.M. on 19.06.2024 at the Scientist's Home, ICAR-NBSS & LUP, Bhumi Vihar Complex, Block-GB, sector-III, Salt Lake,Kolkata-700097 on 19.06.2024 (Wednesday). Total 14 members were present namely Dr. K. K.Satapathy, Dr. Mrinmoy Datta, Dr. D. C. Nayak, Dr. Goutam Bose, Mr. Sumitranjan Sarkar, Mr B KSaha, Dr. Syamali Chakrabarti, Smt. Jayshree Nath, Dr. Krishnendu Das, Dr. S. S. Pal, Dr. Madhumita Das, Dr. B.K. Mahapatra, Dr. Asok Biswas, and Mr. Subrata Kumar Pal. The President, Dr. K.K. Satapathy, welcomed the members. The meeting was started as per agenda.

Agenda-1: Confirmation of the minutes of the Last GB meeting

The Secretary informed that the last GB meeting was held on 06.2.2024 at ICAR-IVRI,Eastern Regional Station, 37 Belgachia Road, Kolkata-700037. The minutes of the last GB was read out by the Secretary, discussed and confirmed by the members.

Agenda-2: Fixation of the date and Venue of AGM (2023-2024)

The matter was discussed thoroughly among the present members. The date of AGM was fixed on 19.7.2024 (Friday) tentatively depending on the availability of the Venue place at the Kennedy Hall of Department of Jute and Fibre Technology, University of Calcutta, 35, Ballygunge Circular Road, Kolkata-700019.

Agenda-3: Discussion on the Audit and Accounts of the Year (2023-2024)

Mr. Sumitranjan Sarkar, the Treasurer informed that the accounts of ARICARE for the period from 01.4.2023 to 31.3.2024 was prepared and submitted to the Auditor for finalization. He briefed the audited statements of Income and Expenditure as well as the Receipts and Payments.

Agenda-4: Discussion on the various activities of ARICARE Community Service Sub-committee

Initially the activities of the sub-committee were discussed. Dr. Mrinmoy Datta, the Chairman of the Committee informed that about Rs. 1,17,000 (Rupees one lakh seventeen thousand) till date was raised from the contribution of the ARICARE members and thanked to the members for generous contribution for the social work. He said that the work in three major areas VIZ. education, health and rural development will be taken in this year as the decision taken in the last sub-committee meeting held at ICAR-ATARI, Salt Lake on 8 th April, 2024. For the education, the computer training programme will be taken for rural students in Amratala village, P.O.Harbhangi, Block-Basanti, District- South 24 Pgs. as suggested Dr. Prosenjit Sanyal, ARICARE Member . ARICARE will provide Rs.12000/- (Rs.2000/- per month for the six months for the remuneration of the computer trainer). They have all infrastructure facilities for computer training. Our ARICARE team comprising the members of the Sub-committee and other members will visit the area before final financial approval.For the health issues, the sanitary pad about 500-1000, available at cheap rate (costing Rs. 1000/-) will be distributed among the rural women in the above village of Basanti block. The rural development work will be taken up with the help of the KVK (Sasya Shyamala Krishi Vigyan Kendra at Arapanch, P.O. Sonarpur, District-South 24 pgs, Kolkata-700150). About 14 female goat kids (two female goat kids of seven families) and one male goat kid for common of Black Bengal breed, 5-6 month age will be distributed to the selected villagers through the KVK. Dr. K. Das, the Convener of the Sub-Committee informed that the discussion was held in depth with Dr. N. C. Sahu, Head and the person of Veterinary subject matter specialist of the said KVK. In this aspect, total expenditure will be about Rs. 46000/- (Rupees forty six thousand). For the above three activities, about Rs.59000/- (Rupees fifty-nine thousand only) expenditure will be incurred. The Members of GB, ARICARE approved the expenditure in principle.

Digital sub-Committe

The website of the Association is not properly upgrading. It is one of the major concerns expressed by many members. Smt. Jayshree Nath and Mr. Sumit Sarkar informed that they are trying their best but the concerned person had not sufficient time to do the required job. Some members suggested for alternatives agency for website improvement. Regarding WhatsApp message, the circulation of the political/ religious/unwanted/Irrelevant messages by few members in ARICARE Official WhatsApp was highly condemned in the meeting. Dr. Goutam Bose and and Dr. Asok Biswas informed that many circulars were given for many times to stop these practices. In the GB meeting, the matter was thorough discussed and it is decided that Digital Sub- Committee/ Admin of WhatsApp is empowered to delete these unwanted messages instantly. It is also decided if it continues, some strict action may be taken against the members.

Agenda-5: Any other issues with the permission of the chair

(a) Mr. Sumit Sarkar informed that the renewal of the Society registration is pending as the format has been changed. The update of the name of the Secretary was not done. For this purpose, the President and the Secretary should sign in a form and then it will be submitted for update. The action will be taken as early as possible.

(b) The President expressed his concern that the total fund of ARICARE is decreasing slowly to meet the expenditure for the year-wise various programmes. He said that our main source of fund is the one-time membership. Presently the rate of inclusion of new members year-wise is less. Therefore, to sustain the various activities smoothly, we should try to raise some fund regular basis. The matter was discussed among the present GB members. Some members proposed that the members may contribute yearly as all members and their family are very happy and enjoy in participating in various activities round the year. Some members thought about from some advertisements, but our two publications are in e-format. After the unanimously decision that an appeal is made to all members of ARICARE to contribute Rs. 500/- (Rupees five hundred only) yearly for the period 2024-2025 and onwards as **Annual Maintenance or/ Development fund**. Some members may donate individually without limit. The money

GB Meeting held on 19th June , 2024

Governing Body meeting of ARICARE, Kolkata (1st in 2024-25) was held on 30.07.2024 at ICAR-CIFE, Salt Lake, Kolkata. The members present in the meeting were Dr.K.K.Sathpathy, Dr.Mrinmoy Datta, Dr. Gautam Bose, Dr. B. K. Bandyooadhyay, Dr. D.C.Nayak, Mr.S.R.Sarkar, Mr.B.K. Saha, Dr.K.Das,Dr.S.K.Mahapatra, Dr.S. S.Pal, Dr(Ms) Syamali Chakrabarty, Dr(Ms) Madhumita Das Mrs.Jayashree Nath and Mr. Subrata Pal.

GB Meeting held on 30th July , 2024

In the Meeting, different sub-committee as proposed by the Secretary is formed consisting of members from Aricare in order to function and organise various activities of our association for the year 2024-25 . President, Secretary, Treasurer will be Ex-Officio member of all the committee. The chairman of the different Sub-committee is authorized to induct any other member in their committee as they deem fit.

ARICARE SUB-COMMITTEE (2024-25)

A. Pension, Administration and Medical sub-committee

1. Dr Mrinmoy Datta (Chairman)

2. Dr. Sankar Kr Mahapatra (Convener)

3. Dr. B. K. Bandyopadhyay

4. Dr. Amitabha Bandyopadhyaya

5. Dr Sitangsu Mohan Deb

6. Mr. Balaram Chatterjee

7. Mrs. Jayashree Nath

B. Tour Sub- committee

1. Dr(Ms) Syamali Chakrabarti (Chairperson)

2. Mr. Binoy Kr Saha (Convener)

3. Dr Madhumita Das

4. Dr. Nimai Chandra Pan

5. Mr. Ratan Kr Das

6. Dr Sankar Kr Mahapatra

7. Dr Biplab Saha

C. Social and Cultural Sub- committee

1. Dr. Krishnendu Das (Chairman)

2. Mr. Sumitranjan Sarkar (Convener)

3. Dr(Ms) Syamali Chakrabarti

4. Dr. Sudhansu Shekhar Pal

5. Mr. Swapan Kumar Sinha

6. Mrs. Jayashree Nath

7. Mr. Binoy Kr Saha

8. Dr. Debabrata Das

D. Digital Media Sub-committee

1. Dr. Gautam Bose (Chairman)

2. Dr. Asok Biswas (Convener)

3. Dr. Krishnendu Das

4. Dr. Mrinmoy Datta

5. Dr. Sudhansu Shekhar Pal

6. Mrs. Jayashree Nath

7. Mr. Binoy Kr Saha

E. Community Services Subcommittee

1. Dr. Mrinmoy Datta (Chairman)

2. Dr. Krishnendu Das (Convener)

3. Dr. Alok Nath Roy

4. Dr. Asok Biswas

5. Dr. B K Bandyopadhyay

6. Dr. Sitangsu Mohan Deb

7. Mr. Prosenjit Sanyal

8. Dr. Souvendra Nath Sarkar

F. Editorial Board "ARICARE" Newsletter

1. Dr Mrinmoy Datta

2. Dr. Asok Biswas

G. Editorial Board "ANWESHA"

1. Dr. Sudhansu Shekhar Pal

2. Dr. Asok Biswas

H. Administrators - 'WhatsApp'

1. Dr. Gautam Bose

2. Mr. Sumitranjan Sarkar

I. Administrators -'Face book'

1. Dr. Krishnendu Das

2. Mr. Binoy Kr Saha

G. Administrator -'ARICARE Website'

1. Mrs. Jayashree Nath

2. Mr. Sumitranjan Sarkar

Community Services Sub-Committee

The meeting of Aricare Community Services was held in the conference hall of ICAR-ATARI, Kolkata on 8th April,2024. The meeting was attended by Drs KK Satapathy (President) ,M Datta (Chairman) ,K Das (Convener) , D C Nayak (Secretary) ,S Chakraborti and P Sanyal.Welcoming all present in the meeting, President had initiated the discussion with an information that an amount of Rs 1,11,000/ was donated by ARICARE members for implementing different programs under Community Services.It was decided in the Governing Body meeting held on 6 th February,2024 that the fund as raised in the financial year of 2024- 25 will be utilised in Education,Health related area and Agriculture/ Rural Development.

Following are the tentative decisions undertaken in the meeting.

- In order to spread the necessity of Computer literacy, assistance will be given to an instructor @ Rs 2000/ per month for a period of 6 months in an elementary School run by a NGO in Sunderban area(Basanti) ,65 km away from Kolkata.Total expenditure will be around Rs 12,000/.A visit to the School to explore the feasibility is to be done shortly from the members of Community services
- Sanitary pads about 500- 1000, available at a cheap rate will be distributed among the rural women in the remote areas under the banner of ARICARE.
- Goatary is one of the economic activity (for meat purpose) in rural Bengal. Goat female kids of Black Bengal Breed,5-6 month age will be distributed to villagers through KVK's in South 24Pgs (Sonarpur/ Nimpith) . 1-2 female kids / per farmer will be given to 10-20 persons along with the supply of male kid in the ratio of 1 male in 8-10 female goat in order to avoid inbreeding. The average cost of goat kid is Rs 2500- 3000/.The total cost involved will be around Rs 30,000/ for 10 goats , No other input will be given.Goat normally breeds 2 times in an year after attaining puberty and system will be generated for the supply of goat kids to KVK for future expansion of the programme. In case of increase of no of goat or gamers covered , expenditure will be around Rs 60,000/.
- Blankets may be distributed among the inmates of Old Age Home.

The meeting ended with thanks to the Chair.

Community Service Committee Meeting held on 8th April , 2024

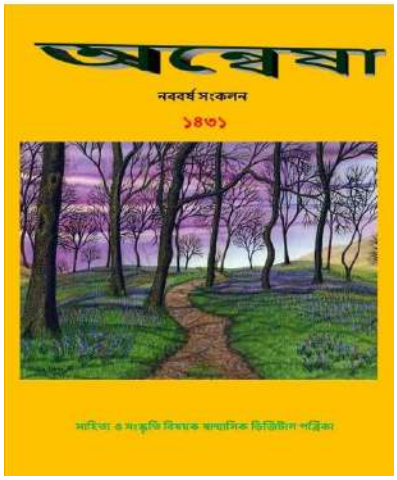
Social and Cultural Sub-Committee

Barshoboron Utsab (নববর্ষ – ১৪৩১**) of Aricare** as organized by Social and Cultural Sub-committee was held at at ICAR-NBSS & LUP, Salt Lake, Kolkata on 24th May , 2024 and 58 persons including members and their families attended the celebration at Kolkata.

Barshoboron Utsab for celebration of Bengali New Year (1431)

Barshoborn Utsab was inaugurated and Annewsha magazine (Nababarsha Issue , 1431) was released by Dr F.H. Rahman , Head, ICAR- NBSS & LUP , Kolkata . Songs were sung in the celebration and members had also participated in recitation of poem.

Inauguration of Borshoborn



Annewsha Magazine

Singing in Barshoboron Utsab

Tour Sub- Committee

Tour Sub- Committee Meeting of Aricare was held on 29th February, 2024 at Food Court , Metropolis Mall , Highland Park , Kolkata to dissucuss about the tour itinerary of both Domestic and International Tours in the time to come.

Tour Sub- Committee Meeting

A Domestic Tour was conducted during the period from 27th January to 6th February , 2024 by a group of 2 persons accompanied by 2 friends in different Tourist places of Kerala**. An International Tour** to Indonesia from 2nd May to 9th May , 2024 was organized by Aricare and 14 persons along with their family members had participated in the Tour comprising of visit to Jakarta , Yogyakarta and Bali . The Country having 8000 inhabited islands , is a treasure trove of historical and cultural attractions with wonderfully contrasting vibes as we had travelled from one part to another. Attractions were active volcanoes (Mount Batur), World's largest Buddhist Monument (Borobudur) , Hindu temples (Prambanan) and Bali Kecak / Fire Dance with story from Ramayana.

Indonesia Tour

A view of Borobadur

Annual General Meeting (AGM)

10th Annual General Meeting (AGM) for 2023-24 was organized on the 19th July (Friday) at Indumati Sabhagriha (Jadavpur University Campus) and 63 members of Aricare were present in the meeting. Registration of Delegates (Members) were

arranged by Mr Sumitranjan Sarkar , Mr Binoy Kumar Saha and Mr Swapan Sinha at 10.45 AM in the front of Indumati Sabhagriha and all had received programme details and after taking Tea/Snacks , meeting of AGM was started at 11.45 AM in the Sabhagriha.Meeting was anchored by Dr Krishnendu Das , Chairman , Social and Cultural Sub-committee. Proceedings of the Meeting were noted hereunder.

Agenda- 1- Welcome Address

Dr. M. Datta , Vice President of Aricare had welcomed all the members present in Meeting Hall for 10th AGM (2023-24) and starting our journey in 2014 , our members are now 137 nos with the enrollment of new 11 members from the retired ICAR employees in this year. Dr Datta had informed the house the demise of Drs Prasanta Kumar Ganguly and Abhindra Day on 7th October and 18th November ,2023 , respectively.Members paid a homage to the departed soul by observing silence for 1 minute.

10th AGM at Indumati Sabhaghar

Members present in AGM

Agenda-2 – Presidential Address

Dr K.K. Satapathy , President of Aricare had said the organized performance of our Association as compared to other ICAR retired Association existing elsewhere in the country. There are nos. of Sub-Committee operating in Aricare to carry out all our activities such as Pension / Medical related matters , Social/Cultural Activities , Tours conducted , Digital Media (Whatsapp , Facebook and Website) and community Services etc. In order to strenghthen financial position of our Association , we have introduced Annual Development / Maintenance fund with a minimum donation of Rs 500/- and an amount of Rs 39,000/- was contributed by 61 members of Aricare in this fund.We are also publishing regularly the digital literary magazine , Anwesha and e-Aricare News .Our Members had also contributed an amount of Rs 1,18,000/- for our Community Services and shortly we will be initiating our work in Health , Education and Rural Development with this fund available with us.Dr Satapathy concluded his delibration

with a hope that our Association will grow many folds in the time to come so that ICAR retired employees will be benefitted tangibly.

Agenda -3- Confirmation of Proceedings of last AGM and Secretary's Report

Dr. D.C Nayak , Secretary , Aricare had read the minutes of 9th Annual General Body Meeting held in the year 2022-23 for confirmation of the Proceedings by the Members present in 10th AGM. After confirmation , Dr Nayak had presented Secretary's Report in 10th AGM and a copy of the report was already distributed to all members followed by open discussion at the end.

Agenda 4- Auditor's Report

Mr Sumitranjan Sarkar , Treasurer , Aricare had presented the Audited report with the statement of Accounts including Receipt /Payment, Income / Expenditure and Balance Sheet of Association for the financial year 2023-24. After discussion among the members , the account was passed unanimously.

Agenda 5- Felicitation of Senior members

In the meeting , 5 Senior Members of Aricare were felicitated with an 'Uttorio' and a Book on Lord Ramakrishna as they have attained more than 75 years of age. They were , Shri Amrita Lal Das (81 years) , Former Sr. Technical Officer , ICAR-NBSS & LUP , Kolkata , Shri B.D. Mandal (81 years) , Former Sr. Administrative Officer , ICAR-CRIJAF , Kolkata , Smt Sandhya Sen (81 years) , Former Sr. Clerk , ICAR- NINFET , Kolkata , Dr Arabinda Kumar Jana (78 years) , Former Principal Scientist, ICAR- CRIJAF , Kolkata and Dr Shanti Bhusan Lodh (82 years) , Former Joint Director , ICAR-NRRI , Odisha.Drs S. B. Lodh and A.K. Jana could not attend the AGM and their felicitations were received by Drs R.K. Mandal and D.P. Sinhababu.

Shri Amrita Lal Das

Shri B.D. Mandal

Smt Sandhya Sen

Dr R.K. Mandal receiving on behalf of Dr Jana

Dr D.P. Sinhababu receiving on behalf of Dr Lodh

Agenda 6 – Presentation of Brief Report by the Chairman of various Sub-Committee

Dr Mrinmoy Datta , Chairperson , Sub- Committee for Pension/ Administration / Medical and Community Services had informed the house about the progress made in these two sub- committee. There is a disparity in the nos of empanelled hospitals and the accepted payment options among the 3 ICAR Institutes located in Kolkata and such disparity needs to be resolved after discussion with respective Directors / Administrative officers. With the help of our cards issued from ICAR Institutes , we may get CGHS rate of OPD charges for Doctors Consultation and Medical Tests from some hospitals located in Kolkata. Planning has been done to utilize the fund (Rs 1.18 lakh) received for Community Services in the area of Health , Education and Rural Development and actual implementation work will be undertaken shortly.

Dr (Ms) Syamali Chakraborti, Chairperson , Tour Sub- Committee had informed the House regarding the domestic Tour to Kerala during 27th January – 6th February and an International Tour to Indonesia in the month of May, 2024. Short tour (1-2 days) may be conducted in and around Kolkata in the coming months before Durga Puja.

Dr Krishnendu Das , Chairperson , Social and Cultural Sub-Committee had informed the House about the celebration of Bengali Nababarsha on 24th May , 2024 with the future attraction of Vijya Sanmilani and Annual Picnic.

Dr Gautam Bose , Chairperson , Digital Media Sub-Committee had informed the house about the outcome of this Sub-committee in managing Whatsapp, Facebook and Website.Publication of e- News and Literary Magazine , Anwesha is being carried out twice in an year .

Agenda -7 – Selection of Office Bearers and GB Members

The following persons as elected in 9th AGM in 2023 -24 are also selected to continue as office bearers and EC Members for 2024-25. This proposal was placed for approval by the General Body in AGM and the proposal was unanimously accepted.

Dr K.K. Satapathy -President ,Dr . M. Datta – Vice President ,Dr . D.C. Nayak – Secretary , Dr. G. Bose –Asstt. Secretary ,Mr. S. Ranjan Sarkar- Treasurer , Mr. B.K. Saha – Asstt. Treasurer **(Office Bearers**) , Dr. S. S. Pal , Dr.(Ms) S. Chakrabarti, Dr. K. Das , Dr. D. Pal , Dr.A. Biswas, Mrs J. Nath, Dr (Ms) Madhumita Das , Dr. S. Mahapatra , Dr. B. K. Mahapatra , Mr. S. K. Pal , Dr B.K. Bandopadhyay – Ex-officio (**Executive Committee Members).**

It was discussed in the meeting that information for the members to continue as office bearers as well as EC Members in the 2nd year should also be informed to Office of Registrar for record and further necessary action.In order to bring all ICAR Medical Card as issued by ICAR Institutes , to be brought under CGHS, there is no official order regarding the consideration to function as CGHS and on the other hand , such proposal ,once made by the Association was not accepted by Pension Authorising Authority , ICAR- CIFRI.It was also proposed in the meeting to consider Tata Medical Centre , New Town , Kolkata to bring under empanelment of ICAR Medical Card.The AGM meeting came to an end with **Vote of Thanks** , delivered by Dr G. Bose , Asstt. Secretary, followed by lunch as arranged .

A view of Members present in 10th AGM (2024-25)

Annual Fund Generated

Fund for Community Services as contributed by 65 Members of Aricare is **Rs 1.18 lakh** and the fund will be utilized in the area of Health , Education and Rural Development, as decided in the GB meeting . As per decision taken in GB Meeting held on 19th June , 2024, Annual Maintenance / Development Fund is created to bear the expenditure to be incurred for arranging various essential programme in Aricare and valued Members of our Association had come forward to contribute to have this fund generated . During the period from 24th June to 27th July , 2024 , an amount of **Rs 41,500/** was contributed by our Members as reported below.

1.Sh. B. K. Saha - ₹. 500/-
2.Dr. Mrinmoy Datta - ₹. 3000/-
3.Dr. Sitangsu Mohan Deb - ₹.1000/-
4.Dr. Kamal Kumar Datta - ₹.500/-
5.Dr. Krishnendu Das - ₹.1000/-
6.Dr. B. K. Mahapatra - ₹.500/-
7.Sh. Subhas Sheet - ₹.500/-
8.Sh. Sumit Ranjan Sarkar -₹.500/-
9.Dr. Sachidulal Raychaudhuri - ₹.500/-
10.Dr. Nimai Chandra Pan - ₹.1000/-
11.Dr. Gautam Roy - ₹.1000/-
12.Dr. Uttam Kr. Bandyapadhyay - ₹.1000/-
13.Mrs.Jayshree Nath - ₹.500/-
14.Sh. Swapan Sinha - ₹.500/-
15.Dr. Syamali Chakraborty - ₹.1000/-
16.Dr. Swarup Kumar Chakraborti - ₹.500/-
17.Dr. (Mrs.) Utpala Parthasarathy - ₹.500/-

18.Dr.(Ms) Madhumita Das - ₹. 500/-
19.Dr. Gautam Bose - ₹. 1000/-
20.Sh. Ratan Kumar Das - ₹. 1000/-
21.Dr. Asok Biswas - ₹. 500/-
22.Mrs. Priti Rekha Ghatak - ₹. 500/-
23.Dr. B. Maji - ₹. 500/-
24.Dr. Subrata Biswas - ₹. 1000/-
25.Dr. Dilip Kumar Kundu - ₹. 500/-
26.Dr. Suprakash Saha - ₹. 500/-
27.Dr. D. C. Nayak - ₹. 1000/-
28.Dr. Sajal Kr. Chattopadhyay - ₹.500/-
29.Dr. Narayan Ch. Choudhuri - ₹.500/- .
30.Dr. Debanjan Sur - ₹.1000/-
31.Dr. K. K. Sathpathy - ₹. 1000/-
32.Sh. Subhas Ch. Chakraborty - ₹. 500/-
33.Dr. Subrata Mukherjee - ₹.1000/-
34.Dr. Monoranjan Saha - ₹.500/-
35.Dr. A. K. Sahoo - ₹. 500/-
36.Dr. B. K. Bandyopadhyay - ₹.500/-
37.Sh. Balaram Chatterjee - ₹. 500/-
38.Dr. Sankar Kr. Mahapatra - ₹.500/-
39.Dr. Mantu Kr. Basak - ₹. 500/-
40.Dr. Alok Nath Roy - ₹.500/-
41.Dr. Debabrata Das - ₹.500/-
42.Dr. Sudhansu Sekhar Pal - ₹.500/-
43.Sh. Sanat Kumar Dutt - ₹. 500/-
44.Dr. Utpal Sen - ₹. 500/-
45.Dr. Tarit Chattopadhyay - ₹.1000/-
46.Sh. K. L. Ahirwar - ₹.500/-
47.Dr. Samir Kr. Naskar - ₹.500/-
48.Dr. S. Ghosal Choudhuri - ₹.500/-
49.Sh Sujit Kumar Mitra - ₹. 1000/-
50.Dr. Banku Behari Das - ₹.2000/- .
51.Dr. Kapil Deo Sah - ₹. 1000/-
52.Dr. Asit B Mandal - ₹.500/-
53.Dr. Debasis Pal - ₹.500/-
54.Dr. Debasis Nag - ₹.500/-
55.Dr. T. H. Das - ₹. 1000/-
56.Dr. D. S. Singh - ₹.1000/-
57.Sh. A. L. Das - ₹. 500/-
58.Sh. Dinobandhu Kumar - ₹.500/-
59.Dr. D. P. Sinhababu - ₹. 500/-
60.Sh. B. D. Mondal - ₹.500/-
61.Dr. S. K. Gangopadhyay - ₹.500/-
62. Dr. Biplab Saha – ₹500/-

63. Dr. Mukti Sadhan Basu- ₹1000/-
64. Dr. Puranjan Das – ₹1000/-

Total ₹. 41,500/-

Life Member

The total Life members of Aricare are presently 137 and during the period from February to July , 2024 , eight retired employees of ICAR have become member of our Association. They are as follows :

- Dr. Debabrata Das , Former Asstt. Chief Technical Office , ICAR-NINFET, Kolkata.
- Mr. Balaram Chatterjee, Former Private Secretary , ICAR –NINFET , Kolkata.
- Dr. Sitangsu Mohan Deb ,Former Director , ICAR-NDRI (Deemed University), Kalyani.
- Dr. Sibir Kumar Laha , Former Principal Scientist, ICAR- CRIJAF, Barrackpur.
- Dr Biplab Saha , Former Principal Scientist ,ICAR-NINFET, Kolkata.
- Dr Alok Nath Roy, Former Principal Scientist, ICAR-NINFET, Kolkata.
- Dr.Mozammel Hoque , Former Head , Surgery Division, ICAR – IVRI, Izatnagar (UP).
- Dr Souvendra Nath Sarkar, Former Principal Scientist , ICAR- IVRI, Kolkata.

Dr. Debabrata Das

Mr. Balaram Chatterjee

Dr. Sitangsu Mohan Deb

Dr. Sibir Kumar Laha

Dr Biplab Saha

Dr Alok Nath Roy

Dr.Mozammel Hoque Dr Souvendra Nath Sarkar

Our Professional Achievements / Engagements

Brief of Engagements of **Dr. P. Das**, Former DDG (Agricultural Extension), ICAR, New Delhi.

February 5-7: Visit to Sher-e-Kashmir University of Agricultural Sciences and Technology of Jammu (SKUST-Jammu)

- Visit to KVK, RS Pura, and participated as the Guest of Honor in Famers-Scientists Interaction on February 5
- Visit to KVK, Kathua, and participated as the Guest of Honor in Famers-Scientists Interaction on Feb.6
- Participated in the Valedictory Session as Chief Guest for the Training Programme on Honey Production on Feb. 7.
- Visit to KVK, Samba, and participated as the Chief Guest in Famers-Scientists Interaction on Feb.7

February 23: Visit to Nature Environment & Wildlife Society (NEWS), Bhibanipur, Kolkata, and delivered three lectures to the Management and the staff of the Organization.

- Evolution of the Concept and Properties of Natural Farming
- Process of Implementation of Natural Farming
- Result Framework-Based Impact Assessment Plan

February 28-29: Participated in National Conference on Novel Strategies for Mitigating Biotic and Abiotic Stresses for Agricultural and Environmental Sustainability, Raipur

- Chaired Theme 6: Capacity building and policy issues in stress management
- Delivered a Special Lecture on "Capacity building for enhancing the adoption of technologies on biotic and abiotic stresses"

March 10-13: Attended the first meeting with Grameen Development Services, Lucknow to initiate the consultancy project to study the impact of Direct Sown Rice and Zero-till-wheat in Bahraich, Gonda, and Gorakhpur; with special reference to Water Footprint and Greenhouse Gas Emission.

March 14-15: Chaired the First Meeting of the "Review of NGO-KVK in Administrative, Financial and Technical Aspects". Agricultural Technology Application Research Institute (ATARI) Hyderabad.Addressed the Scientists of the Central Research Institute of Dryland Agriculture (CRIDA).

April 5-15:Worked on the consultancy project to study the impact of Direct Sown Rice and Zero-till-wheat in Bahraich, Gonda, and Gorakhpur; with special reference to Water Footprint, and Greenhouse Gas Emission. Lucknow

April 23-27 :Attended the meeting at CAU, Jhansi, to guide in preparing the report for the projects funded by Niti Ayog.Attended the meeting at CAU, Jhansi, to approve the technical programs of the proposed Dissertations for the M.Sc. (Agril. Extension).

May 1-May 20 : Worked on the consultancy project to study the impact of Direct Sown Rice and Zero-till-wheat in Bahraich, Gonda, and Gorakhpur; with special reference to Water Footprint, Energy Input-Output ratio, and Greenhouse Gas Emission. Lucknow.

June 7-June 11 : Attended the 13th Research Council and 9th Extension Council Meeting of CAU, Imphal, held at the College of Agricultural Engineering and Post Harvest Technology (CAEPHT), Ranipool, Sikkim.

June 20-June 22 : Attended the 4th Meeting of the Extension Council of CAU, Jhansi .

June 26-June 28 : Visited the KVK at Kathua, Sher e Kashmir University of Agricultural Sciences, Jammu.

July 2 : Attended the Meeting of the Review presentation (Online) of Social Sciences Research Thrust Areas of CAU, Imphal

July 12-Jully 22 : Worked on the consultancy project to study the impact of Direct Sown Rice and Zero-till-wheat in Bahraich, Gonda, and Gorakhpur; with special reference to Water Footprint, Energy Input-Output ratio, and Greenhouse Gas Emission. Lucknow

Dr S.K. Gangopadhyay, Former Principal Scientist & Head , Regional Centre , ICAR-NBSS&LUP , Kolkata was conferred **Fellow** of Indian Society of Soil Survey & Land Use Planning (ISSLUP) on 21st February , 2024.

Dr Madhumita Das , Former Principal Scientist and Director (Acting) , ICAR – IIWM , Bhubaneswar had the following achiements during the reported period.

- Received **Life Time** Contribution Award on the 36 th Foundation Day of ICAR Indian Institute of Water Management,Bhubaneswar, Odisha.
- Received the High Altitude Expedition Certificate for trekking Sandakphu – Phalut (11930 ft) region during 22 – 29 March 2024 from Youth Hostel Association of India (YHAI) in collaboration with Travellers' Guild (*Personal Achevement*) .

Achievements/ Engagements of **Dr. B.K. Mahapatra**, Former Principal Scientist and Scientist In-charge, ICAR-CIFE, Kolkata.

February ,19 : Project Advisor cum Consultant (Aquaculture/Pisciculture), Benfish, Govt. of W.B**.**

February 23 -25 : Participated, presented a paper, Chaired a session and win Best Presentation Award under the theme "Small-scale fisheries addressing SDGs and Vulnerablity to Viability (V2V) in fisheries (SSFS)" during the 13 th Indian Fisheries & Aquaculture Forum, held at Biswa Bangla City Convention Centre, Kolkata.

March 7 : Attended as Aquaculture trainer for Scientific Fish Farming in Sundarban areas at Sasya Shyamala KVK, RKMVERI, Belur.

April 1 : Advisor and Adjunct Professor Techno India University, Salt Lake, W.B.

April 8 : Delivered Gopal Chandra Bhatcharya Memorial Lecture at Rajabazar Science College, Calcutta University.

April 18 : Acted as a Subject Expert member for the one day workshop and Upgradation of the M.Sc. Fisheries Science Syllabus at Vidyasagar University.

May ,2024 : Published a **Book** on MCQ IN Fisheries and Aquaculture, (in English) , Published by Mrs J. Mahapatra , Garia, Kolkata.

June 1 : Advisor cum Consultant for Development of Fisheries Sectors of the Zoological Gardens, Alipoore, Govt. of West Bengal.

June 14 : Member of the Expert Panel under NCDC LIFIC, Govt. of India for providing technical support and compilation of books .

June 26 : Delivered lecture on "Biofloc and RAS Installation and Management" and "Ornamental fish farming & Postharvest management" in LINAC-NCDC.

Research Thoughts

Murrel (শোল মাছ) : An interesting group of freshwater fishes

Pratap Mukhopadhyay

Former Principal Scientist , ICAR-CIFA, Bhubaneswar, Odisha

A group of freshwater fishes having accessory respiratory organ with their head portion looking like a snake belongs to a family CHANNIDAE is found almost throughout the country mostly in swampy waters, wet lands including beels, jheels, deep water rice fields. In all ll our southern states, part of northern and north eastern India ,murrels are considered delicacy.. These fishes have high consumer demand elsewhere also may be because of having few inter muscular spines, distinctive aroma, extremely high nutritive and medicinal value. Some of these fishes are Channa punctatus, Channa striatus, Channa gachua, Channa marulius, Channa barca, Channa amphibeus deserve special mention. Extracts of Channa striatus when administered to experimentalm rabbits induced with osteoarthritis shown positive results in terms of rapid recovery. It is likely therefore that the same might be useful in human trial also in the foreseeable future. This species Channa striatus has long been in use in several parts of Andhra Pradesh and Telengana state in the treatment of asthma. In such a context this group of fishes assumes special importance from both culture point of view as food fish as well as for therapeutic purposes. It may be mentioned here only a vary few fish species are there which are only sold in live conditions in the market and the moment the fish dies, it becomes non-sellable. The group of fish called murrel comes under this select fishes and therefore fetch high price in the market naturally.

Fig. 1 Many varieties of Murrel

Culture and Pond Management

Despite so much of demand and having so much of advantages , these have not received due attention for the controlled culture in freshwater impoundments.. One of the major reasons might be non availability of adequate number of seed and may be little difficulties of larval rearing stages. By virtue of its air breathing habbit these species have

complete disregard for dissolved oxygen in ambient water. They also can tolerate wide ranges of temperature and water pH for their survival growth and development . Since all these fishes have a tendency to migrate during the monsoon season in search of of natural breeding grounds , special precautions to raise the pond dikes or to introduce them in steep ponds might be required. While raising the dikes the top width may be kept at a minimum of 1.5 meter with 2:1 slope (Horizontal : Vertical). They generally spawn naturally in flood plain wet lands, rivers as well as in swamps and derelict water bodies where their natural food mainly insects larvae, small mollusks, zooplankton organism are available in plenty and also where aquatic vegetations /macrophytes are there which may act as support for the sticky eggs. This generally happens during south west monsoon arrival (July-August) and also north east monsoon (November – December). All these species have nesting habits using aquatic weeds where the female lay eggs. The males show wonderful quality of parental care, generally uncommon in most fish species. In fact aquatic weeds hold the eggs and these are again guarded by parents mostly the male counterpart. Fecundity can vary and may range between 2500-25000 eggs depending on several factors such as size of the fish, nutritional status and even age groups. The ova are generally golden yellow in color and measure 1.0 – 1.2 mm in diameter. The fertilized eggs are transluscent and extremely bright golden yellow. In advance stages it becomes amber in color. It generally takes 72 hours for complete yolk-sac absorption. After hatching the young ones always move in shoals .Since availability of seed remains a constraint for propagation of murrel culture ,natural seed collection from the wild is the main source to begin their culture even today.

Murrel seed

Polythene lined pond in the backyard kitchen garden

Used for Murrel Culture

Fortunately seed production in pond conditions (Small shallow earthen ponds of about 0.04 hectare area) has been standardized at ICAR-CIFA in Kausalyagaga farm as well as Rahara /Kalyani fish farm during the month September to November . Since all these fishes have a preference for food of animal origin and they readily accept fish meal based exogenous feed , certain feed compositions incorporating finely powdered and sieved trash fish meal along boiled rice and and mixed traces of fish oil-vegetable oil mix have been successfully tested. Generally

routine pond management practices are followed like periodic liming and organic manure treatment. During larval rearing in tanks /cisterns the hatchlings are to be provided with mixture of zooplankton organisms mostly rotifers for the first month of their atleast, later on,however, they start taking small aquatic insects even tadpoles and tubificid worms and also accept boiled gastropod mead portions. Certain murrel species like Channa Gachua male takes extreme care of eggs and hatchlings although this a common characteristic found in other murrel species also.

As stated earlier bio -medicinal properties specially rapid wound healing, anti inflammatory properties of these fishes make them very special compared many other freshwater fishes including other air-breathers. From nutritional point of view also these fishes are very special. The flesh without many spines have the highest percentage of myofibrillar protein and least percentage of connective tissue protein which confer these fishes a special position from protein nutrition point of view. Once their culture system is developed and fully standardized in pond conditions and side by side their natural food organism mainly zooplankton (Rotifer, cladoceron) are also cultured (to culture these we also may need to grow chlorella to be fed them for their survival and growth ,their production in earthern ponds can be assured. They can be grown in cages also installed in small swampy ponds and pilot scale trial at several locations in Guwahati, several places in Andhra Pradesh and parts rural Bengal showed possibilities of production 2000 kg per hectare per year. There are several water bodies located in various villages which remains unsuitable for carp culture throughout the year .Such water bodies can be excellent resource for murrel culture and all such waterbodies located in Panchayets/Talukas should be brought under demonstrative murrel production with the assistance of state fisheries direcrorates and KVKs wherever possible. This way our fallow water bodies /derelict ponds may open up new possibilities for livelihood support to the interested rural boys and girls. Such venture will not only boost local economy through high quality fish production but also improve the household nutritional conditions of so many families and this way the dream of vikasit Bharat will be a reality without delay and we will be able to create an example for others to follow.

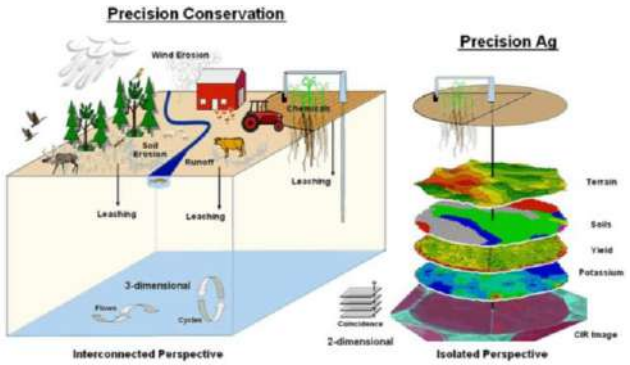
Precision Farming as a means of increasing Productivity and Input Use Efficiency in Agriculture

Sudhansu Sekhar Pal, Former Principal Scientist

Project Directorate for Farming Systems Research, Modipuram, Meerut, U.P

The major challenge in the current millennium is to feed the burgeoning human population from diminishing land and natural resources albeit maintaining ecological balance. New production technologies in agriculture are emerging to meet these challenges which can sustain high productivity and at the same time increase higher use efficiency of externally applied production inputs and maintaining ecological balance. In this context,Precision

Agriculture has evolved which is defined as the application of technologies and principles to manage spatial and temporal variability associated with all aspects of agricultural production .It has the capacity to enhance production and protect the environment while conserving soil and water resources. The idea of 'Precision Farming,' was defined as the use of precision technologies and procedures, across spatial and temporal variability to achieve conservation objectives. They further proposed that precision conservation ties efforts across scales (zones within field to between fields to watershed and basin management) and is a key tool in achieving conservation goals. The logic of tailoring management in time and space so that production inputs are provided as needed is convincing,even for non-agriculturally minded people. These should not be viewed as mutually exclusive objectives. Precision agriculture has been touted as "agriculture of the future" which ensures increased productivity and profitability, reduced agrichemical use, increased nutrient use efficiencies, and reduced off-field movement of soil and agrichemicals).Precision agriculture should be promoted to the extent it facilitates conservation and production better than whole-field conventional management practices. However, only a few studies have been conducted to determine whether these management strategies meet this high expectation. The objectives of this write up is to focus on: 1) how precision information is used to assess crop productivity and profitability and 2) document the development of the precision agriculture system plan, which relied on productivity assessment along with the conservation opportunities as described below.



Site specific three dimensional approaches

Relevance of precision conservation technology

This submission defines the emerging field of precision conservation as the integration and application of spatial technologies of global positioning systems (GPS), remote sensing (RS), and geographic information systems (GIS) to implement conservation management practices that take into account spatial and temporal variability across natural and agricultural systems.

Precision conservation can identify the variability in erosion across fields and the variability in off-site transport of flows due to surface flows and the potential use of site-specific buffer strips. It can also identify hot spots of leaching of nitrogen and emissions of trace gasses. These

capabilities of assessing variability in soil erosion, carbon sequestration, nutrient stratification, and other surface and underground flows allows the development of precision conservation practices to maximize yields in a sustainable level, while maximizing soil and water conservation.Precision conservation will be a key science contributing to the sustainability of our biosphere in the XXI century.

Technoloical details

The main concern in precision farming is that the variation occurs in crop and soil properties within a field. These variations are often noted and mapped. Technology for controlling the spatially variable crop production or precision farming is to deal with cropping operation, which is controlled based upon map or their derivatives. The operations in temporally separate, spatially variable crop production will be the main theme of precision farming.

Mapping programs

The mapping operation can be classified into Remote sensing, Field mapping, Manual mapping (Scheuller, 1997). Various sensors are used to record crop and soil properties with proper geographical location of the quantities being measured. The dominant method in spatially variable crop production is the use of the Global Positioning System (GPS), more specifically differential GPS (DGPS). Finally, computer system is used to record and store both the data from the sensor measurements and the location data. Theoretically, these two types of data could be stored on different computers and merged when mapping.

Control programme

Maps document the spatial variability within fields. Field operations are often controlled to mitigate or take advantage of the variability by responding to the variability in soils, crops, or pests. The most common response to variability has been to control fertilizer application. Of course, soil type and topography maps may also be used to control fertilizer application, pesticide application, tillage, irrigation, or planting depending upon what makes the most agronomic sense.

Map of crop yield,

For example, remote sensing maps of crop stress can be used to guide spatially variable interventions, if the cause of the stress can be determined. Spatially variable operations such as patch spraying, variable irrigation, or variable nitrogen side- dressing can be guided with such information. Pest infestation maps can be used to guide application. Patch sprayers can also use these maps. Herbicides can be added at needed locations while applying fertilizers.

Necessary technical capabilities

i) Technology: Technologies include a vast array of tools of hardware, software and equipments. i) Global Positioning System (GPS) receivers: GPS provides continuous position information in real time, while in motion. Having precise location information at any time allows soil and crop measurements to be mapped. GPS receivers, either carried to the field or mounted on implements allow users to return to specific locations to sample or treat those areas. Differential Global Positioning System (DGPS): A technique to improve GPS accuracy that uses pseudo range errors measured at a known location to improve the measurements made by other GPS receivers within the same general geographic area. ii) Geographic information systems (GIS): Geographic information systems (GIS) are computer hardware and software that use feature attributes and location data to produce maps. An important function of an agricultural GIS is to store layers of information, such as yields, soil survey maps, remotely sensed data, crop scouting reports and soil nutrient levels.

ii) Remote sensing: It is the collection of data from a distance {seteiiite}. Data sensors can simply be hand-held devices, mounted on aircraft or satellite-based. Remotely-sensed data provide a tool for evaluating crop health,plant stress related to moisture, nutrients, compaction, crop diseases and other plant health concerns are often easily detected in overhead images. Remote sensing can reveal in-season variability that affects crop yield, and can be timely enough to make management decisions that improve profitability for the current crop.

iii**) Variable Rate Applicator**: The variable rate applicator has three components: Control computer, Locator and Actuator.The application map is loaded into a computer mounted on a variable-rate applicator. The computer uses the application map and a GPS receiver to direct a product-delivery controller that changes the amount and/or kind of product, according to the application map).

Combine harvesters with yield monitors:

Yield monitors continuously measure and record the flow of grain in the clean-grain elevator of a combine. When linked with a GPS receiver, yield monitors can provide data necessary for yield maps. **Management**

1. Information management: The adoption of precision agriculture requires the joint development of management skills and pertinent information databases. A farmer must have clear idea of objectives of precision farming and crucial information necessary to make decisions effectively. Effective information management requires many more than just keeping analysis tools. It requires an entrepreneurial attitude toward education and experimentation.

2. Decision support system (DSS):

Combination of information and technology into a comprehensive and operational system gives farmers a decision to treat the field. For this purpose, DSS can be developed, utilizing GIS, agronomic, economic and environmental software, to help farmers manage their fields.

Steps in precision farming

I. Identification and assessment of variability

1. Grid soil sampling:Soil samples collected in a systematic grid also have location information that allows the data to be mapped. The goal of grid soil sampling is to generate a map of nutrient/water requirement, called an application map.

2**. Crop scouting**: In-season observations of crop conditions like weed patches (weed type and intensity); insect or fungal infestation (species and intensity); crop tissue nutrient status; also can be helpful later when explaining variations in yield maps.

3. Use of precision technologies for assessing variability: Faster and in real time assessment of variability is possible only through advanced tools of precision agriculture.

II. Management of variability 1. Variable rate application: Grid soil samples are analyzed in the laboratory, and an interpretation of crop input (nutrient/water) needs is made for each soil sample. Then the input application map is plotted using the entire set of soil samples. The input application map is loaded into a computer mounted on a variable-rate input applicator. The computer uses the input application map and a GPS receiver to direct a product-delivery controller that changes the amount and/or kind of input (fertilizer/water), according to the application map.

2. **Yield monitoring and mapping**: Yield measurements are essential for making sound management decisions. Since yield measurements from a single year may be heavily influenced by weather, it is always advisable to examine yield data of several years including data from extreme weather years that helps in pinpointing whether the observed yields are due to management or climateinduced.

Technological details for Precision conservation agriculture

The USDA NRCS is committed to continue advancement in Precision Conservation as it benefits producers by helping them to efficiently manage their operations . There are several practices that can be used with Precision Conservation. Delgado and Berry (2008) presented a detailed description of potential practices. Among the potential practices that can be adapted for Precision Conservation are alley cropping, conservation crop rotation, cover crops, field borders, riparian herbaceous cover, riparian forest buffers, filter strips, residue management, supplemental feed, sediment ponds, isolated hay production areas with permanent cover, nutrient traps, and buffers. There is potential to use spatial and temporal information to plant trees or shrubs in single or multiple rows with agronomic, horticultural crops or forages produced in the alleys and considering the temporal and spatial variability of soils and flows across the landscape. This practice could be used as a way to reduce erosion and/or increase evapo -transpiration to reduce the leaching of water and agrochemicals. Site specific flow and

temporal variability could be considered to guide the planting of different trees and/or shrubs as needed to account for variability in soil type, salinity, changes in pH, soil depth, wind direction, amount of runoff at specific landscape positions, slope, and other site specific variables. Planting variable trees or shrubs in single or multiple rows as needed (Potential for mining nitrates from ground water) represents a potential precision conservation practice. There is potential to use field-scale spatial variability to guide the implementation of crop rotations to maximize reduction of soil erosion. Spatially-variable data from the field can be used to increase carbon sequestration by planting varieties that may contribute higher crop residue in those areas that require more crop residues.

Varieties can be planted across a field based on crop residue production, salinity, pH or erosion potential. There is also potential to use cover crops in areas of high erosivity and/or set aside field areas that are non productive and have high erosion rates. Cover crops are highly beneficial in the majority of the cases. There is potential to use legume cover crops for some areas of the fields if there is a need to add nitrogen, while other areas of the field may require a cover crop scavenger. Cover crops may be planted around those areas that are highly eroded. Cover crops may become a viable and important tool for the sustainability of new bio-fuel systems.

Field border: Field borders can be plated around the field, and the width of the buffer could be based on distance to water bodies, as well as spatial and temporal flows. Precision conservation can be used to determine the best designs for field borders—whether vegetated with grass, legumes or shrubs—by considering the potential of each to reduce off site transport of soil, soil organic matter, and nutrients due to water and wind erosion .Riparian herbaceous buffer : There is potential to use grasses, grass-like plants, and forbs to develop riparian herbaceous cover that accounts for temporal and seasonal site-specific hydrology. There is the potential to try to synchronize the vegetation growth and water and nutrient use with periods of maximum water flows. Sediment ponds: There is potential to use sediment ponds strategically located across the watershed by taking spatial and temporal flows into consideration.

Nutrient traps : There is a potential aspect to use nutrient traps (phosphorous and nitrogen) to reduce the off-site transport of these nutrients. The locations of these traps can be based on the temporal and spatial variability of flows and management e.g. time of fertilizer applications, etc.There is potential to manage animal behaviour and reduction of environmental impacts across a watershed by using supplemental animal feeding based on soil type, leaching dynamics, water bodies and other spatially and temporally variable conditions.

Smart irrigation for precision water management

A site-specific wireless sensor-based irrigation control system is a potential solution to optimize yield and maximize water use efficiency for fields with variation in water availability due to different soil characteristics or crop water needs and site-specifically controlling irrigation

valves. Decision making process with the controls is a viable option for determining when and where to irrigate and how much water to use. Temporal monitoring of soil moisture at different growth stages of crop could prevent water stress and improve the crop yield. Sensor–based irrigation systems have been studied in many applications including cereals and horticultural crops. A properly installed irrigation system (piping and sprinkler heads) with acceptable distribution uniformity is critical to realizing water savings and maintaining a healthy landscape.

Conservation production systems retain carbon in the soil, building up organic matter helping to store nutrients. Under tillage, carbon is released into the air. Conservation agriculture improves soil tilth, making it easier for crops to establish better root systems. Better soil structure, along with fewer trips across the field, also reduces compaction. Maintaining crop residues on the surface reduces water evaporation. The residue provides shade, allowing the soil to retain moisture. The residue also slows runoff, giving the water more time to be absorbed into the soil and reducing erosion. Precision agriculture can have a positive impact on environmental quality. The opportunity exists to show producers how changing production practices will not place crops at risk and produce positive economic and environmental benefits. Conducting these experiments will require field- or farm-scale studies and perhaps watershed-scale adoption of new management practices. Application rate and method of management (timing, wind speed, tillage, residue management, application equipment, etc.) can also affect the amount of herbicide in surface runoff and that leaching to groundwater. A promising approach to address this problem is weed mapping followed by selective herbicide application in those areas where weed infestations are serious. Differential application of pesticides over time creates potential areas of spray versus no-spray. This, in turn, creates areas of refuge for insects and a change in the spatial variation of insects across a field or among fields. Sampling these areas over time provides a picture of insect population dynamics that will lead to better management decisions. The techniques used to understand the spatial dynamics of these populations include spatial statistics that can be layered against temporal statistics. The application of these methods to quantifying the spatial and temporal patterns across a field may help develop better management methods.

Limitations

Managing the variability at appropriate scale is the major concern in precision farming. It may vary from individual plant level to sub- plot level. The same is also true regarding adaptation of precision conservation agriculture at various scales from site specific to sub – watershed and watershed levels. The most important limitation in all areas where conservation agriculture is practiced is the initial lack of knowledge. There is no blueprint available for conservation agriculture, as all agro-ecosystems are different for farmers, especially in developing countries of the Asia-Pacific region .The increased knowledge of food production systems through learning applications and access to best-practice data will enable international,

regional and national expertise to trickle down to local levels. In this context, information exchange aimed at enhancing food security will be essential to all concerned.

News/Technology Summary

Kalanamak- Buddha Rice

Kalanamak Rice (means Black husk) ia a heritage scented rice variety from UP's Siddharth Nagar believed to be Lord Buddha's gift to the World and famed for its extraordinary fragrance that is said to have drawn herds of deer out of jungle, being a part of local myths. With GI Tag and rebranding as ` **Buddha Rice'**, it has gone overseas in the recent past. Kalanmark rice , being in cultivation since the Buddhist period (600 BC) , is rich in micronutrients such as iron (3mg) and Zinc (0.4 mg) , low amylase (19-20%) ,high protein (11%) and low glycemic index (49%). As noted from Chinese Traveller , Ha Hien (early 5th Century), When Buddha returned to his father's Kingdom , Kapilvastu , Nepal , He was greeted by villagers and Buddha offered grains to grow in marshy land as a prasad or holy food.

(Source : www.foodandscientificreports.com (e-ISSN2582-5437)

Bamboo Salt

Bamboo Salt (Jugyeom, Korean) is a Korean condiment and traditional remedy. It is prepared by packing sea salt in a thick bamboo stem and baking nine timesat high temperature (800^{0}C). During the baking process , the impurities in the salt are claimed to be removed or neutralized while its inorganic contents, such as Ca , K, Fe, Cu and Zn are increased.This dark puplish black salt, is known to have anti inflammatory properties, serves as an antioxidant ,improves immune function and promotes better nutrient absorption.


(Source : https://en.wikipendia.org)

Natural Farming

In the next two years, 1 Cr farmers will be initiated into natural farming supported by certification and branding. Implementation will be through scientific institutions and willing gram panchayats.10,000 need-based bio-input resource centres will be established.

(Source : https://www.investindia.gov.in/team-india-blogs/indias-union-budget-2024-25-key-highlights)

Improved Crop Varieties

In most developing countries, the majority of small-scale farmers use traditional crop varieties, which give low yields and may be vulnerable to drought, heat, diseases and other stresses. Modern improved varieties offer much higher yields, better quality, and more stable production. ICARDA and its partners have developed improved varieties of a range of crops – wheat, barley, lentil, faba bean, chickpea, grasspea, field pea and forage crops. The new varieties are suitable for rainfed agriculture in areas where rainfall is low and erratic.

(Source https://www.icarda.org/research/innovations/improved-crop-varieties)

Medical Textiles – Nursing Future

Medical textiles is a significant developing area in the technical textiles field. The different types of medical textile-based products outranged from wound healing materials to implantable devices are developed very technically for the prevention of healthcare-associated infections.Some of the medical textile products are wound dressings, incontinence diapers, surgical bandages, sanitary napkins, healthcare textiles, vascular grafts, sutures, heart valves, stents, artificial joints and artificial kidneys.

(Source : https://www.bitsathy.ac.in/medical-textiles-nurturing-future/)

Smart Textiles

Electrically conductive fibers and yarns find versatile applications in thermal garments, warming seat covers, heating gloves, muscle pads, shoe pads, warming mouse pads, etc., providing warmth to the wearer. These washable, economical, and user-friendly heating pads offer convenience and comfort.

(Source :https://www.icar.org.in/agricultural-engineering/salient-technologies)

Monsoon Forecast in India

Quantitatively, the southwest monsoon seasonal rainfall over the country as a whole is likely to be 106% of the long period average (LPA) with a model error of ± 4%. Thus Above Normal rainfall is most likely over the country as a whole during the monsoon season (June to September), 2024. The southwest monsoon seasonal (June to September, 2024) rainfall is most likely to be above normal over Central India and South Western India and South Peninsular India (>106% of LPA), normal over Northwest India (92-108% of LPA) and below normal over Northeast India (106% of LPA). 35 % of Mumbai's population is exposed to risk of flooding . Above Normal rainfall is most likely over most parts of the country except many areas of northern part of Northwest India, Northeast India and eastern part of the Central India and adjoining areas of east India, where below normal to normal rainfall is most likely.**Isolated extremely heavy rainfall** is very likely to occur in West & Central India, North west India , South Penunsular India as well as East & North East India during August , 2024 , as predicted by IMD.

Above-normal monthly minimum temperatures are likely across most parts of the country, except extreme northern parts of northwest India and a few pockets of east and northeast India, where normal to below-normal minimum temperatures are most likely. During June, above-normal heatwave days are likely over most areas of Northwest India and adjoining areas of Central India. **The strong El Niño** conditions observed over equatorial Pacific in the beginning of this year have weakened rapidly into **weak El Niño** conditions and currently transitioning towards **ENSO neutral** conditions. The latest Climate model forecasts indicate **ENSO neutral** conditions are likely to get established during the beginning of the monsoon season and **La Niña** conditions are likely to develop during the later part of the monsoon season. At present, neutral Indian Ocean Dipole (IOD) conditions are prevailing over the Indian Ocean. The latest forecasts from many global climate models indicate positive IOD conditions are likely to develop during the monsoon season.

(***Source : https://internal.imd.gov.in/press_release/20240527_pr_3023.pdf***)

****