वार्षिक प्रतिवेदन

ANNUAL REPORT 2024

ICAR-Indian Agricultural Research Institute, Assam
Dirpai Chapori, Gogamukh, Dhemaji, Assam-787035

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Annual Report
2024

ICAR-Indian Agricultural Research Institute, Assam
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FROM THE DIRECTORS' DESK

Dr. Ch. Srinivasa Rao
Director

It gives me immense pride and satisfaction to present the Annual Report 2024 of ICAR-Indian Agricultural Research Institute, Assam- a testimony to our collective resilience, growth, and commitment to transforming the agricultural landscape of the Northeastern region. As one of the newest jewels in the ICAR family, IARI Assam was envisioned as a center of excellence for agricultural education, research, and innovation, catering to the unique needs and immense potential of the North-East. This year marks bunch of historic moments in our journey, with the completion and inauguration of key infrastructure, the initiation of on-campus undergraduate and postgraduate academic programs, and the onset of regionally relevant research. Each of these achievements is a tribute to the tireless dedication of our faculty, staff, students, and our many partners and stakeholders.

The Northeastern region, blessed with rich biodiversity and unique agro-ecological resources, holds untapped promise for agricultural advancement and socio-economic transformation. Yet, this promise is matched by formidable challenges, climate variability, fragile ecosystems, resource constraints, and the urgent need to diversify and modernize livelihoods. With the support of the Government of India and ICAR, IARI Assam was established at, Gogamukh, Dhemaji, to address these challenges through science-driven solutions, human capacity building, and innovative outreach. This year saw the operationalization of our state of the art Administrative-cum-Academic Building, Manas Guest House, Subansiri Girls Hostel, and Brahmaputra Boys Hostel. These facilities not only symbolize our infrastructural growth but also our commitment to providing a nurturing, modern, and inclusive campus for young minds from across the region.

The construction of staff quarters is nearing completion, and further development—including new boys' hostel and advanced research laboratories—will solidify IARI Assam's status as a nucleus for agricultural excellence in the North-East. Year 2024 was a landmark year as we commenced full-fledged B.Sc. (Hons.) Agriculture and M.Sc. programs on campus, marking a new era in agricultural higher education for the region. Our curriculum, meticulously aligned with national standards and local needs, emphasizes experiential learning, hands-on training, and a holistic development approach.

The Deeksharambh Student Induction Programme helped new students get familiar with campus life, health and wellness, cultural values, and community activities, making them feel welcome and excited to learn. Through classroom teaching, fieldwork, industry exposure, and regular visits to progressive farmers, KVKs, and research institutions, our students are gradually empowering to address both present and future challenges in agriculture.Offering postgraduate programs in Agronomy and Soil Science reflects the growing capacity of our institute. These advanced courses not only strengthen our research and human resource development in key areas, but also showcase the expertise of our faculty, who serve as teachers,

mentors, and advisors to students from Assam and neighboring states—helping to shape the next generation of agricultural scientists and professionals

IARI Assam has taken significant strides in establishing a vibrant research ecosystem that is both locally rooted and globally connected. With approval from our Institute Research Council (IRC), we have taken up a range of important projects that are highly relevant and have the potential to make a real impact on the agricultural challenges faced in the Northeast. Ongoing projects span remote sensing-based crop performance prediction, conservation and documentation of underutilized horticultural crops, livelihood diversification, fisheries resource management, pest and disease surveillance, and the development of quality agri-inputs and technologies tailored for the region's unique agro-climatic conditions. Our researchers have also developed processing protocols for minor fruits and traditional crops, adding value and expanding income opportunities for local communities. Notably, we have documented wild and underutilized crops, supported the conservation of endangered orchids, and studied traditional practices such as hornet semi-domestication in Northeastern India.

The expansion of research into new areas iron toxicity tolerance in rice, phytochemical profiling of indigenous crops, characterization of pests and pathogens, and integrated farming systems—underscores our commitment to need-based, multidisciplinary inquiry that serves both science and society. Importantly, we have prioritized externally funded and collaborative research, including DBT-funded aquaculture initiatives, Agri-Drone projects, and industry-sponsored environmental remediation, strengthening our linkages with national and international partners. Recognizing the centrality of farmers and rural communities, IARI Assam's outreach is designed to be inclusive, participatory, and impact-oriented. Our extension efforts have dovetailed innovative models with development initiatives of state agencies, universities, and KVKs, ensuring that scientific advancements translate into real-world benefits. Regular exposure visits, on-farm demonstrations, skill enhancement courses, and interactive sessions with progressive farmers and agri-entrepreneurs have enhanced the practical understanding and employability of our students while facilitating knowledge transfer to the farming community.

We have also prioritized the dissemination of region-specific technologies—whether it be acid soil management, water harvesting, or diversified farming systems—and fostered communication research and micro-planning in partnership with local agencies. Institutional growth is impossible without a culture of teamwork, transparency, and mutual respect. Our achievements this year were made possible through the sustained efforts of our faculty, staff, and students, as well as the constant guidance and support from ICAR, the state government, and our many collaborators. We have worked to foster a vibrant campus life balancing academic rigor with co-curricular and wellness activities, and promoting inclusivity in student intake, gender representation, and outreach. Our modern hostels, smart classrooms, library, and laboratory facilities are designed to provide a safe, stimulating, and future-ready environment. As we look towards the future, IARI Assam remains steadfast in its vision to serve as a center of excellence for agricultural research, education, and innovation in the Northeast and beyond. Our immediate priorities include consolidating our academic programs, deepening research and industry linkages, expanding postgraduate offerings, and accelerating the development of

region-specific, climate-resilient technologies.

We are committed to nurturing a new generation of agricultural professionals who will drive sustainable growth, empower rural communities, and uphold the values of scientific integrity and social responsibility. On behalf of the entire IARI Assam family, I extend my heartfelt gratitude to ICAR, the Ministry of Agriculture and Farmers Welfare, Government of Assam, our partner institutions, and all stakeholders for their trust, encouragement, and unconditional support. Let us move forward together, inspired by our achievements, united by our vision, and determined to make IARI Assam a beacon of hope, progress, and prosperity for the Northeast and the nation.

Dr. Ch. Srinivasa Rao
Director
ICAR-Indian Agricultural Research Institute, Assam
Dirpai Chapori, Gogamukh, Dhemaji, Assam

Contents

1 OVERVIEW OF IARI-ASSAM

Introduction

The Northeastern region of the country is blessed with wide range of agricultural resources having immense potential in generating revenue at the rural front and providing food and nutritional security to the underprivileged population. However, issues like climate change, dwindling biodiversity and over-exploitation of natural resources are challenges for the the agriculture and allied sector. The ICAR-IARI Assam, has been established at Gogamukh of Dhemaji district, Assam to pursue various research and extension programmes aiming to address these challenges through innovative cutting edge crop production technologies, land & water budgeting, focus on climate resilient strategies, agro-ecotourism, creation of infrastructure, adoption of farmer centric approaches and services etc. Besides, efforts to develop human resource through trainings, on-farm demonstrations, education, consultancies, partnership through outreach activities, expansion of agriculture, fisheries and animal husbandry through technological interventions and knowledge transfer are the prioritized responsibility of this institute to uplift the socio-economic status of the farming communities in the region. In order to develop skilled human resources who will contribute in future nation building in agricultural and allied sector. The top most priority of IARI Assam is also to undertake graduation and post-graduation courses in Agriculture. IARI Assam therefore aims to conduct high end research to resolve the challenges of NER, besidesimparting high quality post graduate education.

Objectives

Objectives of IARI Assam are specific to the Northeastern states. The main purpose is to serve as an institution of learning in higher agricultural education in South East Asia. The basic objectives are: Promote high standards of:

i. Under Graduate & Post Graduate Education & Research

ii. Need based agricultural research through in-house and externally funded research projects

iii. Outreach program in agriculture and allied fields

There are three major schools:

1. School of Crop Improvement
2. School of Natural Resource Management
3. School of Animal, Poultry and Fishery sciences

Mandate

Education: Graduate/Post Graduate

- Promote excellence, foster high standard research for holistic agrarian development and orient the educational programme towards future needs and opportunities in South East Asia.
- Strengthen formal/non-formal training to promote entrepreneurial skills for commercialization of agriculture in the region through different diploma courses in the line of polytechniques.

Research

- Conservation and utilization of biotic resources of North East India for higher

farm productivity and industrial uses.

- Acid soil management vis-à-vis development of crop varieties and technologies suitable for acidic soil of North East India.
- Productive utilization of water resources through multi-disciplinary research on excess water management through drainage and other means, water harvesting, micro-irrigation etc. for enhancing WUE to achieve higher factor productivity in agriculture of North-East India.
- Develop appropriate cropping systems to attain multiple cropping for increasing productivity with long term sustainability in the Northeastern states.
- Develop integrated farming system models through appropriate recycling of the bio-resources to promote organic agriculture keeping in view of the specific requirements of the region.
- Develop horticulture and animal husbandry-based diversified farming system modules to promote rural entrepreneurship.
- Effective postharvest management and value addition using appropriate food engineering protocols to enhance farm income and promote agribusiness.
- Market and policy research to augment income of different stakeholders in agriculture

Outreach

- Generate innovative extension models, dovetail them to developmental models, and disseminate them through KVKs, state agricultural universities and state agricultural extension and other development departments of different states of the North-East India.
- Promote client oriented on-farm/farm innovation research and technology assessment, refinement and transfer through participatory approaches on convergence mode.
- Foster development in communication research and linkages with rural development programmes and strengthen micro-planning through inter-departmental and participatory approaches.

Important Milestones

Sl. No.	Date	Event
1	July 10, 2014	Establishment of Indian Agricultural Research Institute (IARI)-like institutes in Jharkhand and Assam was announced by the Honourable Finance Minister in his maiden budget speech
2	February 07, 2017	Possession of land (587 acres) was taken over for establishment of IARI-Assam [Site: Dirpai Chapori, Gogamukh, District- Dhemaji (Assam)]
3	May16, 2017	The proposal for establishment of IARI-Assam was approved by the Cabinet Committee on Economic Affairs
4	May 26, 2017	Foundation stone laid by the Honourable Prime Minister - Shri Narendra Modi ji

5	June 01, 2017	ICAR issued sanction for the establishment of IARI-Assam with an outlay of Rs.155.29 crores
6	September 23, 2017	Demarcation of allotted land was initiated by CPWD
7	November 1, 2018	Construction work at the site of IARI-Assam was started by the executing agency National Project Construction Corporation Ltd.
8	September 25, 2020	The Campus of IARI, Gogamukh (Assam) was inaugurated by Hon'ble Minister of Agriculture & Farmers Welfare, GOI, Shri Narendra Singh Tomar 25th September, 2020
9	March 04, 2024	Inauguration of Administrative-cum-Academic Building, Manas Guest House, Subansiri Girls Hostel, and Brahmaputra Boys Hostel by Shri Arjun Munda, Hon'ble Minister of Agriculture & Farmers Welfare, GOI on 4th March, 2024
10	May 06, 2024	Beginning of UG academics at the Campus (Physical Classes)
10	October 22, 2024	Beginning of PG academics at the Campus (Physical Classes)

INFRASTRUCTURE AND DEVELOPEMENT

2

Inauguration of Administrative-cum-Academic Building, Manas Guest House, Subansiri Girls Hostel, and Brahmaputra Boys Hostel

On 4th March 2024, the Union Minister of Agriculture and Farmers Welfare, Shri Arjun Munda, virtually inaugurated the Administrative-cum-Academic Building, Manas Guest House, Subansiri Girls Hostel, and Brahmaputra Boys Hostel at IARI-ICAR, Dhemaji, Assam. In his address, he emphasized the government's commitment to bridging gaps in agricultural development in the North-East and strengthening research initiatives. Shri Kailash Choudhary, Union Minister of State, highlighted the need to explore the region's rich biodiversity for research, particularly in pulses and oilseeds. Dr. Himansu Pathak, Secretary DARE & DG ICAR, elaborated on IARI's objectives and its role in transforming agriculture in the North-East. The event was attended by Dr. Ranoj Pegu, Shri Pradhan Baruah, Dr. A.K. Singh, Shri Ankur Bharali, and other dignitaries, marking a significant step in agricultural education and development.

Existing Infrastructure Facilities

The institution is well-equipped with modern infrastructure to support academic, residential, and administrative activities. The facilities include hostels for students, a guest house for visitors, and an administrative cum academic building to facilitate research and learning. Below is a detailed overview of the available infrastructure:

Boys Hostel

The boys' hostel provides comfortable accommodation for students, ensuring a conducive living and learning environment. It has a built-up area of 6,072.5 Sqm and includes 104 student rooms, offering ample space for residents. The hostel is well-facilitated with a caretaker room, office room, and superintendent room, ensuring efficient management. Additionally, it is equipped with a kitchen and dining hall to cater to the dietary needs of students. Recreational and wellness facilities include a recreation room, gymnasium, and a dedicated yoga room, promoting physical fitness and mental well-being.

Girls Hostel

The girls' hostel provides safe and comfortable living spaces for female students, covering a built-up area of 3,361.85 Sqm. It consists of 52 student rooms, ensuring adequate accommodation. The hostel is supported by essential facilities, including

Manas Guest House

Subansiri Girls Hostel

Brahmaputra Boys Hostel

a caretaker room, superintendent room, kitchen, and dining hall. For recreational and fitness purposes, the hostel features a recreation room and gymnasium, promoting a holistic living experience.

Guest House

To accommodate visiting faculty, guests, and dignitaries, the institution has a well-maintained guest house with a built-up area of 1,590.93 Sqm. The guest house comprises three suite rooms and twelve normal rooms, ensuring comfortable lodging options. It also includes an office room, kitchen, dining hall, and a store room, providing necessary amenities for a pleasant stay.

Administration Cum Academic Building

The administration cum academic building, covering a built-up area of 11,217.76 Sqm, serves as the central hub for academic and administrative activities. The facility includes one director's room, four joint director's rooms, and twenty scientist rooms, providing dedicated spaces for faculty and researchers. Additionally, there is a PA/PS room, five staff rooms, and thirteen lecture rooms, ensuring smooth academic operations. To support technical and research activities, the building houses a computer room and four laboratories. Furthermore, it features three committee rooms, six pantries, and five store/ utility rooms, contributing to efficient management and operational effectiveness.

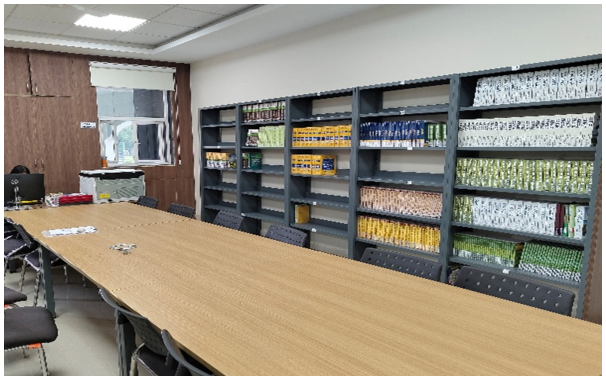
Smart classrooms

Two lecture halls and Board room are upgraded as smart facilities including the provisions for online conferences and internet facilities.

Smart classroom and Board Room

Library

The library now caters total of 1485 books across various disciplines.



Experimental Field and Farm Facilities

Currently, a small portion of the experimental field has been cleared, and field trials and student experiments are actively being conducted. The remaining areas are presently undergoing clearing and development. The infrastructure of the pig breeding station has been renovated, and additional improvements are ongoing.

Experimental Field

Expansion of experimental field

Pig Breeding station Infrastructure

Construction of Staff Quarters

Construction of the staff quarters is currently in its final stages, with essential infrastructure and finishing work nearing completion. The quarters are expected to be inaugurated and ready for occupancy by early 2025.

Bhoomi Poojan Programme for New Boys Hostel

Bhoomi Poojan programme for the upcoming new boys hostel took place on November 05, 2024, in the presence of Dr. D. K. Singh, Chairman, Work Committee, IARI, New Delhi, Dr. A. Mittal, Member, Mr. Bhargav Sharma, Officer in charge, NPCC and other staff of IARI Assam.

RESEARCH 3

With the developments of infrastructure and posting of scientific staffs, IARI Assam has started its research activities.

Second Institute Research Council Meeting (IRC)

The 2nd Institute Research Council (IRC) meeting of ICAR-Indian Agricultural Research Institute (IARI), Assam was held from 28-30 May, 2024 at IARI Assam under the chairmanship of Dr. Viswanathan Chinnusamy, Joint Director (Research), IARI, New Delhi, Dr. Sanjay Singh Rathore, Head (Agronomy), IARI, New Delhi, attended as a special invitee. All the scientists of IARI Assam have actively participated in the discussions. The meeting focused on

reviewing and approving ongoing as well as newly proposed research projects planned under different programs of IARI Assam. In total 7 institute funded and 2 externally funded ongoing projects were reviewed. The finding of 1 externally funded research project was also highlighted. Among the newly initiated projects, 22 were proposed and IRC approved 21 projects with some modifications. After the IRC a detailed investigation of IARI Assam research farm was also made.

RESEARCH HIGHLIGHTS

Remote sensing-based prediction of crop performance in agri-horti crops

The study was conducted in Dhemaji and North Lakhimpur districts of Assam, North-Eastern India, located in the North Bank Plain Zone (NBPZ). These districts span geographic coordinates of approximately 26°48' to 27°55'N and 93°42' to 95°30'E. Fresh weight (FW) of pineapple

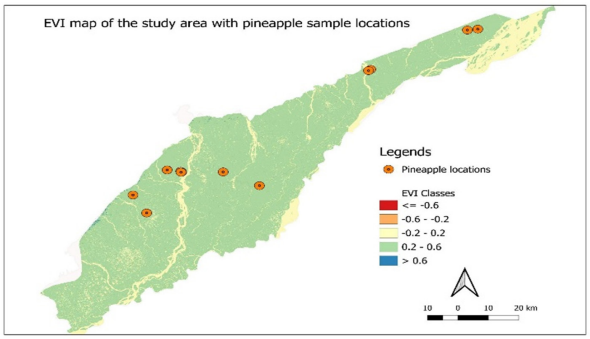


Fig: EVI map of the study area with locations for pineapple sample collections

plants, including fruits, was measured as well as secondary data collected from 100 samples across 10 locations in Dhemaji and North Lakhimpur districts during the 2023 harvest season (July–December). The study area covers Dhemaji and North Lakhimpur districts in Assam, with 10 locations (each with 10 samples). Jonai, Silapathar, Dhemaji

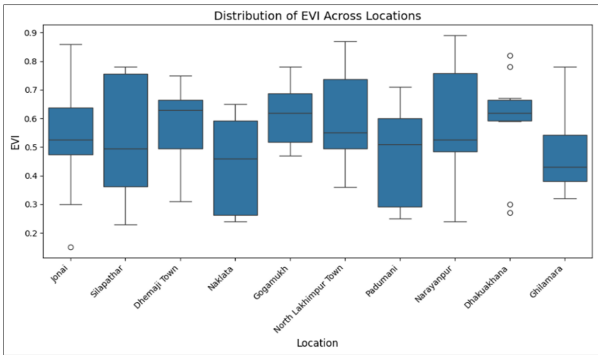


Fig: The distribution and variability of VI values across the 10 locations, supporting spatial variability through Box-plot

Documentation of wild underutilized horticultural crops of the North-Eastern region

North-East India constitutes a mega biological diversity hotspot as it is endowed with diverse edapho-climatic diversity. It is part of the Himalayan and Indio-Burma biodiversity hot spots supporting more than 50% of total plant diversity in India. Economically important species such as rice, banana, citrus, mango and pulses have primary and secondary centre of origin in this region. The region is also home to several ethnic people, and about 225 out of 450 tribes in India belong to the North East. These tribal communities are the reservoir of ethnic knowledge and possess information on properties, uses, and utilization of plant biodiversity for food and traditional medicine.

Fig: Pictorial depiction of some underutilized horticultural crops documented during the period

It has been estimated that out of 800 species of wild edible crops about 300 are used by the people of the North-Eastern region. It represents the potential availability of biodiversity that can be beneficially exploited to ensure food and nutritional security to the ever-increasing human population. This work envisages efforts to identify, collect, evaluate and document the cultivated and wild underutilized horticultural crops and wild edible plants. Until now, much of the efforts to document such crops have been carried out in Dhemaji and Lakhimpur districts of Assam, while a few attempts have been made to document commercial and wild fruits in Mokokchung (Nagaland) and Dirang (Arunachal Pradesh). Commercial fruits documented in Assam include Assam Lemon and Pineapple. Lesser-known fruits documented include Burmese grape, elephant apple, and Teportenga (*Garcinia xanthochymus*). Minor fruits documented in Nagaland include Prunus nepalensis, passion fruit (*Passiflora edulis Sims*), Chinese Bayberry (*Myrica rubra*), Tamarillo (*Solanum betaceum*, Syn. *Cyphomandra betacea*), black nightshade (*Solanum nigrum*), tree bean (*Parkia timoriana*), *Litsea citrata,* two species of Raspberry (*Rubus* spp.) and some unidentified fruit crops. Commercial fruits documented from Arunachal Pradesh include Mandarin, Kiwifruit, Persimon and apple.

Development of appropriate processing protocols for utilization of minor underutilized horticultural crops

With a view to creating awareness about the potential use of minor underutilized horticultural crops, protocols for preparation of value-added products have been developed for a few minor fruits. These include processing protocols for

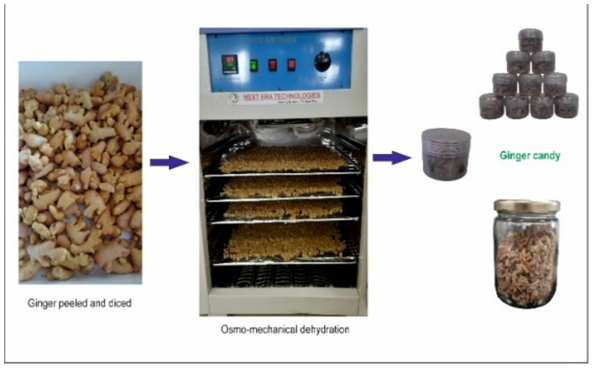


Fig: Process for preparation of Ginger Candy

Fig: Schematic representation for preparation of Roselle products

Fig: Dehydrated thekera (*Garcinia pedunculata*)

Fig: Pictorial representation of different processed products

Read-to-serve drink of Roselle (*Hibiscus sabdariffa*) and Assam lemon (*Citrus limon*), squash of pineapple and Roselle, Sliced pineapple in syrup, minimally processed jackfruit, and low moisture foods including Roselle and Ginger candy, Roselle Jam, and dehydrated thekera (*Garcinia pedunculata*).

Collection and evaluation of some underutilized horticultural crops

Tamarillo and purple passion fruit were collected from Mokokchung, Nagaland and seeds were extracted from ripe fruits. On successful nursery raising, the seedlings have been planted in the experimental plot of the institute, and are currently under evaluation.

Fig: Establishment of a plot of tamarillo at IARI Assam

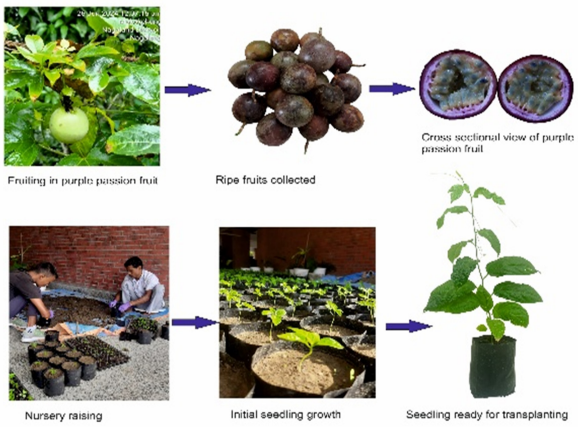


Fig: Production of seedlings of purple passion fruit

In addition to these, good quality fruits of Khasi mandarin were collected from Arunachal Pradesh and Nagaland, and about 500 seedlings have been produced by exploiting polyembryony in citrus. Polyembryony allows for production of true-to-type plants using seeds.

Fig: Exploitation of polyembryony to produce clonal seedling population in Khasi Mandarin

The orchid species such as *Rynchostylis retusa, Dendrobium lituiflorum, Dendrobium aphyllum, Dendrobium fimbriatum,* and *Aerides odorata*, native to Assam and currently listed as endangered, were carefully collected from the wild and established at IARI Assam campus for conservation. The primary objective of this initiative is to ensure the survival of these orchids, enabling future studies aimed at their conservation. This effort is crucial for understanding the specific needs of these species, addressing the factors contributing to their endangered status, and developing strategies for their long-term conservation and reintroduction into their natural habitats.

Fig: Collection and Conservation of orchids

As part of the work, a traditional practice prevalent at Mokokchung village, Nagaland for the identification of colony and semi-

Fig: Asian Giant Hornet (*Vespa mandarina*)

domestication of Asian Giant Hornet (*Vespa mandarina*) was also documented. The aggressive and ferocious hornet is an item of delicacy amongst the locals and fetches high prices among consumers.

Assessment of livelihood diversification of farmers in north east regions

Livelihood diversification is one of the livelihood strategies (coping mechanisms) and defined as "the process through which rural families build a diverse portfolio of activities and social support capacities in their struggle for survival and improving their living standards". Livelihood diversification is a continuous adaptive cycle in which household's add new practices, maintain existing once or drop other one, thus retaining diverse and evolving livelihood portfolios. The issues of livelihood diversification are more relevant in north east region as

Fig: Glimpses of data collection through survey

these regions are characterized by diverse climate regimes where majority of the farming activities are highly dependent on rainfall. Surveys are being conducted both in person and through Google form based on the developed questionnaire keeping in mind the list of potential factors. Total 218 observations were recorded including 186 through direct survey and 32 from Google form. Out of the 218 observations 145 are male and 73 are female. Regarding the age

distribution 165 farmers are below 55 years old. It has been observed based on the 218 observations that 14.68% of farmers are illiterate, 19.27% farmers education level is below primary, 23.85% farmers are below secondary education, 20.64% are matric passed, 15.14% are higher secondary passed and 6.42% are graduate and above. Majority of the farmers are either marginal or small or semi medium farmers. Regarding entrepreneurship tendency around 29.82% of farmers are showing entrepreneurial behaviour. Majority of the farmers are having credit accessibility. The mean dependency ratio among the 218 observations is 0.57 and the modal family size is five. Regarding income, majority of the farmers' income lies below 3.00 lakh per annum. Based on the data collected, a stepwise logistic regression model has been performed and ten most significant drivers of livelihood diversification viz. age, gender, education, dependency ratio, family type, land holding, family size, entrepreneur tendency, credit accessibility and income have been selected and the final model has been fitted. The fitted model is able to explain 69-78% variation in the data. Based on the data Simpson Diversification

Fig: Glimpses of capacity building programme for promotion of livelihood diversification of farmers

Index (SDI) was calculated. The SDI result, incorporating total food crop revenue, cash crop income, natural resource income, livestock income, remittance income, non-farm wage income, farm wage income, self-employment income, and other household income sources, was determined to be 0.43 which indicates that although the household livelihood are moderately diversified still there are huge scope to diversify the livelihood of the farmers for sustainable income generation. During survey, it has been observed that the main hindrance for livelihood diversification is the lack of proper knowledge. Therefore to improve the knowledge and skill level of farmers for diversification of livelihood a number of training, awareness programme, field days and farmers-scientist interaction have been carried out. Beside, in order to support the farmers different inputs were also given to selected farmers.

Documentation of Insect Resources: Germplasm Collection and Characterization

Northeast India is a potential source for insect germplasm collection due to its high biodiversity and unique ecological conditions. The region is considered a mega-biodiversity hotspot and harbors a diverse array of insect species, some of which are endemic. Keeping the importance of insect germplasm collection and characterization from taxonomical point of view, insect collection tours were undertaken to ICAR-RC NEH, Basar, Arunachal Pradesh and Medziphema, Nagaland. Insect specimens were also collected from the Research farm of IARI-Assam campus. A few specimens from different parts of Nagaland were also collected. The specimens were majorly collected using light traps (Mercury vapour and Moth Lantern) during the evening hours. Collected specimens were sorted, post-processed, pinned, labelled and deposited in IARI-Assam for academic and

research activities. A summary of the no. of insect specimens presently housed (total 1136 in number) at IARI-Assam is given in the following table:

Insect Order	No. of Specimen
Orthoptera (Major Families: Gryllidae, Schizodactylidae, Acrididae, Tettigoniidae)	23
Odonata	2
Mantodea	5
Ephemeroptera	3
Blattodea	4
Neuroptera (Major Families: Chrysopidae, Myrmeleontidae)	7
Dermaptera	1
Psocodea	1
Plecoptera	1
Diptera (Major Families: Syrphidae, Tephritidae, Tachinidae, Muscidae, Calliphoridae, Sarcophagidae, Bibionidae, Tabanidae, Asilidae, Tipulidae, Tabanidae)	39
Hemiptera (Major Families: Cicadellidae, Cicadidae, Pentatomidae, Lygaeidae, Largidae, Reduviidae, Miridae, Cercopidae, Pyrrhocoridae, Derbidae, Falttidae, Cydnidae, Membracidae)	33
Hymenoptera (Major Families: Vespidae, Apidae, Sphecidae, Crabronidae, Braconidae, Ichneumonidae, Pompilidae, Leucospidae, Formicidae, Chrysididae, Halictidae)	39
Coleoptera (Major families: Scarbaeidae, Cerambycidae, Curculionidae, Lampyridae, Coccinellidae, Chrysomelidae, Mordellidae, Lucanidae, Carabidae, Elateridae, Passalidae, Cicindellidae, Callirhipidae)	103
Lepidoptera (Major superfamilies and families: Pyraloidea, Gelechioidea, Yponomeutoidea, Tortricidae, Geometridae, Noctuidae, Erebidae, Eupteroptidae, Nolidae, Immidae, Sphingidae, Saturniidae, Limocodidae, Thyrididae, Cossidae, Nyphalidae, Papilionidae, Pieridae Hesperiidae)	875
Total	1136

Fig: Collection of Insects using Light trap

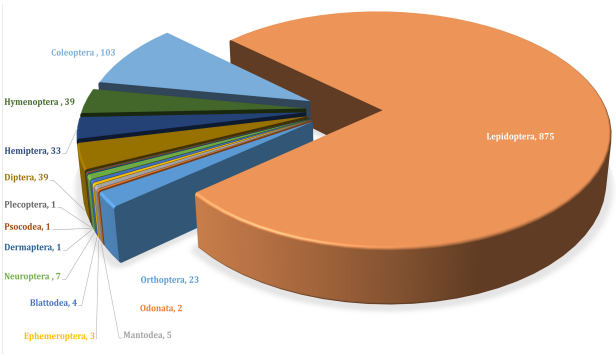


Fig: Distribution of collected insect specimens across different orders

Fig: Deposited insect specimens

Assessment of fish diversity, fisheries resources and aquaculture avenues for improving self-sustenance of fisher-folk

This study was conducted to collect information on fish catch composition, fish diversity, fishing methods in natural aquatic resources, aquaculture ponds and tanks in the upper reaches of the Brahmaputra valley. Fish harvesting sites, fish landing centres, fish markets, fishing villages etc were visited, covering 35 locations. Altogether, 184 types of fish species were recorded, collected and identified. The species comprised of carps, catfishes, air-breathing fishes and eels, mahseer and miscellaneous groups of fishes, covering 38 families, 14 orders and 96 genus. The majority of the fishes (75%) are under Least concern in IUCN status, 3 species are found endangered and no fishes are under threat of extinction. The economic importance of the fishes for human use reveals that 53 numbers of fishes have food and ornamental value followed with 51 numbers relished as

food. 23 numbers of fishes have exclusive ornamental value and 3 species with superlative sports value. A voucher specimen of the collected species is attempted to be displayed in the ICAR-IARI Fish Repository.

Fish diversity studies in the aquatic resources of the upper Brahmaputra valley

Development of fish repository at ICAR-IARI Assam

Field survey, advisories at farmers' aquaculture resources

Preparation of Bar codes is in progress for easy identification of the species in the field conditions and in generating information to various stakeholders. Indigenous species of fishes restricted to a specific region are the snow trout (Schizothorax spp.) which were witnessed in the upper reaches of the Kameng and Subansiri drainages. Similarly, exotic trout (Oncorhynchus mykiss) was observed under culture in Mechukha of Arunachal Pradesh. Brown trout (Salmo truta fario) was found in river Yargyap chu. Golden mahseer (Tor putitora) was found in the river Jia Bhoreli, Subansiri and Siang. The fishes collected from various aquatic resources were preserved in 10% formalin at the newly developed Fish Repository Unit of ICAR-IARI Assam. Preparations of bar codes are in progress for easy identification of the recorded fish species.

Identification and documentation of commonly occurring fish diseases

The current study, conducted as part of the project, focused on two districts situated along the northern bank of the Brahmaputra River: Lakhimpur and Dhemaji. It aimed to identify and document the prevalent fish diseases. Fish samples showing signs of disease were collected through surveys conducted across various daily and weekly markets in the Dhemaji and Lakhimpur districts, including the Dhemaji-Gogamukh town fish market, Mohori Camp daily market, Rajali wholesale fish market, and Milan Nagar daily market. In addition, infected specimens were also obtained from several small and large-scale fish farms within these districts. The diseased fish exhibited clinical symptoms such as red spots, ulcerative lesions of varying sizes, and visible fungal hyphae on the skin.

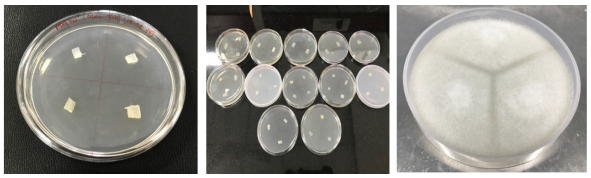
Parasitic, Bacterial and Fungal fish diseases

From the sample collected, infective agents are isolated and preserved.

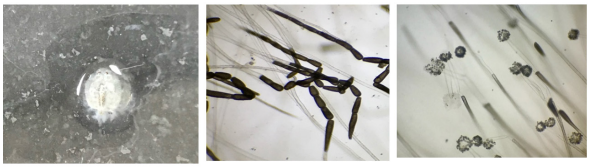
Fungi: For the isolation of fungal pathogens, 50 infected samples were selected. Following careful surface disinfection of the suspected lesions, muscle

tissues were aseptically excised using sterile scalpels. Fungal pathogens were isolated using standard protocols. After repeated subculturing of suspected fungal colonies on fresh Potato Dextrose Agar (PDA) plates, six phenotypically distinct fungal colonies were isolated. These pure fungal isolates were maintained on PDA supplemented with antibiotics to prevent bacterial contamination and preserved for further identification.

Bacteria: For the isolation of bacterial pathogens, samples were collected from various infected regions of the fish using sterile cotton swabs and streaked onto Nutrient Agar plates. Bacterial



Laboratory work and isolation of different causative agents



Argulus *Fungal mycelia and spores*

colonies were isolated using standard protocols and subcultured repeatedly to obtain pure cultures. Based on phenotypic characteristics, five distinct bacterial colonies were isolated and preserved for further analysis.

Parasites: External parasites were carefully removed from the surface of infected fish and preserved in 10% formalin for subsequent identification and examination.

All distinct fungal and bacterial isolates, along with the preserved parasites, were stored according to standard protocols.

Agro-techniques for quality production of minor millets in the Eastern Himalayan zone

Finger millet: A field experiment was conducted during kharif season of 2023-24 for development of agro-techniques in finger millet. Treatment comprising of five different doses of N, P, K, S, Zn and B. The experiments were conducted in randomized complete block design individually. The response of N, P, K, S, Zn and B were higher for plant growth and yields when applied as 80, 40, 60, 20, 1.5 and 3.0 kg/ha, respectively. The application of 80 kg N, 40 kg P2O5, 60 kg K2O, 20 kg S, 1.5 kg Zn and 3.0 kg B /ha has led to increase of grain yield by 44.2 %, 32.3 %, 35.6 %, 17.4 %, and 32.0 %, respectively compared to control. Further, another experiment was conducted in which the treatment comprising of different nutrients combination (N, P, K, S, Zn and B) with a control (no fertilizer). The experiment was conducted in randomized complete block design. The results showed that combined application of NPKS has significantly increased physiological crop growth matrix, and yield attributes as well as crop yield of finger millet. The combination NPKS was found statistically at par with NPKB. The NPKS led to increased grain yield of finger millet by 32.4 % over control.

Experimental plot of finger millet

Foxtail millet: The field experiment was conducted during rabi season and crop was sown during the second week

of February, 2024. The treatments were comprised of different graded doses of N, P, K, S, Zn and B, and the experiments were conducted in randomised complete block design individually. Higher plant growth and yields of foxtail millet were observed with the dose of 80 kg N, 40 kg P2O5, 60 kg K2O, 30 kg S, 1.5 kg Zn and 3.0 kg B/ ha. Moreover, application of 80 kg N, 40 kg P2O5, 60 kg K2O, 30 kg S, 1.5 kg Zn and 3.0 kg B /ha led to increase of grain yield by 16.1 %, 15.5 %, 20.5 %, 29.6 %, 35.3 % and 41.8 %, respectively over control. Further, another experiment was conducted in randomized complete block design and the treatment comprising of different nutrients combination (N, P, K, S, Zn and B) with a control (no fertilizer). The results revealed that applied NPK was recorded higher crop growth parameters, and yield attributes and crop yield of foxtail millet. Applied NPK tended to increased grain yield of foxtail millet by 48.3 % over control.


Agro-ecotourism for Sustainable Livelihood in Northeast India

Agro-ecotourism is a form of tourism that combines the experiences of learning about and participating in agriculture with the enjoyment of the natural environment and local culture. It's a symbiotic relationship between the farming sector, tourism industry, and farm business, offering opportunities for sustainable rural development and income generation. Keeping this in mind, an attempt has been made to study the status and prospects of agro-ecotourism for sustainable livelihood in Northeast India. The primary focus of the study is to assess the current status of agro-ecotourism initiatives, identify key drivers and barriers to their development, and evaluate the future prospects of agro-ecotourism as a sustainable livelihood option in these region. To achieve these objectives, structured questionnaires were developed for two key stakeholder groups viz. agro-ecotourism operators and tourists.


Singpho Eco Lodge, Margherita, Assam

These tools were validated through expert review and pilot testing, ensuring reliability for field data collection. Field surveys have been successfully conducted in the states of Tripura and some parts of Assam, with data collected from agro-ecotourism site operators and visiting tourists. Preliminary findings reveal that agro-ecotourism in the region follow a range of operational models. These include:

Name of model	Description
Farm Stay Model	Guests stay on a working farm and engage in agricultural and rural lifestyle experiences.
Educational Farm Model	It focuses on educating tourists about agricultural practices through guided tours and demonstrations.
Direct Sales and Pick-Your-Own Model	Visitors can harvest fruits and vegetables and purchase farm-fresh produce directly.
Recreational Farm Model	Blends traditional agricultural settings with leisure and entertainment-based activities such as sport fishing in ponds or rivers

Heritage Farm Model	It centers on preserving, showcasing, and sharing traditional agricultural practices, rural architecture, and local cuisines.

Mapping tree carbon density using sentinel 2A sensor on Google Earth Engine in Darjeeling Himalayas

Himalayan region is most fragile ecosystem with growing changes coming in the stir of urbanisation leave deep imprints on the mountainous forest ecosystem. Majority of forest are harvested for fulfil the demand of timber. Degradation of forest imbalance the ecology and carbon cycle of the ecosystem. Considering trees as a backbone of forest ecosystem, we assessed the heterogeneity in tree carbon density using field-inventoried data and NDVI-based modelling with Sentinel 2A imagery on GEE. The object-based classification of forest area using random forest algorithm showed high level of accuracy (Kappa coefficient value of 0.92, OOB error 0.17). Regression model using NDVI as a predictor of tree carbon demonstrated a good fit (R2 = 0.78) for predicting tree carbon density. validation results show high accuracy of the regression model in predicting tree carbon density with a low RMSE of 9.39 MgC ha-1 (R2 = 0.80, %RMSE = 11.55%). The classification of tree carbon density into five classes revealed that a significant proportion of the forest area (59.13%) falls under the category of moderate carbon density (50-75 MgC ha-1). Improvement and conservation efforts must be directed for very low carbon density (01-25 MgC ha-1) areas covering 0.05%, and high carbon density (75-100 MgC ha-1) covering 34.95% of the forest area, respectively, to balance the overall carbon storage potential of the region. The data-driven geospatial approach used in this study can guide policymakers and conservationists in making informed decisions for sustainable forest management towards climate change mitigation efforts in the region. However, more comprehensive studies and continuous monitoring are necessary to further refine and update the understanding of the tree carbon dynamics in this ecologically important area.

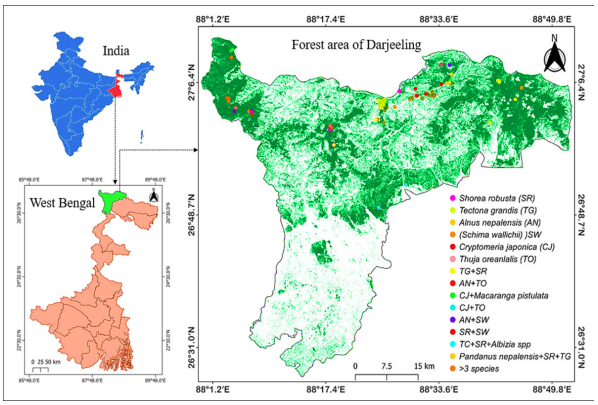


Fig. Map of the study area showing sampling points with species indication, the green colour representing the forest cover.

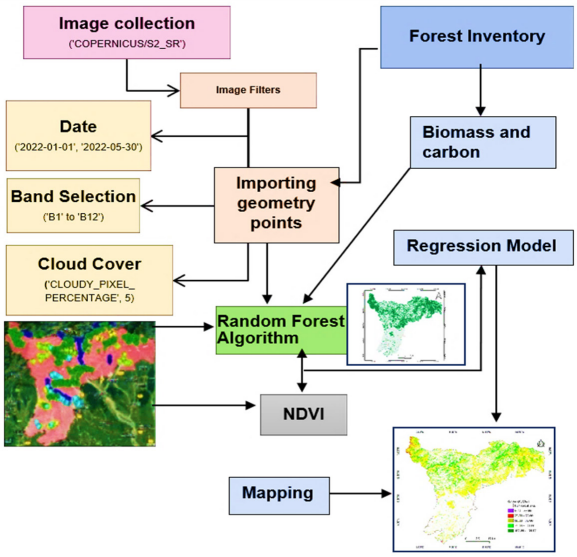


Fig. Methodological framework for mapping of tree carbon density

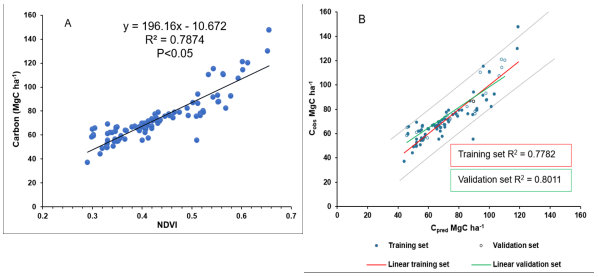


Fig. Regression model for tree carbon mapping (A); Training and validation acuuracy between observed carbon (Cobs) and predicted carbon (Cpred) (B).

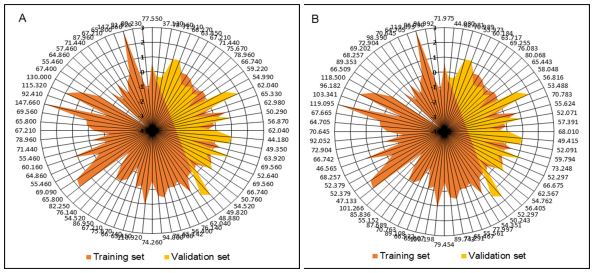


Fig. Standardized residuals of the regression model. A = observed carbon (Mg C ha-1), B = predicted carbon (Mg C ha-1)

Pesticide usages, patterns and farmers' perceptions in agri-horti crops

The main focus of this work is to identify and assess pesticide usages, patterns and farmer's perception in agri-horti crops in these regions. Different surveys were carried out in villages of Borbam goan, Kaupatini, Bordoloni and some villages around Dhemaji district to

collect data on status of pesticides usage and pattern. The data reveal that most farmers opted for non-chemical method of pest control and some farmers used Glyphosate herbicide as a part of their agricultural practices for controlling weed before sowing. In some cases where pumkin was grown extensively, the damage caused by insect was controlled by using Imidacloprid and Dimethoate insecticides. Cabbage farm was hugely affected with insects and diseases where some farmers use Chlorpyriphos and Carbendazim.

Translating the native fish germ plasm through aquaculture and fisheries in Himalayan region

The work concentrates on establishment of demonstration unit on indigenous fish based culture both at research farm and on farmers' field as well as establishment of live gene banking having important germplasm of indigenous food fish of N-E region. Keeping this in mind, Field study was conducted at the rivers Dirang chu, river Sangti, river Chug of Kameng drainage in West Kameng district; river Shei of Siang drainage in West Siang district and river Yargyap chu in Shi Yomi district of Arunachal Pradesh for snow trouts and other coldwater species. Three dominating species of Schizothoracids viz, *Schizothorax richardsonii* (Gray 1832), *Schizothorax plagiostomus* Heckel 1838 and *Schizothorax progastus* (McClelland 1839) were identified and documented based on morphological characteristics and meristic

counts. Cypriniformes represents 44% of the catch in the rivers of Arunachal Pradesh dominated by the snow trout group, followed with Siluriformes (22%) and Perciformes (21%). Live gene banks were established in recognized fish hatcheries and fish farms of Assam and Arunachal Pradesh for selected fish species. Live gene banks for snow trouts were established in selected study sites of Arunachal Pradesh. Fishing gears applied for catching snow trout are mostly indigenous and specific to a particular area depending on the nature of the river and skills of the tribesmen operating the gears. Minor carps viz., *Labeo bata, L. gonius, L. fimbriatus, L. calbasu, Cirrhinus reba* etc are have high demand for consumption and henceforth may be cultivated. Hill fishes like mahseer group,

Labeo pangusia, L. dyocheilus, Barilius spp. are preferred food species. Loaches and barbs have high ornamental value in the region.

Process Optimization of kheer using Aromatic Joha Rice

To optimize processing parameters for the production of Kheer using Joha Rice among the various types of Joha rice, three popular varieties—Kola Joha, Kunkuni Joha, and Keteki Joha—have been selected based on local preferences for kheer preparation. The total phenolic content (TPC) and total flavonoid content (TFC) were assessed for all three rice varieties. TPC ranged from 44.42 to 59.50 mg/g GAE, while TFC ranged from 75.5 to 186.5 mg/g. Among the varieties, Kola Joha exhibited the highest levels of both TPC and TFC, followed by Keteki Joha and Kunkuni Joha.

Collection and Documentation of Locally available feed resources for Assam Hill Goat

Proper nutrition is crucial for the health, growth, and reproduction of Assam Hill goats, a small, meat-type breed known for its high prolificacy. Good feed supports their high reproductive capacity, including twinning and triplet kiddings. Additionally, balanced nutrition can improve their growth performance and overall well-being, making them a valuable source of income for farmers. Locally available feed resources are having nutrient value which will help in improvement of health and productivity of Assam hill goat. Keeping this in mind, different types of locally available feed resources viz. Mulberry, Morolia, Guava, Gomari, Jackfruit etc. are collected and documented. The collected feeds were analysed for their nutritive values.

Samples	EE (%)	Ash (%)	AIA (%)	CF (%)	CP (%)	NFE (%)
Mulberry	4.5	11.19	3.26	12.7	7.29	63.61
Mango	0.9	11.93	6.25	29.2	5.82	52.15
Breynia	5.3	9.54	0.93	16.6	9.33	59.23
Elephant foot yam	2.2	10.39	3.79	25.1	9.66	52.65
Hibiscus	4.0	11.63	1.51	14.0	4.55	48.68
Alternantherea spp	2.8	15.39	2.14	19.7	6.33	55.78
Neem	6.7	8.88	1.77	17.2	16.27	50.95
Gomari	3.7	8.62	1.45	23.4	3.64	60.64
Jackfruit	4.1	13.87	8.42	25.7	11.22	45.11
Guava	1.5	6.57	1.04	18.0	8.82	65.11
Morolia	6.3	8.08	2.31	31.5	13.68	40.44
Night Jesmine	1.9	10.85	3.34	15.4	11.46	60.39
Ziya	3.5	6.75	2.28	13.1	9.46	67.19

Chemical composition of the collected feedstuffs

First report of *Lasiodiplodia* spp. associated with collar rot in kiwi in Ziro, Arunachal Pradesh

For the purpose of documentation of important plant diseases in north east region, surveys were conducted. During a visit to kiwi (*Actinidia deliciosa*) orchards in the Ziro Valley, Arunachal Pradesh, symptoms indicative of collar rot in kiwi were observed. Laboratory analysis (Morphological and ITS sequencing) has confirmed the causal agent to be Lasiodiplodia spp. This finding represents the first report of *Lasiodiplodia* spp. associated with collar rot in kiwi in this region, suggesting a potential emerging

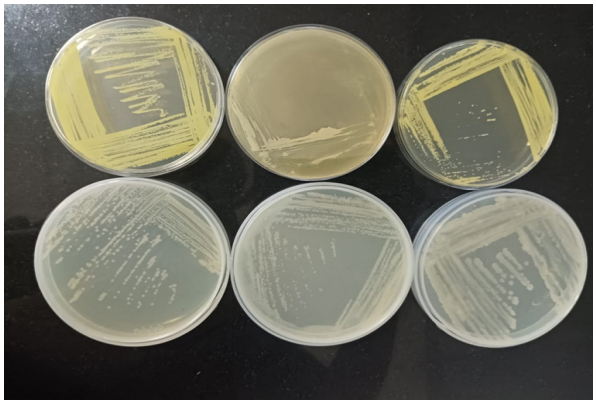
threat to local kiwi cultivation which pave the way for further studies to understand the pathogenicity, epidemiology, and develop effective control measures for this pathogen.

Field symptom showing dying Kiwi plant

Collar rot symptoms, dark gray mycelia and brown discolouration of stems

Isolation of Rhizobacteria from rice rhizosphere

Rhizobacteria were isolated from rice rhizosphere using standard microbiological techniques, resulting in a large number of distinct isolates. These isolates were purified through repeated streaking to obtain pure cultures and were stored for further studies. In addition to culture-dependent methods, metagenomic analysis of the same soil samples was conducted to assess the total microbial diversity, including both culturable and unculturable microorganisms. The metagenomic results revealed a rich and diverse microbial community, with a dominant presence of species belonging to the phylum Acidobacteria.



Rhizobacteria isolates from rice rhizosphere

Assessment and Refinement of Integrated Farming System (IFS) Models in Assam

An Integrated Farming System (IFS) combines various farming activities like crop production, animal husbandry, aquaculture, and forestry to create a sustainable and efficient agricultural system. It aims to maximize resource utilization, reduce environmental impact, and increase farm productivity and profitability. Research data shows that IFS model can also be very handy in fulfilling 13 SDG's out of 17 SDG of united nation. Therefore for wide scale adaption of scientific IFS model in these regions extensive surveys were carried out to understand the existing IFS structures

in these regions data were collected on farm household income, crops/varieties grown (covering agriculture, horticulture, fishery, poultry and piggery), and other allied activities. Focus were given on primary and secondary agriculture within the IFS framework to assess livelihood and employment generation potential. Based on the baseline survey, 20 farmers were selected which represents five different farming system components viz. crop based, horticulture based, fishery based, poultry based and piggery based farming systems for assessment and refinement their existing farming systems through scientific intervention for sustainable income in the form of induction of short-duration biofortified paddy varieties, introduction of maize hybrids in the cropping system, improved breeds of pig, poultry, and fish fingerlings, training and demonstration on available location specific agro-techniques and assessment based on existing farm resources. A number of input injection programmes were also carried out for promotion of IFS in these regions.

Identification of superior haplotypes governing iron toxicity tolerance in rice

Iron toxicity presents a critical challenge to rice production in Assam, particularly under flooded and low pH conditions, leading to grain yield reductions ranging from 18% to total crop failure. Addressing this issue, the current study focuses on identifying superior haplotypes for iron toxicity tolerance (ITT) through haplotype-based breeding. To achieve this, a set of 238 indica rice genotypes, comprising 83 entries from the Assam Rice Collection (ARC) and 155 from various Indian regions, were multiplied at IARI New Delhi during the Kharif 2024 season. Genotypic data extraction and filtering using PLINK resulted in the retention of 71,877 markers after applying minimum allele frequency (MAF) and missing data thresholds. Further, linkage disequilibrium (LD) pruning reduced the dataset to 4,078 SNPs, with cross-validation identifying three subpopulations characterized by Q values exceeding 0.8. The LD decay analysis revealed that the maximum LD value halved at 350 Kb, indicating extensive historical recombinations within the genotype panel.

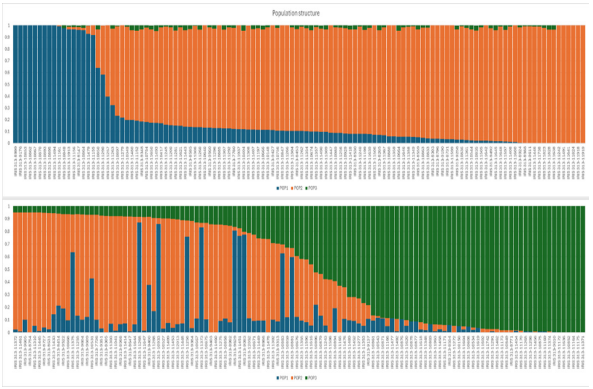


Fig1: Structure analysis of 238 rice germplasm lines based on candidate gene markers associated with Fe toxicity tolerance. The population was divided into three genetic clusters (K = 3) represented by blue, orange, and green, indicating distinct ancestral backgrounds

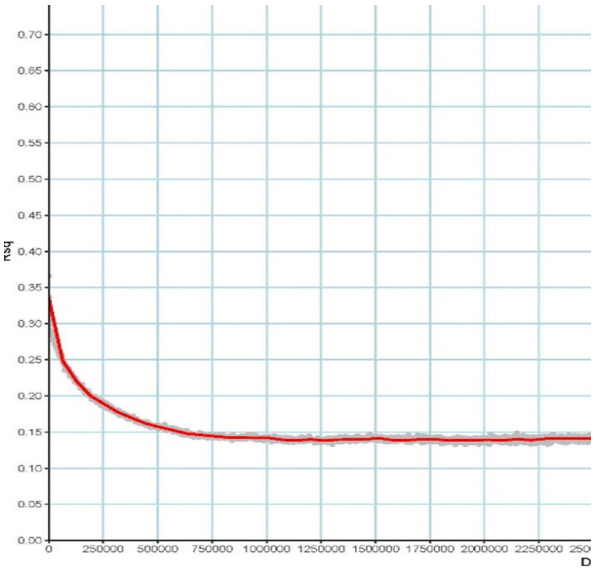


Fig2: Linkage Disequilibrium (LD) Decay Plot: The graph illustrates the decay of linkage disequilibrium (measured as r^2) with increasing physical distance (in base pairs) among SNP markers in the rice genotype panel.

Erosion Control Measures while remediation of mercury contaminated soil of Hindustan Unilever Limited (HUL) Factory Site, Kodaikanal, Tamil Nadu (Contact Research)

Erosion control is crucial during mercury contaminated soil remediation to prevent the spread of contamination and protect water resources. Effective measures include minimizing soil disturbance, using erosion control fabrics, and establishing vegetation cover. Soil retaining walls, silt settling tanks, and silt traps can also be implemented to prevent mercury runoff, according to Hindustan Unilever Limited (HUL). Keeping this in mind, under a contract research, the erosion control measures at HUL site were designed considering 20 years long term rainfall and wind speed data. The measures were designed to prevent the soil erosion while excavation and refilling process. In addition to rainfall and wind speed, parameters namely soil type and depth, slope and vegetation have been considered while designing the structures. Terrace support walls, Drainage lines with silt trapping units, trenches along the boundaries and terraces were designed and executed. Runoff water from the area has been regularized by two drainage lines with adequate checks for arresting soil loss. The soils from the drainage checks have to be removed frequently and treated in the remediation process. The treated soil from soil washing were examined and decided to mix the soil from all streams at the time of backfilling into the excavated pits. Based on the soil nutrient analysis it was recommended to amend the mixture of treated soil with fresh soil in the ratio of 1:4 (1 part fresh soil: 4 part treated soil) from the uncontaminated area or soil from outside with similar properties. After refilling of treated homogenized soil

JGT is being laid out after backfilling the remediated soil

Grass turfing and tree planting

structures. Terrace support walls, Drainage lines with silt trapping units, trenches along the boundaries and terraces were designed and executed. Runoff water from the area has been regularized by two drainage lines with adequate checks for arresting soil loss. The soils from the drainage checks have to be removed frequently and treated in the remediation process. The treated soil from soil washing were examined and decided to mix the soil from all streams at the time of backfilling into the excavated pits. Based on the soil nutrient analysis it was recommended to amend the mixture of treated soil with fresh soil in the ratio of 1:4 (1 part fresh soil: 4 part treated soil) from the uncontaminated area or soil from outside with similar properties. After refilling of treated homogenized soil followed by ramming, the 720 GSM open weave jute textiles were laid out. Grass turfing followed by tree plantations

(indigenous native trees) have been undertaken. Bench mark soil data, sediment deposition and tree growth parameters have been recorded and being monitored at frequent interval.

OTHER RESEARCH INITIATIVES

Evaluation of Lentil breeding lines and Mustard Varieties (Rabi 2023-24)

During the Rabi season of 2023-24, a total of 31 lentil breeding lines including popular checks developed at IARI New Delhi were evaluated for their agronomic performance at ICAR-IARI Assam. The experiment followed RCBD design with 3 replications and each plot had a dimension of 2m x 2m. This marks the first year of a two-year evaluation of lentil varieties at IARI Assam, with the aim of selecting superior and stable genotypes suitable for cultivation in the rice fallows in Assam. A total of four mustard varieties were also

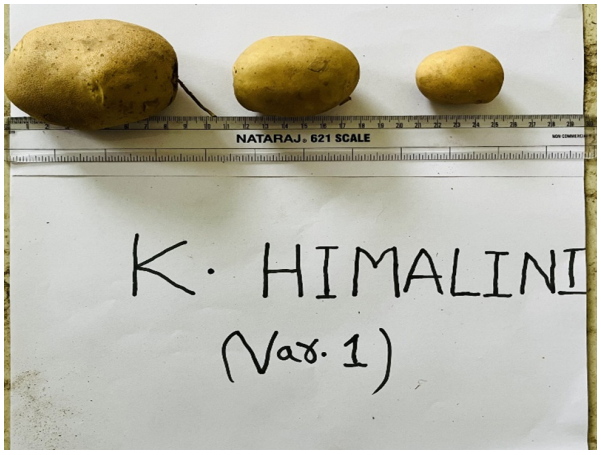
evaluated for their yield performance at ICAR-IARI Assam. The experiment followed RCBD design with 5 replications and each plot had a dimension of 5m x 4m. The study has identified 15 lentil breeding lines with superior yield performance, which have been selected for advancement to the next season's trial.

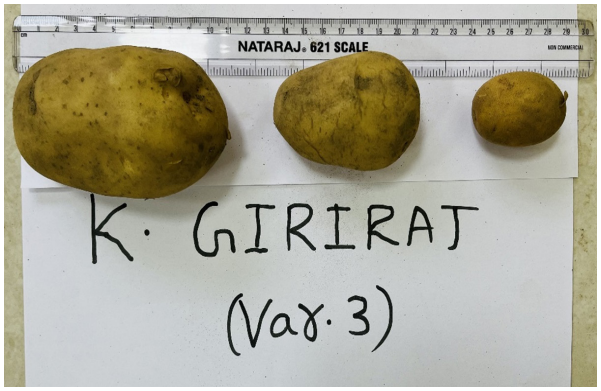
Evaluation of potato under organic management system in alluvial soil of Assam

A field trial was conducted in the research farm of IARI Assam as well as in the farmers field in Mohori Camp, Gogamukh, Dhemaji, Assam to evaluate the potato varieties under organic management system during rabi season of 2023-24. The soil are acidic in reaction (pH of 5.65) and

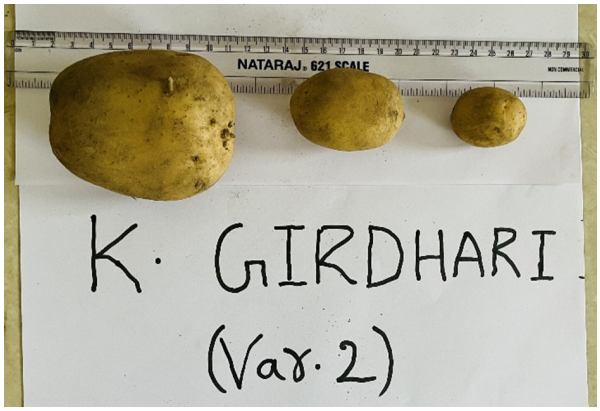
Sowing

Potato plantation





the texture of the soil had is sandy. The soil had medium soil organic carbon content. The well decomposed farmyard manure



(FYM) applied at 10 t/ha as nutrients source. Three potato varieties viz., Kufri Himalini, Kufri Giridhari and Kufri Giriraj were used for field trial. The results showed that Kufri Himalini registered 21.0 t/ha potato tuber yield followed by Kufri Giriraj (18.5 t/ha potato tuber yield) and Kufri Giridhari (16.8 t/ha tuber yield). Further, on average Kufri Giriraj was registered 116.0 g single potato weight followed by Kufri Himalini (115.7 g) and Kufri Giridhari (93.7 g). The average potato tuber size was 6.5 cm (length) × 4.2 cm (width) in Kufri Giriraj followed by 6.0 cm (length) × 4.4 cm in Kufri Himalini and 5.2 cm (length) × 3.8 cm in Kufri Giridhari. Therefore, Kufri Himalani, Kufri Giridhari and others suitable potato varieties can be promoted for cultivation under organic management system to enhance the farmer's income and nutritional security.

Collaborative Research Initiative on Evaluation of Lentil Breeding Lines and Grass Pea Genotypes for Acidic Soils (Rabi 2024-25)

A joint research initiative between ICARDA and ICAR-New Delhi has been initiated with aims to evaluate lentil and grass pea genotypes for acidic soil conditions. The trials focus on identifying acid-tolerant varieties to enhance crop productivity and resilience, with a particular emphasis on their suitability for rice fallows in Assam. The study comprises three distinct trials:

Trial 1: Evaluation of Lentil Breeding Lines (IARI-New Delhi): This trial includes 23 lentil breeding lines including check developed by IARI, New Delhi, which are being tested in a replicated design. The objective is to assess their performance, adaptability, and potential tolerance to acidic soil conditions.

Trial 2: Evaluation of Lentil Genotypes (ICARDA): A total of 25 lentil breeding lines sourced from ICARDA are being evaluated for their resilience and productivity under acidic soil environments. This trial aims to identify promising genotypes that can contribute to improve lentil cultivation in such challenging conditions.

Trial 3: Evaluation of Grass Pea Genotypes: This trial involves 36 grass pea breeding lines developed by ICARDA, tested under similar conditions to assess their adaptability, acid tolerance, and yield potential. The focus is on identifying high-yielding, resilient genotypes that could serve as an alternative pulse crop for acidic soils.

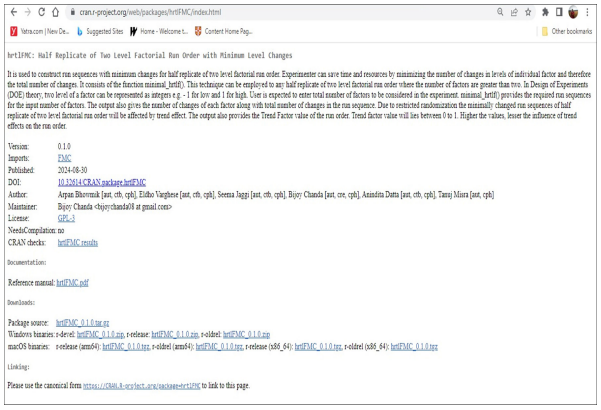
PRODUCT/TECHNOLOGY/ SOFTWARE DEVELOPED

R Software Package: hrtlFMC Version 0.1.0 available at https://cran.r project.org/package=hrtlFMC

[Developer: Arpan Bhowmik, Eldho Varghese, Seema Jaggi, Bijoy Chanda, Anindita Datta, and Tanuj Mishra] (Published on 30-08-2024)

Description: It is used to construct

run sequences with minimum changes for half replicate of two level factorial run order. Experimenter can save time and resources by minimizing the number of changes in levels of individual factor and therefore the total number of changes. It consists of the function minimal_hrtlf(). This technique can be employed to any half replicate of two level factorial run order where the number of factors are greater than two. In Design of Experiments (DOE) theory, two level of a factor can be represented as integers e.g. - 1 for low and 1 for high. User is expected to enter total number of factors to be considered in the experiment. minimal_ hrtlf() provides the required run sequences for the input number of factors. The output also gives the number of changes of each factor along with total number of changes in the run sequence. Due to restricted randomization the minimally changed run sequences of half replicate of two level factorial run order will be affected by trend effect. The output also provides the Trend Factor value of the run order. Trend factor value will lies between 0 to 1. Higher the values, lesser the influence of trend effects on the run order.

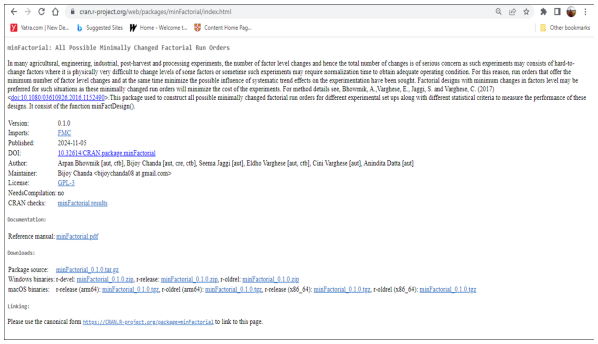


Impact: Total number of downloads as on 16-05-2025 is 2040 with average number of downloads 263/month, 55/week and 5/ day

R Software Package: minFactorial Version 0.1.0 available at https://cran.r-project.org/package=minFactorial

[Developer: Arpan Bhowmik, Bijoy Chanda, Seema Jaggi, Eldho Varghese, Cini Varghese and Anindita Datta] (Published on 05-11-2024)

Description: In many agricultural, engineering, industrial, post-harvest and processing experiments, the number of factor level changes and hence the total number of changes is of serious concern as such experiments may consists of hard-to-change factors where it is physically very difficult to change levels of some factors or sometime such experiments may require normalization time to obtain adequate operating condition. For this reason, run orders that offer the minimum number of factor level changes and at the same time minimize the possible influence of systematic trend effects on the experimentation have been sought. Factorial designs with minimum changes in factors level may be preferred for such situations as these minimally changed run orders will minimize the cost of the experiments. This package used to construct all possible minimally changed factorial run orders for different experimental set ups along with different statistical criteria to measure the performance of these designs. It consist of the function minFactDesign().

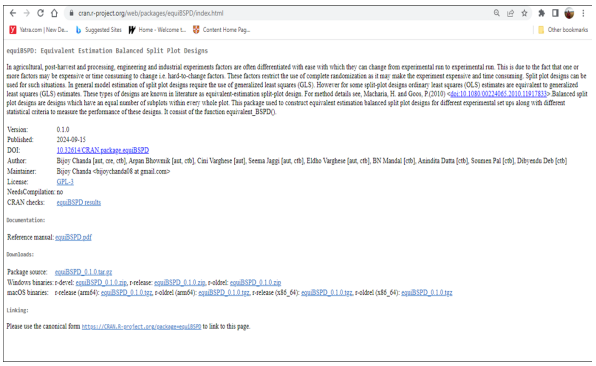


Impact: Total number of downloads as on 16-05-2025 is 3113 with average number of downloads 625/month, 123/week and 8/day

R Software Package: equiBSPD Version 0.1.0 available at https://cran.r-project.org/package=equiBSPD

[Developer: Bijoy Chanda, Arpan Bhowmik, Cini Varghese, Seema Jaggi, Eldho Varghese, B N Mandal, Anindita Datta, Soumen Pal and Dibyendu Deb] (Published on 15-09-2024)

Description: In agricultural, post-harvest and processing, engineering and industrial experiments factors are often differentiated with ease with which they can change from experimental run to experimental run. This is due to the fact that one or more factors may be expensive or time consuming to change i.e. hard-to-change factors. These factors restrict the use of complete randomization as it may make the experiment expensive and time consuming. Split plot designs can be used for such situations. In general model estimation of split plot designs require the use of generalized least squares (GLS). However for some split-plot designs ordinary least squares (OLS) estimates are equivalent to generalized least squares (GLS) estimates. These types of designs are known in literature as equivalent-estimation split-plot design. Balanced split plot designs are designs which have an equal number of subplots within every whole plot. This package used to construct equivalent estimation balanced split plot designs for different experimental set ups along with different statistical criteria to measure the performance of these designs. It consist of the function equivalent_BSPD().

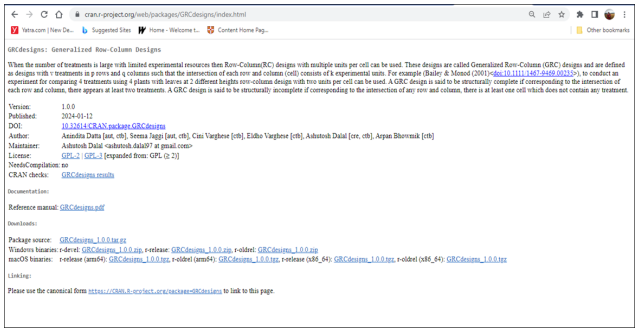


Impact: Total number of downloads as on 16-05-2025 is 1873 with average number of downloads 247/month, 46/week and 6/day

R Software Package: GRCdesigns Version 1.0.0 available at https://cran.r-project.org/package=GRCdesigns

[Developer: Anindita Datta, Seema Jaggi, Cini Varghese, Eldho Varghese, Ashutosh Dalal and Arpan Bhowmik] (Published on 12-01-2024)

Description: When the number of treatments is large with limited experimental resources then Row-Column(RC) designs with multiple units per cell can be used. These designs are called Generalized Row-Column (GRC) designs and are defined as designs with v treatments in p rows and q columns such that the intersection of each row and column (cell) consists of k experimental units. For example (Bailey & Monod (2001)<doi:10.1111/1467-9469.00235>), to conduct an experiment for comparing 4 treatments using 4 plants with leaves at 2 different heights row-column design with two units per cell can be used. A GRC design is said to be structurally complete if corresponding to the intersection of each row and column, there appears at least two treatments. A GRC design is said to be structurally incomplete if corresponding



to the intersection of any row and column, there is at least one cell which does not contain any treatment.

Impact: Total number of downloads as on 16-05-2025 is 3955 with average number of downloads 195/month, 47/week and 4/day

LIST OF PROJECTS (ONGOING, COMPLETED AND NEWLY PROPOSED) AT IARI ASSAM

S.No.	Project details
Ongoing Projects	
1	REMOTE SENSING-BASED PREDICTION OF CROP PERFORMANCE IN AGRI-HORTI CROPS OF NORTH-EASTERN REGION (01-01-2022 to 31-03-2025) Project Code: CRSC/IARI-Assam/CIL2022/003/00003 Project Team: Dibyendu Deb, Alemwati Pongener, Arpan Bhowmik, Deepjyoti Baruah, Arunjyoti Baruah (till 21.02.2023) and Palmei Gaibimei
2	COLLECTION, EVALUATION, DOCUMENTATION, AND UTILIZATION OF CULTIVATED AND WILD UNDERUTILIZED HORTICULTURAL CROPS OF NORTH-EASTERN REGION OF INDIA (01-04-2022 to 31-03-2025) Project Code: CRSC/IARI-Assam/SIL2022/004/00004 Project Team: Alemwati Pongener, Dibyendu Deb, Deepjyoti Baruah, Palmei Gaibimei, Arpan Bhowmik, Arunjyoti Baruah (till 21.02.2023), Ramanath Ramesh Babu (w.e.f 28-06-2024), Sumalatha (w.e.f 28-06-2024) and Raghavendra H (w.e.f 28-06-2024)
3	ASSESSMENT OF LIVELIHOOD DIVERSIFICATION OF FARMERS UNDER RAINFED ECOSYSTEM IN NORTH EAST INDIA(01-08-2022 to 31-07-2025) Project Code: CRSC/IARI-Assam/SIL2022/005/00005 Project Team: Arpan Bhowmik, Dibyendu Deb, Deepjyoti Baruah, Alemwati Pongener, Arunjyoti Baruah (till 21.02.2023), Palmei Gaibimei and Bhagirath Das (w.e.f 28-06-2024)
4	ASSESSMENT OF FISH DIVERSITY, FISHERIES RESOURCES AND AQUACULTURE AVENUES FOR IMPROVING SELF SUSTENANCE OF FISHER-FOLK IN UPPER REACHES OF THE BRAHMAPUTRA VALLEY (01-08-2023 to 31-07-2025) Project Code: CRSC/IARI-Assam/SIL2022/006/00006 Project Team: Deepjyoti Baruah, Arunjyoti Baruah (till 21.02.2023), Alemwati Pongener, Dibyendu Deb, Arpan Bhowmik and Palmei Gaibimei

5	IDENTIFICATION AND DOCUMENTATION OF COMMONLY OCCURRING FISH DISEASES IN DHEMAJI AND LAKHIMPUR DISTRICTS OF ASSAM (01-01-2022 to 31-12-2024) Project Code: CRSC/IARI-Assam/CIL2022/007/00007 Project Team: Arunjyoti Baruah (till 21.02.2023), Deepjyoti Baruah (PI from 22.02.2023), Dibyendu Deb, Alemwati Pongener, Arpan Bhowmik and Palmei Gaibimei
6	IDENTIFICATION AND ASSESSMENT OF PESTICIDE USAGES, PATTERNS AND FARMERS' PERCEPTIONS IN AGRI-HORTI CROPS: A CASE STUDY FROM NORTH-EAST REGION (01-04-2023 to 31-03-2026) Project Code: CRSC/IARI-Assam/SIL2023/001/00009 Project Team: Ch. Jamkhokai Mate, Sunil Mandi, Arpan Bhowmik, Alemwati Pongener and A. K. Srivastava
7	DEVELOPMENT OF AGRO-TECHNIQUES FOR QUALITY PRODUCTION OF MINOR MILLETS IN THE EASTERN HIMALAYAN ZONE Project Code: CRSC/IARI-Assam/SIL2023/002/00010 (01-04-2023 to 31-03-2026) Project Team: Sunil Mandi, A. K. Srivastava, , Ch. Jamkhokai Mate and L.K. Baishya (w.e.f 28-06-2024).
8	TRANSLATING THE NATIVE FISH GERM PLASM FOR SOCIO- ECONOMIC BENEFITS THROUGH AQUACULTURE AND FISHERIES IN HIMALAYAN REGION (**DBT Funded**) (24-03-2022 to 25-03-2025) Project Code: CRSC/IARI-Assam/COP2022/001/00001 Project Team: ICAR-DCFR: N. N. Pandey, R. S. Patiyal and S. Ali GBPUA&T: CCPI: Ashutosh Mishra, Vipul Gupta and Akansha Khati ICAR-IARI Assam: CCPI: Deepjyoti Baruah
9	AGRI-DRONE PROJECTS (**RKVY funded,** through ATARI, Guwahati) (Date of Start: 02-08-2022). Project Code: CRSC/IARI-Assam/SOL2022/008/00008 Project Team: Arpan Bhowmik, Dibyendu Deb, Sunil Mandi and Alemwati Pongener
Completed	
1	BIOMASS AND CARBON MAPPING ACROSS ALTITUDINAL GRADIENT OF MAJOR DARJEELING AND SIKKIM HIMALAYA LAND USE: IMPLICATION FOR CARBON SINK MANAGEMENTAND MITIGATION (**SERB, DST Funded**) (01-01-2022 to 09-05-2024) Project Code: CRSC/IARI-Assam/COP2022/002/00002. Project Team: UBKV: Sumit Chakravarty, Gopal Shukla, Ganesh Banik and Vineeta ICAR-IASRI: Arpan Bhowmik (CCPI till 08.04.2022), Ankur Biswas (CCPI w.e.f. 8.4.2022), ICAR-IARI Assam: Arpan Bhowmik (CCPI w.e.f. 11.4.2022)

Newly Proposed	
1.	IDENTIFICATION OF SUPERIOR HAPLOTYPES FOR IRON TOXICITY TOLERANCE IN RICE. (01.08.2024 To 31.07.2027) Project Code: CRSC/IARI-Assam/CIL2024/001/00011 Project Team: Abhijith K.P, Lohit k Baishya, Prabhat Pramanik, Asheef Ali T P and Ranjit Kumar Ellur (IARI New Delhi).
2.	NUTRITIONAL AND PHYTOCHEMICAL CHARACTERIZATION OF CURCUMA SPP. FROM NORTHEASTERN REGIONS OF INDIA. (01.08.2024 To 31.07.2026) Project Code: CRSC/IARI-Assam/CIL2024/002/00012 Project Team: Asheef Ali T P, Ch Jamkhakai Mate and Anees K (IISR).
3.	TAXONOMIC STUDIES ON MICROLEPIDOPTERA (INSECTA: LEPIDOPTERA) OF NORTH EAST INDIA. (01.08.2024 To 31.07.2027) Project Code: CRSC/IARI-Assam/CIL2024/003/00013 Project Team: Kishore Chandra Sahoo, Akshay Kumar H M, Umakanta Dash and P.R. Shashank (IARI New Delhi)
4.	CHARACTERIZATION OF Rhizoctonia solani p PATHOTYPES AND COMBATTING RICE SHEATH BLIGHT THROUGH rhizosphere MICROBIOME EXPLORATION. (01.08.2024 To 31.07.2027) Project Code: CRSC/IARI-Assam/SIL2024/004/00014 Project Team: Akashy Kumar H M, Kisho, Mythra. R, Abhijith K P and Ansheef Ali.
5.	GENETIC ANALYSIS OF ECONOMICALLY IMPORTANT TRAITS IN CHILLI LANDRACES IN THE NORTHEASTERN REGION. (01.08.2024 To 31.07.2027) Project Code: CRSC/IARI-Assam/SIL2024/005/00015 Project Team: Ramanath Ramesh Babu, Abhijith K P, Ansheef Ali, and Akshay Kumar H M
6.	DEVELOPMENT OF EFFECTIVE PRE AND POSTHARVEST MANAGEMENT AND VALUE ADDITION PROTOCOLS FOR HORTICULTURAL CROPS IN NORTHEASTERN INDIA. (01.08.2024 To 31.07.2027) Project Code: CRSC/IARI-Assam/CIL2024/006/00016 Project Team: Raghavendra H R, Alemwati Pongener, Ramavath Ramesh Babu, Akkalareddy Sumalata, Ansheef Ali T P, Palmei Gaibimei and Vijay Rakesh Reddy(IIHR)
7.	DEVELOPMENT OF CULTIVATION PRACTICES, COMMERCIALLISATION AND ECO-PRINTING TECHNIQUES FOR ANNUAL FLOWER CROPS IN ASSAM: A ENTREPRENEURIAL APPROACH. (01.08.2024 To 31.07.2027) Project Code: CRSC/IARI-Assam/SIL2024/007/00017 Project Team: Sumalata Akkalareddy, Ravi Bhushan Prasad, Akshay Kumar H M and Kishore Chandra Sahoo.

8.	DEVELOPMENT OF PERILLA SEED CLEANING MACHINE AND PROCESSED PRODUCTS FROM CROPS INDIGENOUS TO NORTH EAST INDIA. (01.08.2024 To 31.07.2027) Project Code: CRSC/IARI-Assam/SIL2024/008/00018 Project Team: Palmei Gaibimei, Alemwati Pongener, Arpan Bhowmik, Mythra R and M B Chaudhary.
9.	PROMOTION, ASSESSMENT AND REFINEMENT OF INTEGRATED FARMING SYSTEM MODELS IN DHEMAJI AND LAKHIMPUR DISTRICTS OF ASSAM. (June 2024 To May 2027) Project Code: CRSC/IARI-Assam/SIL2024/009/00019 Project Team: Lohit Kumar Baishya, Sunil Mandi, Prabhat Pramanik, Arpan Bhowmik, Azhaguraja M, Ramesh Babu, Omprakash Naik N, Umakanta Dash, Sunny Arya, Bhagirath Das.
10.	DEVELOPING A PACKAGE OF SOIL MANAGEMENT BY IDENTIFYING THE CROP-BASED SOIL HEALTH INDICATORS FOR THE NORTH BANK PLAIN ZONE OF ASSAM AND PROMOTING CORN (BABY-CORN AND SWEET CORN) CULTIVATION IN THE FALLOW SEASON FOR IMPROVING LIVELIHOOD OF THE FARMERS. (01.07.2024 To 31.06.2027) Project Code: CRSC/IARI-Assam/SIL2024/010/00020 Project Team: Prabhat Pramanik, Lohit Kumar Baishya, A. K Srivastava, Sunil Mandi, Dibendyu Deb and Arpan Bhowmik.
11.	EXPLORATION OF ACID TOLERANT RHIZOBACTERIA FOR PLANT GROWTH PROMOTION POTENTIAL IN RICE. (01.08.2024 To 31.07.2027) Project Code: CRSC/IARI-Assam/SIL2024/011/00021 Project Team: Mythra R, Lohit Kumar Baishya, Prabhat Pramanik and Akshay Kumar H M
12.	EVALUATION OF GREEN LEAF MANURING POTENTIAL OF SELECTED TREE SPECIES SUITABLE FOR INTEGRATION IN FARM BOUNDARIES OF NORTH BANK PLAINS ZONE OF ASSAM. (01.08.2024 To 31.07.2026) Project Code: CRSC/IARI-Assam/SIL2024/012/00022 Project Team: Umakanta Das, Lohit Kumar Baishya, Sunil Mandi, Prabhat Pramanik and Mythra R.
13.	DISTRIBUTION, ECOLOGICAL RISK ASSESSMENT AND REMEDIATION OF HEAVY METALS IN THE GROUND WATER ALONG THE BANK OF SUBANSIRI RIVER. (01.11.2024 To 31.10.2027) Project Code: CRSC/IARI-Assam/CIL2024/013/00023 Project Team: Machanuru Raviteja, Lohit Kumar Baishya and Manoj Shrivastava (IARI New Delhi).
14	INUNDATED AREA AND CROP DAMAGE ASSESSMENT USING SATELITE BASED MICROWAVE REMOTW SENSING OF FLOOD PRONE DISTRICTS IN ASSAM. (01.08.2024 To 31.07.2026) Project Code: CRSC/IARI-Assam/CIL2024/014/00024 Project Team: Sunny Arya, Dibyendu Deb, Sunil Mandi, Machanuru Raviteja and Joydeep Mukherjee (IARI New Delhi).

15	AN ECONOMIC IMPACT ASSESSMENT OF FARMER PRODUCER ORGANIZATIONS IN ASSAM. (01.08.2024 To 31.07.2026) Project Code: CRSC/IARI-Assam/SIL2024/015/00025 Project Team: Omprakash Naik N, Bhagirath Das, Dibyendy Deb and Lohit Kumar Baishya.
16	STUDY ON STATUS AND PROSPECTS OF AGRO-ECOTOURISM FOR SUSTAINABLE LIVELIHOOD IN NORTH EAST INDIA. (01.08.2024 To 31.07.2026) Project Code: CRSC/IARI-Assam/CIL2024/016/00026 Project Team: Bhagirath Das, Omprakash Naik N, Arpan Bhowmik and Sujit Sarkar (IARI-RS, Kalimpong).
17	IDENTIFICATION AND CHARACTERIZATION OF NEW SHEEP AND GOAT BREEDS, DOCUMENTATION OF ITKS WITH TRIBAL POPULATED DISTRICTS OF ASSAM. (01.08.2024 To 31.07.2027). Project Code: CRSC/IARI-Assam/CIL2024/017/00027 Project Team: Manish Pandey, Azhaguraja M, Deepjyoti Baruah, Da U Ruhi Pde and Amod Kumar.
18	ECONOMICAL AND BALANCED RATION FORMULATION WITH LOCALLY AVAILABLE FEED RESOURCES FOR ASSAM HILL GOAT IN THE EASTERN BRAHMAPUTRA VALLEY. (01.08.2024 To 31.07.2027). Project Code: CRSC/IARI-Assam/CIL2024/018/00028 Project Team: Bornalee Handique, Da U Ruhi Pde, M B Chaudhary, Azhaguraja M and Ashim Kumar Saikia (AAU).
19	DECIPHERING GENOME-WIDE SELECTION SIGNATURES IN THE NATIVE CHICKEN BREEDS OF ASSAM. (01.08.2024 To 31.07.2026). Project Code: CRSC/IARI-Assam/CIL2024/019/00029 Project Team: Azhaguraja M, Bornalee Handique, Manish Pandey, Aneet Kour(DPR) and Mihir Sarma (AAU).
20	PROCESS OPTIMIZATION AND SHELF-LIFE EVALUATION OF KHEER USING AROMATIC JOHA RICE. (01.08.2024 To 31.07.2026) Project Code: CRSC/IARI-Assam/CIL2024/020/00030 Project Team: M B Chaudhary, Amjad K Balange, Bornalee Handique, Arpan Bhowmik, Sonu K S (NDRI) and sangita Ganguly (NDRI)
21	ASSESSMENT OF LABEO BATA FINGERLING GROWTH PERFORMANCE, NUTRITIONAL REQUIREMENT AND PHYSIOLOGICAL RESPONSE TO FISHMEAL-FREE PLANT-BASED DIET. (01.08.2024 To 31.07.2027). Project Code: CRSC/IARI-Assam/SIL2024/021/00031. Project Team: Da U Ruhi Pde, Deepjyoti Baruah, Amjad K Balange, Bornalee Handique and Manish Pandey.
Contract Research Project	
1	EROSION CONTROL MEASURES WHILE REMEDIATION OF MERCURY CONTAMINATED SOIL OF HINDUSTAN UNILEVER LIMITED (HUL) FACTORY SITE, KODAIKANAL, TAMIL NADU [**Hindustan Unilever Limited (HUV) Sponsored**) (01-04-2024-31-03-2026) Project Code: CRSC/IARI-Assam/SCL2024/008/00032 Project Team: S.Manivannan and AK Srivastava

EDUCATION 4

ICAR-IARI, Assam has actively commenced its academic contributions from the campus itself in the year 2024. The institute has made significant strides in imparting quality education to students enrolled in the B.Sc. (Hons.) Agriculture programme. A wide array of courses spanning agriculture and allied disciplines have been meticulously delivered by a team of dedicated scientists and faculty members, each possessing specialized expertise in their respective fields. The curriculum has been designed in alignment with national standards and is aimed to equip students with both theoretical knowledge and practical skills essential for modern agricultural practices. Through classroom teaching, hands-on training and field-based learning, the students are being nurtured to become competent professionals capable of addressing the current and emerging challenges in agriculture. In a landmark development, IARI Assam also initiated its M.Sc. programme from the campus itself in the year 2024 in two disciplines viz. Agronomy and Soil Science. The active involvement of ICAR-IARI, Assam in academic activities underscores its commitment to foster a robust learning environment and contribute meaningfully in human resource development.

DEEKSHARAMBH STUDENT INDUCTION PROGRAMME – 2024

B.Sc. Agriculture (Hons.) Batch (2024-25)

Date: 16–28 October 2024

The Deeksharambh Student Induction Program for the 2024-25 batch of B.Sc. Agriculture (Hons.) at ICAR-IARI, Assam, was held from 16th to 28th October 2024. The programme was coordinated by Dr. S. Manivannan. The program was designed to familiarize new students with the institutional environment, promote peer interaction, and provide insights into academic life and agricultural science.

The day began with a Yoga Session in the early morning led by Dr. Anil Kumar Pegu and Ms. Rima Pegu, focusing on mental and physical well-being through asanas and breathing techniques.

An introductory session with UG Coordinator Dr. S. Manivannan provided

students with academic orientation, including credit systems, examination rules, and curriculum changes under the Sixth Deans Committee report. A campus tour was conducted by Dr. Alemwati Pongener and Dr. Ansheef Ali, covering key facilities

such as laboratories (APF, NRM, CI), ATIC, and the library.

An ice-breaking session facilitated by Dr. Azhaguraja and Dr. Omprakash Naik helped foster camaraderie. A library orientation session led by Mr. Da U Ruhi De and Mr. Akshay Kumar H M familiarized students with cataloguing systems and library rules. The day concluded with a cultural evening, coordinated by Dr.

Azhaguraja and Dr. Barua, showcasing student talent in dance, music, and drama.

Field Visit

Students visited progressive agri-entrepreneur Sh. Brojen Gogoi's orchard at Nalkata Bowalaguri. He demonstrated multi-storey cropping practices (Pineapple + Arecanut + Betelvine/Black Pepper). The visit included a stop at Maa Podumoni Durga Mandir and an exploration of North Lakhimpur market, providing a socio-economic perspective of the region. Recreational time was spent at Podumoni Park, introducing students to landscape architecture concepts.

Sports and Physical Activities

Aerobics and fitness sessions, led by Dr. Sunny Arya, emphasized the importance of regular exercise.Athletic events at the Rajiv Gandhi Stadium, including sprints, shot put, discus throw, and volleyball, encouraged student participation and team spirit. Students were provided with nutritious refreshments to maintain energy during activities.

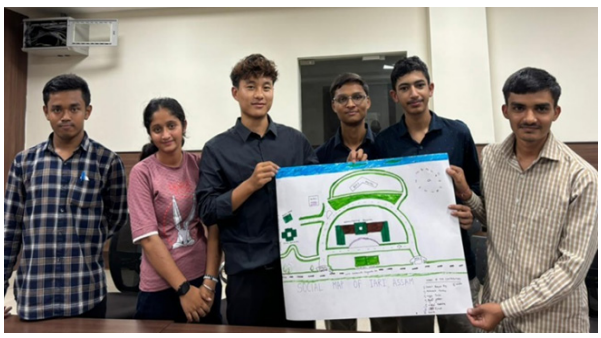
Team Building & Personality Development

Interactive games such as Human Knot, Obstacle Game, and Two Truths and a Lie encouraged collaboration and communication. Sessions on communication

and personality development were led by Mr. Umakant Dash, Dr. Bhagirath Das, Dr. Omprakash Naik, and Dr. Azhaguraja. Dr. A.K. Srivastava introduced the concept of an inclusive growth mindset. Evening volleyball matches helped strengthen bonds through friendly competition. Dr. A.K. Balange, Head, APF, delivered a session on Nutritious Food Habits and Health Maintenance. Dr. M.B. Chaudhary conducted a session on Food safety, covering food adulteration, hygiene, and safe handling practices.

Social Mapping and Agricultural Education

A social mapping exercise of IARI-Assam was led by Dr. Bhagirat Das, Dr. Umakanta Das, and Dr. Bornalee Handique, introducing students to visual tools for understanding institutional networks. Faculty addressed real-world challenges in livestock and poultry management, generating interactive discussions.



A comprehensive lecture on the National Education Policy (NEP) 2020 was delivered by Dr. Tamuli, emphasizing curriculum innovation and skill-based education.

Exposure Visit to KVK, Dhemaji

At KVK Dhemaji, students studied field-level cultivation practices of crops like sesame, mango, chilli, litchi, fodder grass,

and black gram. The visit was coordinated by Dr. Beneetha Konwar and Dr. Gunjan Gogoi at KVK Dhemaji, alongside Dr. Manivannan and Dr. Ansheef Ali.

Exposure Visit to Majuli

An exposure visit was organized for the students to Majuli, world's largest river island nestled in the mighty Brahmaputra River. Then the students exposed to the agricultural ecosystem and practices of the

river island and interacted with the local farmers (Sh. Nabin Borah Ji, Sh. Pradip Payeng Ji and Sh. Manik Rajkhowa Ji) who were cultivating Black gram. The visit was organized by Dr. S. Manivannan and Mr. Kishore Chandra Sahoo.

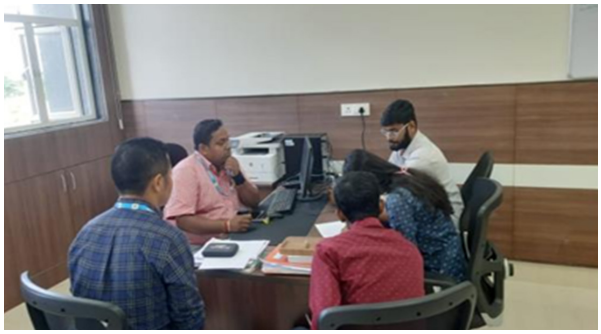
The Deeksharambh 2024 program successfully introduced students to the academic, cultural, and social environment of ICAR-IARI Assam. Through a series of thoughtfully designed sessions, field visits, and interactive events, the students began their academic journey with enthusiasm, awareness, and a strong foundation in agricultural education and community values.

POST GRADUATE STUDENT INDUCTION PROGRAMME "DEEKSHARAMBH"

(Batch 2024–25)

Duration: 22 - 28 October 2024

The Post Graduate Student Induction Programme, 'Deeksharambh', marked an inspiring beginning for the 2024–25 batch at ICAR-IARI, Assam Campus. The meticulously planned week-long programme was aimed at fostering academic, professional, and personal growth while introducing the students to the vibrant culture and ethos of IARI. The programme featured early morning aerobic and yoga sessions promoting health and well-being, followed by structured academic and orientation activities. Students were welcomed through interaction sessions with campus officials and coordinators, who familiarized them with academic expectations, campus rules, fellowships, and facilities. The programme was coordinated by Dr. Arpan Bhowmik and Dr. Alemwati Pongener.



Exposure visits during the deeksharambh programme played a major role in broadening students' horizons, including tours of IARI Assam Research Farm, KVK Dhemaji, NHPC Subansiri, and Majuli island. These visits offered valuable insights into agricultural research, rural life, sustainable practices, and hydroelectric power generation. Skill development was emphasized through lectures on research paper writing, academic integrity, and examination patterns. Students also actively participated in Swachh Bharat activities, instilling civic responsibility and community engagement.

The programme concluded with a session on career opportunities in Natural Resource Management, followed by a Valedictory Ceremony graced by the Dean, Prof. B.N. Hazarika, and other senior scientists. Vibrant cultural performances by students added joy to the closing celebrations.

Overall, the Deeksharambh Induction Programme successfully laid a strong foundation for the students' academic journey.

Courses Taught at IARI-Assam (UG)

Sl.No	Course Code	Course Title	Credit (T+P)	Course Leader	Course Associates
I Year BSc (Agri.) -I Semester (2024-25 Batch)					
1.	UTGS 101	Deeksharambh (Induction cum Foundation course)	2 Weeks Non-Gradial	Dr. S. Manivannan	All Faculties
2.	USEC-101	Skill Enhancement course-I* (Post harvest management & processing of fish and horticultural crops)	2 (0+2)	Dr. Alemwati Pongener	Dr. A.K. Balange Dr Deep Jyoti Barua Mr. Da U Ruhi Pde Dr. R Mythra
3.	USEC-102	Skill Enhancement course-II (Horticulture nursery, landscaping & application of IoT)	2 (0+2)	Dr. Akkalareddy Sumalatha	Dr. Alemwati Pongener Dr. Raghavendra
4.	UEXT 101	Communication Skills	2 (1+1)	Mr. Bhagirath Das	Dr. Azhaguraja M.
5.	UAGRON 101	Farming based livelihood systems	3 (2+1)	Dr Sunil Mandi	Dr. L. K. Baishya Dr. D. J Barua Dr R. Babu, Dr. Azhaguraja, Dr Manish Pandey
6.	UEXT 102	Rural Sociology and Educational Psychology	2 (2+0)	Mr. Bhagirath Das	Dr Omprakash Naik
7.	UAGRON 102	Fundamentals of Agronomy	3 (2+1)	Dr. L K Baishya	Dr Sunil Mandi
8.	USS 101	Fundamentals of Soil Science	3 (2+1)	Dr. Prabhat Pramanik	Dr A.K.Srivastava Mr. Umakanta Dash
9.	UHORT 101	Fundamentals of Horticulture	3 (2+1)	Mr. Raghavendra HR	Dr. Alemwati Pongener Dr. Ramavath Ramesh Babu Dr. Akkalareddy Sumalatha
10.	UAS 101	Introductory mathematics (need based)	1 (1+0) Non-Gradial	Dr. Arpan Bhowmik	Dr. Dibyendu Deb
11.	UEXT-104	NSS/NCC/Physical Education & Yoga Practices	2 (0+2)	Dr. Jamkhakai Mate	Dr Deep Jyoti Barua
I Year BSc (Agri.) -II Semester (2023-24 Batch)					
1.	UGPB102	Fundamentals of Genetics	3 (2+1)	Dr. KP Abhijith	Dr. Ansheef Ali, Dr. Azhaguraja M

2.	UMICRO 101	Agricultural Microbiology	2 (1+1)	Dr. Mythra	Akshay Kumar HM, Dr. Azhaguraja M
3.	UENGG 101	Soil and Water Conservation Engineering	2 (1+1)	Dr.S.Manivannan	Dr.D.K.Singh Mr. Sunny Arya Mr. Ravi Teja Machunaru
4.	UPP 102	Fundamentals of Crop Physiology	2 (1+1)	Dr. Ansheef Ali	Dr Abhijith KP
5.	UECON 101	Fundamentals of Agricultural Economics	2 (2+0)	Dr. Om Prakash Naik	-
6.	UPATH 101	Fundamentals of Plant Pathology	4 (3+1)	Sh. Akshay Kumar	Dr. Arun Kumar Singh Dr. Mythra
7.	UENT101	Fundamentals of Entomology	4 (3+1)	Sh. Kishore Chandra Sahoo	Dr. Ch. Jamkhokai Mate
8.	UEXT 106	Fundamentals of Agricultural Extension Education	3 (2+1)	Sh. Bhagirath Das	Dr. Om Prakash
9.	UEXT 105	Communication Skills and Personality Development	2 (1+1)	Sh. Bhagirath Das	Dr. Arpan Bhowmik Dr. Azhaguraja M
10.	UEXT 104 (II)	NSS / Physical Education / & Yoga Practices #	1 (0+1)	Dr Deep Jyoti Baruah	Dr Dibyendu Deb
II Year BSc (Agri.) –III Semester (2023-24 Batch)					
1.	UAGRON -103	Crop Production Technology - 1 (Kharif Crops)	2(1+1)	Dr. Lohit Kumar Baishya	Dr. Sunil Mandi
2.	UGPB - 103	Fundamentals of Plant Breeding	3 (2+1)	Dr. Rachit Saxena	Dr. Abhijith KP
3.	UECON -102	Agricultural Finance and Cooperation	3 (2+1)	Mr. Omprakash Naik N	Mr. Bhagirath Das
4.	UCA - 101	Agri- Informatics	2 (1+1)	Dr. Dibyendu Deb	Dr. Arpan Bhowmik
5.	UENGG-102	Farm Machinery and Power	2 (1+1)	Dr. S Manivannan	Dr. Palmei Gaibmei
6.	UHORT - 102	Production Technology for Vegetables and Spices	2 (1+1)	Dr. Ramavath Ramesh Babu	Mr. Raghavendra HR Dr. Akkalareddy Sumalatha Dr. Alemwati Pongener
7.	UES -101	Environmental Studies and Disaster Management	3(2+1)	Mr. Machanuru Raviteja	Dr. S Manivannan Mr. Sunny Arya Mr. Umakanta Dash

8.	UAS - 102	Statistical Methods	2 (1+1)	Dr. Arpan Bhowmik	Dr. Dibyendu Deb
9.	LPM - 101	Livestock and Poultry Management	4 (3+1)	Dr. Manish Pandey	Dr. Azhaguraja M Dr. Bornalee Handique Dr. M.B. Chaudhary Mr. Da U Ruhi Pde
II Year BSc (Agri.) -IV Semester (2022-23 Batch)					
1.	UAGRON104	Crop Production Technology –II (Rabi Crops)	2(1+1)	Dr. Sunil Mandi	Dr. Lohit K. Bhaishya
2.	UHORT103	Production Technology for Ornamental Crops, MAP and Landscaping	2(1+1)	Dr. A. Sumalatha	Dr. Alemwati Pongener Mr. Raghavendra H.R. Dr. R. Ramesh babu
3.	UENGG 103	Renewable Energy and Green Technology	2(1+1)	Dr. Palmei Gaibimei	Dr.S.Manivannan Mr. Manchanuru Raviteja Mr. Sunny Arya
4.	USS 102	Problematic Soils and their Management	2(2+0)	Dr. Prabhat Pramanik	Mr. Machanuru Raviteja Mr. Sunny Arya Mr. Umakanta Dash
5.	UHORT 104	Production Technology for Fruit and Plantation Crops	2(1+1)	Dr. Alemwati Pongener	Mr. Raghavendra H R Dr. Akkalareddy Sumalata Dr. R. Ramesh Babu
6.	USST 101	Principles of Seed Technology	2(1+2)	Dr.Ravi Bhushan	Dr Priyaranjan Dr. Abhijith K P
7.	UAGRON-105	Farming System & Sustainable Agriculture	2(1+0)	Dr. Lohit K. Bhaishya	Dr. Sunil Mandi
8.	UECON 103	Agricultural Marketing Trade & Prices	2(2+1)	Dr. Om Prakash Naik	Mr. Bhagirath Das
9.	UAP 101	Introductory Agro-meteorology & Climate Change	2(1+1)	Dr. Sunny Arya	Dr. Lohit K. Baishya Dr. Sunil Mandi Mr. Machanuru Raviteja
Elective Courses					
10.	UFST 102	Food safety and standards	3(2+1)	Dr. M.B. Chaudhary	Dr. Mythra Dr.Alemwati Pongener Dr. Azhaguraja Dr. Amjad K. Balange
11.	UAGRON-109	Weed Management	3(2+1)	Dr. Sunil Mandi	Dr. L.K. Baishya Dr. Ch J. Mate

12.	UMICRO 102	Biopesticides and Biofertilizer	3(2+1)	Mr. Akshay Kumar HM	Dr. Prabhat pramanik Dr. Mythra R Mr. Kishore C. Sahoo
13.	UHORT 105	Landscaping	3(2+1)	Dr. A. Sumalatha	_
14.	UEXT-104 (IV)	NSS / Physical Education & Yoga Practices	1(0+1)	Dr Deep Jyoti Baruah	Dr Dibyendu Deb
III Year BSc (Agri.) -V Semester (2022-23 Batch)					
1.	UPATH-103	Principles of Integrated Pest and Disease Management	3(2+1)	Mr. Akshay Kumar	Mr. Kishore Chandra Sahoo
2.	USS-102	Manures, Fertilizers and Soil Fertility Management	3 (2+1)	Dr. Prabhat Pramanik	Dr. A.K. Srivastava Dr. R Mythra Mr. Umakanta Dash
3.	UENT-102	Pests of Crops and Stored Grain and their Management	3 (2+1)	Mr. Kishore Chandra Sahoo	_
4.	UPATH-102	Diseases of Field and Horticultural Crops and their Management - I	3 (2+1)	Mr. Akshay Kumar	_
5.	UGPB-105	Crop Improvement-1 (Kharif Crops)	2 (1+1)	Dr. Abhijit KP	Dr. Rachit Saxena
6.	UEXT-107	Entrepreneurship Development and Business Communication	2 (1+1)	Dr. Omprakash Naik	Mr. Bhagirath Das
7.	UAP-102	Geoinformatics and Nano-technology and Precision Farming	2 (1+1)	Dr. Sunny Arya	Dr. Lohit Kumar Baishya Dr. Dibyendu Deb Mr. Machanuru Raviteja
8.	UAGRON-106	Practical Crop Production - 1 (Kharif crops)	2 (0+2)	Dr. Sunil Mandi	Dr. Lohit Kumar Baishya
9.	UCAI-102	Intellectual Property Rights	1(1+0)	Dr. Ravi Bhushan Prasad	Dr. Bornalee Handique Dr. M.B. Chaudhary
Elective Courses					
10	UAC-101	Agro-Chemicals	3 (2+1)	Dr. Jamkhakai Mate	Mr. Kishore Chandra Sahoo Mr. Akshay Kumar HM
11	UGPB-104	Commercial Plant Breeding	3 (1+2)	Dr. Abhijit KP	Dr. Rachit Saxena Dr. Ravi Bhushan Prasad
12	UAP-103	System Simulation and Agro-advisory	3(2+1)	Dr. Sunny Arya	Mr. Machanuru Raviteja

Courses Taught at IARI-Assam (PG)

Sl.No	Course Code	Course Title	Credit (T+P)	Course Leader	Course Associates
(Academic Year 2024-25, Semester I)					
Major Courses of Soil Science					
1	SOIL 501*	Soil Physics	2+1	Dr. Sunny Arya	Dr. S. Manivannan
2	SOIL 502*	Soil Fertility and Fertilizer Use	2+1	Dr. A.K. Srivastava	Dr. Umakanta Dash Dr. Mythra R.
3	SOIL 503*	Soil Chemistry	2+1	Dr. P. Pramanik	Dr.A.K.Srivastava Dr. Ch. Jamkhokai Mate
4	SOIL 504*	Soil Soil Mineralogy, Genesis and Classification	2+1	Dr.P.Pramanik	Dr.A.K.Srivastava Dr. Raviteja M.
Major Courses of Agronomy					
1	AGRON501*	Modern Concepts of Crop Production	2+1	Dr. L.K. Baishya	Dr. S. Mandi Dr. Sunny Arya Dr. Raviteja M Dr. Dinesh Kumar (IARI New Delhi)
2	AGRON503*	Principles and Practices of Weed Management	2+0	Dr. S.Mandi	Dr.L.K.Baishya Dr. Ch. Jamkhokai Mate Dr. Kapila Shekhawat (IARI New Delhi)
3	AGRON506	Agronomy of Major Cereals and Pulses	2+1	Dr. S. Mandi	Dr. L. K. Baishya Dr. Ravi Bhusan
4	AGRON 511	Cropping System and Sustainable Agriculture	2+1	Dr.L.K.Baishya	Dr. S. Mandi Dr. Umakant Dash Dr. Dibyendu Deb
Supporting Course(s)					
1	STAT 502	Statistical Methods for Applied Sciences	3+1	Dr. Arpan Bhowmik	Dr.Dibyendu Deb
Common Course(s)					
1	PGS 502	Technical Writing and Communication Skill	0+1	Dr.A.K.Balange	Dr. Bhagirath Das Dr. A.K. Srivastava Dr. R. Saxena
2	PGS 503	Intellectual Property and its management in Agriculture	1+0	Dr. R. Saxena	Dr. Ravi Bhusan Dr. Manish Pandey Dr. Bornalee Handique

3	PGS 504	Basic Concepts in Laboratories	0+1	Dr. Alemwati Pongener	Dr. Ansheef Ali Dr. Mythra R Mr. Kishore C. Sahoo Dr. Akshay Kr. HM Dr. Da U Ruhi Pde Dr. Bornalee Handique Dr. Abhijith K P

Courses Taught at IARI-New Delhi

Sl.No	Course Code	Course Title	Credit (T+P)	Course Leader	Course Associates
(Academic Year 2023-24, Semester I)					
1	EXT602-2021 (PG Course)	Methodologies for Social and Behavioural Sciences	2+1	Dr. Sitaram Bishnoi	Dr. R. N. Padaria, Dr. Sujit Sarkar, and Dr. Arpan Bhowmik
2	LPM - 101	Livestock and Poultry Management	4 (3+1)	Dr. Manish Pandey	Dr. Azhaguraja M Dr. Bornalee Handique

Courses Taught at IARI-Jharkhand (UG)

Sl.No	Course Code	Course Title	Credit (T+P)	Course Leader	Course Associates
Academic Year 2024-25 (III Year, V Semester)					
1.	UENT 102	Pests of Crops and Stored Grain and their Management	3 (2+1)	Dr Niranjan Kumar	Dr Arunkumara CG, (CRURRS, Hazaribagh) Dr Shannon N Sangma Mr Kishore Chandra Sahoo (ICAR-IARI Assam)
2.	UPATH-103	Principles of Integrated Pest and Disease Management	2 (0+2)	Dr Niranjan Kumar	Asharani Patel, Arunkumara CG (CRURRS), Shannon N Sangma, Kishore Chandra Sahoo (IARI Assam), Someshwar Bhagat (CRURRS)
Academic Year 2023-24 (I Year, I Semester)					
1	UHORT-101	Fundamentals of Horticulture	2(1+1)	Vishal Nath	Krishna Prakash, Narendra Singh, Alemwati Pongener

2	UBIOCHEM 101	Fundamentals of Plant Biochemistry and Biotechnology	3(2+1)	Sougata Bhattacharjee	Ansheef Ali T P (IARI, Assam), Asha Kumari, Nuzaiba P M
3	USS-101	Fundamentals of Soil Science	3(2+1)	Manoj Choudhary	Preeti Singh, A. K. Srivastava (IARI, Assam), Bibhash Chandra Verma (CRURRS, Hazaribagh), Himani Priya
4	UAGRON 102	Introduction to Forestry	2(1+1)	Dipak Kumar Gupta	Umakanta Dash (IARI, Assam), Narendra Singh
5	UAGRON 101	Fundamentals of Agronomy	4(3+1)	Kashinath G Teli	Sunil Mandi (IARI, Assam), Soumya Saha (CRURRS, Hazaribagh), A. K. Srivastava (IARI, Assam), Lohit K. Baishya (IARI, Assam)
6	UAS-101	Elementary Mathematics*	2(2+0)	B N Mandal	Arpan Bhowmik (IARI, Assam)
7	UEXT-101	Rural Sociology and Educational Psychology	2(2+0)	Pankaj Kumar Sinha	Bhagirath Das (IARI, Assam)
Academic Year 2023-24 (I Year, II Semester)					
1.	UENT-101	Fundamentals of Entomology	4 (3+1)	Dr Niranjan Kumar	Dr Arunkumara CG, (CRURRS, Hazaribagh) Dr Shannon N Sangma Dr Jaipal Singh Choudhary (ICAR RCER, Ranchi) Mr Kishore Chandra Sahoo (ICAR-IARI Assam)
Academic Year 2023-24 (II Year, III Semester)					
1	UAGRON -103	Crop Production Technology - 1 (Kharif Crops)	2(1+1)	Kashinath Teli	Dr. Sunil Mandi (IARI-Assam) Soumya Saha (CRURRS, Hazaribagh) Dr. Lohit Kumar Baishya (IARI-Assam)

2	UCA - 101	Agri- Informatics	2 (1+1)	Sougata Bhatacharjee	Dr. Dibyendu Deb (IARI-Assam) Pankaj Kumar Sinha
3	UENGG-102	Farm Machinery and Power	2 (1+1)	Dr. S Manivannan (IARI-Assam)	Santhosh S. Mali (RCER, Ranchi) Dillip Kumar Kushawaha (IARI-New Delhi) Rouf Ahmed Parray (IARI-New Delhi)
4	UHORT - 102	Production Technology for Vegetables and Spices	2 (1+1)	Krisha Prakash	Saheb Pal Dr. Ramavath Ramesh Babu
Academic Year 2024-25 (I Year, I Semester)-M.Sc. (Ag.)					
1	VSC-501	Production Technology of Cool Season Vegetable Crops	2+1	Dr. Saheb Pal	Dr. Ramavath Ramesh Babu
2	VSC - 510	Systematics of Vegetable Crops	2+1	Dr. Krishna Prakash	Dr. Ramavath Ramesh Babu
Academic Year 2023-24 (I Year, II Semester)-M.Sc. (Ag.)					
3	VSC-502	Production Technology of Warm-Season Vegetable Crops	2+1	Dr. Saheb Pal	Dr. Ramavath Ramesh Babu
4	VSC-503	Growth and Development of Vegetable Crops	2+1	Dr. Krishna Prakash	Dr. Ramavath Ramesh Babu

Courses Taught at College of Agriculture Central Agricultural University, Pasighat

Sl.No	Course Code	Course Title	Credit (T+P)	Course Leader	Course Associates
(Academic Year 2023-24, Semester I)					
1	DBS (STAT): 232 (UG Course)	Statistical Methods	2+1	Dr. Arpan Bhowmik (as Guest Faculty)	
2	STAT-502	Statistical Methods for Applied/Social Sciences	3+1	Dr. Arpan Bhowmik (as Guest Faculty)	

Research Guidance as Chairperson of Advisory committee

Following students have completed their Master and Doctorate degree under the guidance of scientists from IARI Assam as Chairperson of advisory committee.

Name of student	Title of thesis	Date awarded	Chairperson, Aadvisory committee
Tripti Pal M.Sc [M.Sc. (Soil Science), Roll No: 50091]	Identification of response-based nutrient deficiencies in Assam lemon grown on acid soil	23 September, 2024	Dr. A. K. Srivastava
R. Sneha M.Sc [M.Sc. (Soil Science), Roll No: 50093]	Development of soil fertility and leaf nutrient standards in relation to optimum fruit yield of Assam lemon	25 September, 2024	Dr. A. K. Srivastava
Bijoy Chanda [Ph.D. (Agricultural Statistics), Roll No: 11712	A Study on Efficient Equivalent-Estimation Split-Plot Designs Through Algorithmic Intervention	01 October, 2024	Dr. Arpan Bhowmik
Lekshmi S [Ph.D. Post Harvest Technology, CIFE Mumbai	Development of seaweed fortified Fish products with enhanced Nutritional quality and stability	03 May, 2024	Dr. A. K. Balange

Exposure Visits Organized for Students

On 17.08.2024, a visit was organized to KVK, North Lakhimpur for the UG students (2022-26 batch) to enhance their practical knowledge of agriculture and allied sciences.

The visit included interactive sessions with experts, demonstrations of integrated farming systems, various meteorological instruments and exposure to different crop fields and ongoing research. The visit provided valuable insights into real-world agricultural practices and proved to be very enlightening for the students. The visit was organized by Dr. Alemwati Pongener, Dr. Arpan Bhowmik and Dr. Sunny Arya.

On 22.10.2024, a Visit was organized to for the 3rd year UG students to pesticide

retailer in Gogamukh (under Agro-chemicals elective course) to expose the students about different insecticides, fungicides, fertilizers and other agricultural inputs that are commonly available in market. The visit was organized by Dr. Ch. Jamkhokai Mate and Mr. Kishore Chandra Sahoo.

On 25.10.2024, a Field Visit of third year students was organized to a farmers' rice field near Dirpai Chapori, for practical exposure to various insect pests, diseases

and the common rice cultivars used by the farmers in the locality. The visit was organized by Dr. Abhijith KP, Mr. Kishore Chandra Sahoo and Mr. Akshay Kumar HM.

On 20.12.2024, an exposure visit was organized for the UG students (2023-27 Batch) to KVK, North Lakhimpur. During the visit, interactions with scientists and staff revealed the KVK's focus on on-farm trials to assess location-specific technology. Students were shown various farm equipment related to various farm practice,

different varieties of rice, fodder crops, leguminous crops, livestock animals and various methods of making vermicompost. The visit highlighted the KVK's commitment to improving the agricultural economy of the district through practical knowledge sharing and technology application. The visit was organized by Dr. S. Manivannan, Dr. Manish Pandey, Dr. Azhaguraja M and Dr. Bornalee Handique.

CAPACITY BUILDING & OUTREACH 5

CAPACITY BUILDING PROGRAMMES ORGANIZED

Vaccination, awareness, de-worming and health camp for pigs

An awareness program on Vaccination, De-worming and Health Camp for pig farmers from 18-19th March, 2024 was organized. Resource persons: Dr. Anil Kumar Pegu, Veterinary Officer, Gogamukh, Assam and Dr. Raktim Saikia, Veterinary Officer, Dhemaji, Assam coordinated the health camp at Dirpai Chapori on 19th March 2024.

Around 30 pigs were vaccinated against the classical swine fever and farmers were provided with medicine kits. All the farmers were distributed with certificate of participation on the valedictory session. About 30 farmers from nearby villages have participated in the programme. Dr. Amjad K. Balange, HoD (APF) was the course Director and Dr. Manish Pandey, Dr. Azhaguraja, Dr. Bornalee Handique, Dr. M.B.Chaudhary, Mr. Da U Ruhi Pde and Dr. Deepjyoti Baruah were the Coordinators for the programme.

Aquarium fabrication & ornamental fish keeping for entrepreneurship development

A 3-days skill-oriented training programme on "Aquarium fabrication & ornamental fish keeping for entrepreneurship development" was organized at ICAR-IARI Assam during 3-5th April 2024 under the aegis of ICAR-CIFE, Mumbai. The programme was participated by 25 unemployed rural youth of the region and 2 faculty members of nearby Gogamukh college. Shri Lakhinath Lagachu and Ms. Sheetala Chintey, DFDO & FDO of Department of Fisheries, Govt. of Assam, Dhemaji district graced the occasion as the Chief Guest and Guest of Honour in the

inaugural session.

The training included scientific talks and practical demonstrations on techniques of glass aquarium fabrication, aquarium decorations, ornamental fish keeping, management of water quality, fish feeding, fish health and marketing. Dr. Manmeet Singh, GM (Environment), NHPC Ltd. and Mr. Raushan Kumar, DM (Fisheries), NHPC Ltd. graced the valedictory function as the Chief Guest and Guest of Honour, respectively. The programme was coordinated by Dr. Deepjyoti Baruah, Principal Scientist (Aquaculture) and Dr. AK Balange, HoD, APF, along with Mr. Da U Ruhi Pde, Mr. Arunjyoti Baruah and Dr. M B Choudhury.

Capacity Building of UG Students of Assam Agricultural University through training in Data Analytics

A three days training on Basic Statistics for Data Analysis in Agriculture for UG students of Assam Agricultural University was organized from 25-27th April, 2024. The training was jointly organized by KVK, Lakhimpur and IARI Assam.

The participants were exposed to a wide range of topics including descriptive statistics, graphical measure, correlation, regression, testing of hypothesis, survey approach and exposure to software. The training was coordinated by Dr. Prasanta Kumar Pathak & Dr. Jyothsna Das of KVK, Lakhimpur; and Dr. Lohit Kumar Baishya, Dr. Arpan Bhowmik, Dr. Dibyendu Deb & Dr. Bhagirath Das from IARI Assam. Around 30 students participated in the training.

Training programme on promotion of Fishery, Piggery and Agriculture in collaboration with FPO

A training programme was organized on 30th April, 2024, for the farmers of Mingmang village, Dhemaji on Promotion of Fishery, Piggery and Agriculture at

Mingmang Kathalguri Rongomoncho The programme was organized by Subansiri producer cum marketing organization (FPO) in collaboration with ICAR-IARI, Assam and District Fishery Department. Around 50 farmers participated in the program including a majority of women farmers. The following scientists from IARI-Assam coordinated the programme: Dr. Arpan Bhowmik, Dr. Sunil Mandi and Dr. Prabhat Pramanik.

Capacity building through skill development and entrepreneurship in dairy sector

ICAR-IARI, Assam organized a training program on "Skill Development & Entrepreneurship in Manufacturing of

Value-Added Milk Products" from May 30-31st, 2024. About 20 farmers from Dhemaji and North Lakimpur districts participated in the programme. The Joint Director (Research), ICAR-IARI, New Delhi, Dr. C. Viswanathan graced the programme as chief guest. He emphasized on entrepreneurship development through manufacturing quality milk and milk products. The chief guest also released a training manual for the participants on the occasion. Ms. Banashree Hazarika a female entrepreneur in dairy sector had shared her experiences in the dairy business. Various methods of value addition in dairy products were highlighted to the participants.

A demonstration on the manufacturing of dairy products such as khoa, paneer, peda, and rasogolla was also carried out. Opportunities in entrepreneurship development through dairy and food businesses were highlighted along with some important breeds of cattle and buffaloes for milk production. Aspects on proper feeding and nutrition for dairy animals, and clean milk production were discussed. Dr. Amjad K Balange was the course director and Dr. M. B. Choudhary, Dr. Azhaguraja M & Dr. Bornalee Handique coordinated the programme.

Capacity Building through Fish Processing and Value Addition

ICAR-IARI, Assam, in collaboration with the National Fisheries Development Board (NFDB), Northeast Regional Centre, Guwahati organized a one-day hands-on training programme on "Fish Processing and Value Addition" on 31st July 2024.

A total of 50 SHG women from Dhemaji District participated in the training. Mr. Ashim Kumar Borah, Senior Executive (Technical), NFDB, NER Centre, Guwahati, provided a brief overview of the training programme and its objectives. The scope of fish preservation and value addition for employment opportunities and revenue generation was highlighted along with the role of fish in human health. Through hands-on training, participants learned the skills of preparing and manufacturing fish value-added products like Fish Pickles, Fish Cutlets, Fish Sev, etc. scientifically and hygienically, followed by a demonstration

on product packaging and labelling. The programme was coordinated by Dr. AK Balange, HoD, APF.

Skill oriented training programme under NEH component of CIFT

A 2-days skill development training program (under NEH) was jointly conducted by ICAR-IARI, Assam and ICAR-CIFT, Cochin on "Hygienic handling, fish product development and quality assurance" during

19-20 August 2024 at ICAR-IARI Assam, Dirpai Chapori, Gogamukh, Dhemaji district. Altogether, 40 numbers of participants of the region were benefited from the programme. The farmers witnessed the demonstration on hygienic handling of the harvested fish from aquatic resources, detection of formalin in the long distant transported fishes and preparation of several value-added fish products viz., fish pickles, fish cullet, fish balls, fish chutney, fish chakli etc. Hygienic sealing and packaging of the value-added fish products were equally demonstrated. The programme was coordinated by Dr. A.K. Blange, Dr. Deepjyoti Baruah (ICAR-IARI Assam) and Dr. Martin Xavier (ICAR-CIFT Cochin).

Skill Development training programme on 'Horticulture, Soil Organic and Organic Pesticide

IARI Assam in collaboration with the Mising Autonomous Council (MAC) and KVK Dhemaji have participated in organization of a Skill Development training programme

on 'Horticulture, Soil Organic and Organic Pesticide' on 29 August 2024. Approximately 30 Farmers attended the programme. Dr. L. K. Baishya, Campus in-charge & Head (NRM) and Dr. Alemwati Pongener, Scientist, IARI-Assam; Mr. Deboranjan Morang (from MAC); Dr. Bineeta and Dr. Abhilashsa (from KVK, Dhemaji) coordinated the programme.

Capacity building through the promotion of IFS

ICAR-IARI, Assam organized a 9-day training program on "Enhancing Farm Profitability through Scientific Management of IFS and Secondary Agriculture." The program has been organized in three phases, targeting farmers from different locations: Phase I: 18-20 September 2024, Phase II: 24-26 September 2024, and Phase III: 3-5 October 2024. Led by IARI-Assam scientists, the initiative aims to evaluate and improve existing farming practices through scientific interventions, focusing on increasing productivity and profitability for farmers in Dhemaji and Lakhimpur districts. Around 100 farmers have been benefitted through this training.

The second phase primarily benefited farmers from the Boginadi block of North Lakhimpur, with approximately 52 participants engaged in the training. The program was inaugurated by Shri Ghanshyam

Dutta, Sub-Divisional Officer of Narayanpur, North Lakhimpur, who expressed his commitment to promoting scientific IFS models through a farmer-participatory approach in the Lakhimpur district. Experts from various disciplines provided valuable lectures covering topics such as soil nutrient management, rice cultivation, horticulture, and animal husbandry, as well as fishery-based IFS practices. Additionally, the training included secondary agriculture practices like mushroom cultivation, beekeeping, floriculture, post-harvest management, and energy gardening. The valedictory session was addressed by Ms. Bhagyashree Deka, Block Development Officer of Boginadi, who also participated in the distribution of essential inputs and training manuals to the

farmers.

The organizing team for the programme consisted of Course Director: Dr. Lohit Kumar Baishya; Convenor: Dr. A. K. Balange, Dr. Deepjyoti Baruah and Dr. Prabhat Pramanik; Organizing Secretary: Dr. Sunil Mandi, Dr. Arpan Bhowmik and Dr. Dibyendu Deb; Course Coordinator: Mr. Bhagirath Das, Mr. Omprakash N. and Mr. Umakanta Dash.

Capacity Building of CISF personnel

One-day training programme on Apiculture and Horticulture was conducted for the personnel of Central Industrial Security Force (CISF) at ICAR-IARI Assam on 3rd October 2023. The training aimed at enhancing the knowledge and skills of the CISF personnels in commercial fruit growing and bee-keeping, a new addition to their activity in respective units. Altogether, 22 jawans of CISF Unit, Lilabari Airport led by Mr. Lelet, Asst. Commandant took part in the training. The jawans took a keen interest in the knowledge-sharing on scientific and commercial bee-keeping and good horticultural practices in fruit crops. The scientists of the institute also imparted practical know-how on growing flowers and landscape design.

A similar awareness programme on bee-keeping and horticulture was also conducted later in the evening at CISF Unit, NHPC, Subansiri where the scientists of the

institute (Dr, Alemwati Pongener and Mr. Kishore Chandra Sahoo) delivered lectures and interacted with 40 jawans led by Sh, Mritunjay Pandey, Deputy Commandant. The scientists also inspected the plantations and apiary unit at the site and suggested measures going forward. The training programme brought about a much-needed synergy between academia and security forces, who agreed to extend further cooperation to take the matter forward. The training programme was directed by Dr. Lohit K Baishya, Campus In- Charge, and

Coordinated by Dr. Alemwati Pongener, Mr. Kishore Chandra Sahoo, Dr. Akkalareddy Sumalatha, Dr. Umakanta Dash, and Dr. Ch. Jamkhokai Mate.

Capacity building Workshop on Climate Action for Dhemaji District

A Capacity building Workshop on Climate Action for Dhemaji District was organized at Eco camp, Dhemaji, Assam on 29th August 2024 by KVK, North Lakhimpur in collaboration with IARI Assam. A total of 30 farmers & stakeholders participated in the programme. The programme was coordinated by Deepjyoti Baruah (IARI Assam).

Training on e-office operations for the staffs of IARI Assam

One day training programme on the regular operations of e-office was organized at the conference room of IARI, Assam on 06th February, 2024. All the scientific staffs of the institute attended the programme. The programme was coordinated by Saroj Singh, CAO. IARI-Assam; Dr. Arpan Bhowmik and Dr. Sunil Mandi.

Orientation training of newly joined technicians

An orientation training was organized for the five newly joined Technicians (T1) at IARI-Assam from 05th August to 04th September in order to acquaint them with the functions, organisation structure, Mandates and activities of the institute. Scientists from

different disciplines were involved to brief the newly joined technical staffs about different research and extension aspects of the institute. The programme was organized by Dr. Lohit Kumar Baishya, Scientist In-Charge & Head (NRM) and Coordinated by Dr. Amjad K Balange, Dr. Arpan Bhowmik and Dr. Sunil Mandi.

PARTICIPATION IN TRAININGS/WORKSHOPS

S. No.	Name	Title	Organizer	Duration
International				
1	Abhijith K P	Fundamentals of Genomic Predictions and Data-Driven Crop Breeding Training Course	International Rice Research Institute (IRRI), Hyderabad	18.11.2024 to 22.11.2024 (5 Days)
National				
2	Amjad Khansaheb Balange	Hands on Training on DNA sequencing using Torent NGS Platform and Data Analysis	ICAR- Central Institute of Fisheries Education (CIFE), Mumbai	22.01.2024 to 31.01.2024 (10 Days)
3	Dibyendu Deb	4th Pedagogy Development Programme on "Enhancing Pedagogical Competencies for Agricultural Education	National Academy of Agricultural Sciences, New Delhi	29.01.2024 to 02.02.2024 (5 Days)
4	Alemwati Pongener			
5	Akshay Kumar H M	6th Pedagogy Development Programme on "Enhancing Pedagogical Competencies for Agricultural Education"	National Academy of Agricultural Sciences, New Delhi	01.04.2024 to 05.04.2024 (5 Days)
6	Om Prakash Naik			
7	Ramavath Ramesh Babu			
8	Sunny Arya			
9	Palmei Gaibimei	Online training program on Recent Advances in processing of non-bovine milk and milk by products	ICAR-NRC on Camel and National Institute of Agricultural Extension Management (MANAGE), Hyderabad *Online mode	14.05.2024 to 17.05.2024 (4 Days)
	Bornalee Handique			
10	Kishore Chandra Sahoo	Workshop on "Advanced Microscopy in Biological Sciences"	ICAR - Indian Institute of Millets Research, Hyderabad *Online mode	11.07.2024 to 12.07.2024
11	Da u Ruhi Pde	National Training on "Developing Sustainable Feed Ingredients for Fish Nutrition and Climate Resilient Aquaculture"	National Institute of Agricultural Extension Management MANAGE, Hyderabad *Online mode	26.07.2024 to 28.07.2024 (3 Days)
12	Chandan Maji	Orientation training programme of Technical Staff (T1)	ICAR-IARI, Assam	05.08.2024 to 04.09.2024 (31 Days)
13	Dipanjan Panda			
14	Kishan Singha Ray			
15	Sushant Kumar			
16	Sanjay Kumar			
17	Sunny Arya	Decarbonizing Agriculture and Climate smart approaches for future sustainable farming	Centre for Research in Environment and Agriculture (CREA) and National Institute of Agricultural Extension Management (MANAGE) *Online mode	12.08.2024 to 14.08.2024 (3 Days)
18	Azhaguraja M	Online training program on Sustainable Chicken Processing and Value Addition: From Farm to Fork	KVASU, Mannuthy and MANAGE, Hyderabad *Online mode	07.10.2024 to 10.10.2024 (4 Days)

OUTREACH ACTIVITIES

Field Day at IARI Assam Research Farm

Keeping the importance of nutritional value of millet crop in mind, on 13th June, 2024, two field days cum training programmes for farmers were organized by IARI Assam at IARI Assam research farm on "Nursery raising techniques in Finger Millet" and "Good Management practices in Foxtail millet". These field days cum training programme were planned to promote Millet crop in north east region for nutritional security and diversified livelihood.

Around 30 farmers under Subansiri FPO, Gogamukh participated in the program including 17 female farmers participated in the program. A detail discussion on how nursery beds can be raised for finger millet and how to do transplanting operation, what are the agronomic practices required for finger millet and fox tail millet, their nutritional value, their market opportunities etc. have been discussed thoroughly. The program was coordinated by Dr. Lohit Kumar Baishya, Head (NRM) and I/C IARI Assam, Dr. Sunil Mandi, Scientist, Dr. Arpan Bhowmik, Senior Scientist, Dr. Dibyendu Deb, Senior Scientist, Dr. Bhagirath Das, Scientist and Dr. Omprakash Naik, Scientist. From Subansiri FPO, Mr. Sidananda Pegu also expressed his satisfaction for this programme. IARI Assam team also ensured Subansiri FPO for all kind of support and collaboration for the betterment of farming community.

Farmers-Scientist interaction

On 11th June, 2024 a team of scientists (Dr. Alemwati Pongener, Dr. Ramesh Babu, Dr. Dibyendu Deb and Dr. Arpan Bhowmik) from IARI Assam visited Vishnujyoti Krishi Farm at Sripani, Dhemaji, Assam for having and interaction with a renowned progressive farmer, Mr. Devajit Changmai. Mr. Devajit is recipient of many state and national level awards for his farming activities. He is doing

a great job in the farming sector and now initiated polyhouse-based farming specially "King chilli" (Bhut Jolokia in Assamese) which is having huge market demand in these regions. Mr. Devajit informed that he is getting good profit from polyhouse-based farming specially for king chilli and thanked KVK, Dhemaji and IARI, Assam for their valuable guidance. The team of Scientists

interacted with Mr. Devajit and extended scientific advisories for enhancing profitability through advanced practices in polyhouse-based agriculture.

Exposure visit cum field day for newly joined Technicians and UG students

On 17th August 2024, an exposure visit cum field day was organized for the newly joined Technicians (T1) of IARI Assam along with the B.Sc. (Agriculture) students, where they were exposed to Integrated Farming System models in KVK, Lakhimpur and the weather station at ZRS-AAU, Lakhimpur. The programme was coordinated by Dr. Lohit Kumar Baishya, Campus In-charge, Dr. Arpan Bhowmik, Dr. Alemwati Pongener, Dr. Sunny Arya and Dr. Sunil Mandi.

IARI Assam Participates in 9th Mising Youth Festival

IARI Assam actively participated in the 9th Mising Youth Festival during February 5-8, 2024 at Kareng Chapori, Dhemaji. Different agricultural technologies through posters and leaflets were showcased in the stall of IARI Assam. Different value added products developed by IARI Assam were displayed. Many farmers visited the stall. Dr. Deepjyoti Barua, Dr. Ch. Jamkhokai Mate, Dr. Arpan Bhowmik, Dr. Sunil Mandi, Dr. Azhaguraja M., Mr. Jitender Singh Gaite, Dr. M. B. Chaudhary, Mr. Umakanta Dash, Dr.

Ravi Bhushan Prasad, Dr. Manish Pandey, Dr. Abhijit K. P. and Mr. Raghavendra H. R. coordinated and participated in the festival.

Field Visits

On 9th February, 2024 a complete dissection of some remote villages near Gogamukh (mingmang, garpara, krishnapur, Santhalpur, Naogaon Santhalpur villages) have been carried out by a team of scientists from IARI Assam including Dr. Sunil Mandi, Dr. Dr. Ch. Jamkhokai Mate and Dr. Arpan

Bhowmik for getting idea about initiating possible Integrated Farming System models in farmers field for sustainable income generation specially for small and marginal farmers.

On 17th March, 2024 Dr. Arpan Bhowmik visited Narayanpur village of

North Lakhimpur district. During the visit interaction were taken places with a group of women farmers. How women farmers can diversify their agricultural livelihoods that has been discussed during the visit.

On 7th April, Dr. Arpan Bhowmik participated in an interaction meeting with farmers organized at Nowboicha village, North Lakhimpur. Different issues like

harmful effects of chemicals in soil, use of organic matter for improvement of soil health, livelihood diversification strategies for income generation etc. were discussed during the interaction with the farmers.

On 20th April, a visit of a poultry farm of Mr. Arup Borah was made by Dr. Arpan Bhowmik at Changmaigaon village of North Lakhimpur. A detailed discussion was taken

place during the visit in order to understand how Mr. Borah is getting benefitted from his poultry based diversification. Mr. Boarh is earning a handsome income from poultry farming.

On 12th July, 2024 Dr. Arpan Bhowmik participated in the field day cum visit, interaction with farmers under SHG and input distribution programme

organized by Shroddha FPC under Chowdhurihat gram panchayat at Dinhata-II Block, Dinhata, Coochbehar, West Bengal. During the interaction, farmers were made aware about the scope, opportunities and health benefit of millet and its marketable potentiality through value addition for sustainable income generation. During the interaction along with finger millet seeds, CRIJAF Sona powder were also distributed to some selected farmers for their benefits.

On December 3, 2025 Dr. Arpan Bhowmik participated in an interaction meeting with the Board of Members of

the Farmer Producer Organization (FPO) supported under NABARD. Paschim Telahi GP, Telahi Block , Lakhimpur along with Mr. Amlan J Tamuli ji, DDM NABARD. Members of the FPO were made aware about the activities of FPO and different schemes for the benefit of farmer members of FPO.

RESOURCE PERSON IN TRAINING

Scientist	Name of the Institute where served as resource person	Name of the Training/Workshop Programme	Title of the Talk	Date
Dr. Alemwati Pongener	ICAR-NRC on Litchi, Muzaffarpur	8th Entrepreneurship Development Programme on Microprocessing of Value-added products from litchi (Online)	Microprocessing of litchi	18-21st June 2024
			Protocols for Processing of litchi beverages	18-21st June 2024
		MANAGE-sponsored training programme 'Extension for Horticulture Technologies'(Online)	Innovative Post Harvest Practices in Fruit crops	24-26th July 2024
		BAMETI-sponsored training programme(Online)	Value Addition and Processing in litchi	22-24th August 2024
	Mising Autonomous Council, Subansiri Eco-camp	Skill Development Training Programme on 'Horticulture, Soil Organic and Organic Pesticide'	Prospects of Processing and Value-addition of horticultural crops	29th August 2024
	KVK Lakhimpur	Training programme for Agricultural Input Dealers of Assam	Fertilizer Control Order	19th September 2024
			Nursery Seed Raising	
			Entrepreneurship in micro-processing of horticultural crops	
	NHPC Subansiri and Lilabari Airport	One day training programme on Apiculture and Horticulture for personnel of CISF Unit Lilabari Airport and NHPC Subansiri	Good Horticultural Practices for Fruit Production	3rd October 2024
Kishore Chandra Sahoo	NHPC Subansiri and Lilabari Airport	One day training programme on Apiculture and Horticulture for personnel of CISF Unit Lilabari Airport and NHPC Subansiri	Introduction to Apiculture	3rd October 2024
	Sri Padmavati Women's University, Tirupati, Andhra Pradesh	Two day workshop on "Hands-on Greenhouse Technologies and Biocontrol Measures"	Methods of Collection and Preservation of Insect Predators and Parasitoids	10th November 2023
Saroj Kumar Singh	NERIWALM Tezpur	Vigilance Awareness Celebration	Lecture on Conduct Rule	25th October 2024
			Ethics and governance	
	NAARM Hyderabad	Foundation Training Course of Newly Recruited AO & FAO	RTI Act 2005 & Grievance Redressal Mechanism in ICAR	10th April 2024
			Hands-on Training on ICT Tools (CPGRAMS and RTI MIS)	
			Hands-on Training on ICT Tools (GeM & CPPP)	
Dr S Manivannan	KVK Lakhimpur	Training programme for Agricultural Input Dealers of Assam		

Dr Abhijith K P	Sir Sitaram & Lady Shantabai Patkar - Varde College, Goregaon (W), Mumbai.	Rusa Sponsored National webinar - BIOFACET	Sustainable Agriculture through Plant Breeding	3rd February 2024
Dr. Arpan Bhowmik	Lakhimpur Telahi Kamalabaria (LTK) College, Azad, North Lakhimpur	Special Interactive Session on Entrepreneurship under Institution Innovation Council, DBT- NER Institutional Biotech Hub and Science Forum of LTK college, Azad, North Lakhimpur, Assam	Livelihood diversification and Entrepreneurship	19th February, 2024
	Uttar Banga Krishi Viswa Vidyalaya (UBKVV), Pundibari, Cooch Behar, West Bengal	ICAR sponsored short course on "Advanced Statistical and Machine Learning Technique for Analysis of Agricultural Research data	SPSS: An overview	28th February, 2024
			Product-process optimization in Agricultural Experiments	28th February, 2024
	KVK, Lakhipur, Assam	Training on Basic Statistics for Data Analysis in Agriculture for UG Students	Correlation	25th April, 2024
			Testing Of Hypothesis	26th April, 2024
			MS Excel-Statistical Procedure	26th April, 2024
	Mingmang village, Dhemaji	one day training programme for farmers of Mingmang village, Dhemaji on promotion of Fishery, Piggery and Agriculture	Livelihood diversification strategies in Agriculture and Entrepreneurship Development	30th April, 2024
	Assam Agricultural University, Assam	National Statistics Day	Product process optimization in agricultural experiments	29th June, 2024
	Kerala Agricultural University	online training programme titled "Design and Analysis of Agricultural Experiments,	Data Transformation	30th July, 2024
	Centre for e-Learning, Kerala Agricultural University	Training programme on 'Advanced Data Analysis Using R'	Probit and Logistic Regression	12th November, 2024
			Data Classification and Data Reduction Techniques	14th November, 2024
	Students for development Assam region	world soil day programme	Important concerns about soil health	5th December, 2024
Dr. Amjad K Balange	Fisheries Department, Changlang District, Arunachal Pradesh	Matsya Sampada jagrukta Abhiyan		12th July 2024
	Kalawangpo Convention Hall, Tawang, Arunachal Pradesh	Kisan Mela and Kisan Gosthi		27th November 2024
	College of Fisheries Science, Lembuchera, Tripura		Fish waste utilization and fish By-products preparation	4th Dec 2024

Dr. Sunil Mandi	KVK North Lakhimpur	Training programme for Agricultural Input Dealers of Assam	Types of herbicides and their use	13th September 2024
			Herbicide calculation	
			Good Agricultural Practices, Harfull effcet of indiscriminate use of agricultural inputs, banned pesticides	
Dr. Prabhat Pramanik	Mingmang village, Dhemaji	One day trianing programme for farmers of Mingmang village, Dhemaji on promotion of fishery, piggery and Agriculture	Sustaining Soil Health through Indigenous Resource Management	30th April 2024
	Borchapori village, Ghunasuti Gaon Panchayat	Trainig-cum-Awareness Programme on Maize Cultivation	Soil Management for Maize Cultivation in Assam	7th May 2024
Dr. Sunny Arya	Swami Vivekananda University, WB	International Conference on Scientific Advances in Life Sciences,Agriculture and Food & Nutrition ICSA 2024	AI applications in agriculture	20th June 2024.
Dr.L.K. Baishya	ICAR Research Complex for NEH Region, Nagaland Centre, Medziphema, Nagaland	National Seminar on Hill Agro-Ecosytem: Challenges and opportunities for achieving sustainable Development Goals	Livelihood improvement of farmers of NEH Region through IFS"	30th November 2024
	Directorate of Horticulture & FP , Khanapara, Guwahati-22.	MOVCD Conference Hall at Guwahati	Promotion of oilseed and pulse in the state Assam	20th dec 2024
Bhagirath Das	KVK Lakhimpur, Assam	Training on Basic Statistics for Data Analysis in Agriculture for UG Students	Data classification	24th April 2024
			Exploratory data analysis	25th April 2024

RESEARCH ADVISORY

Following statistical advisory were provided by Dr. Arpan Bhowmik w.r.t planning, designing and analysis of experiments to different researchers under national Agricultural Research and Education System (NARES)

- Dr. Subhra Saikat Roy, Principal Scientist, ICAR-CCRI, Nagpur was advised on the use of k-means clustering and PCA analysis for Pomelo data w.r.t. 21 pomelo accessions. The analysis was carried out based on biochemical characters.
- Dr. Hillol Chakdar Senior Scientist, ICAR-NBAIM, Mau, UP was advised on the use of PCA analysis w.r.t. 30 Heterocystous and 17 non heterocystous cyano bacteria basd on different properties.
- Dr. Rohan Sarkar, Scientist, DMAPR, Anand was advised on the use of Heat Map for analysing his data based on his experiment w.r.t. some aromatic and medicinal plants.
- Dr. Sonali Johri, Assistant Professor, Food science & Nutrition, Dayalbagh Educational Institute (Deemed

university) was advised on the use of response surface based optimization for two products: pasta and vermicelli based on three factors viz. moisture content, carrot pomace and barrel temperature.

- Dr Partha Saha, Senior Scientist, ICAR-CTRI-RS, Dinhata, West Bengal was advised on the use of heat map for diversity analysis of 58 chilli varieties based on morphological and biochemical characters respectively.
- Dr. Kalidas Pati, Senior Scientist, ICAR-CTCRI-RS, Bhubaneswar, Odisha was advised on the use of principal component analysis and heat map for a study on Assessment of bioactive compound, in vitro antioxidant activity and nutrient profiling of yam bean: an underutilized crop of eastern India.
- Dr. Supradip Saha, Principal Scientist, IARI New Delhi was advised on the use of Box-Behnken design involving three factors amplitude, time and solvent: matrix for studying yield of FOS in a chemical study. Beside genetic algorithm based optimization was also carried out and the results of traditional RSM based and GA based approach were compared.
- Dr. Shalini Gaur Rudra, Principal scientist, IARI, New Delhi was advised on the use of two way factorial ANOVA for analysis of data based on her experiments.
- Dr. Souvik Paul, Senior scientist, NRC Pig was advised on the use of logistic regression for a piggery experiments involving intensity of egg infestation of ascaris.

HAPPENINGS AT IARI-ASSAM

6

Republic Day Celebration

Dr. Lohit K Baishya, Scientist in Charge and Head, IARI Assam, unfurled the tricolour amidst scientists, administrative, and supporting staff. In his inspiring speech, he emphasized IARI-Assam's commitment to ensuring food security in the North East.

Celebration of World Environment Day

ICAR-IARI, Assam celebrated "World Environment Day" with theme "Land restoration, desertification and drought resilience" and slogan "Our Land, Our Future" in the presence of Dr. Lohit Kr. Baishya, Scientist In-Charge, IARI, Assam, other scientific, non-scientific and administrative staffs. In this programme, Dr. Anamika Gogoi, Gogamukh Circle Officer, Dhemaji had been invited as chief guest. On this occasion, a plantation drive was organized where a total of 160 saplings (including tree species like: *Terminalia arjuna, Mimospus elengi, Bauhinia variegata, Adenenthera pavonina, Cassia fistula, Anthocephalus cadamba, Adenenthera pavonina, Artocarpus heterophyllus, Artocarpus altilis, Lagerstoemia speciosa, Mesua ferrea, Bombax ceiba, Syzigium cumini, Acacia mangium & Delonix regia*) were planted in the institute premises and on the banks of river Subansiri. The programme was coordinated by Dr. Lohit Kumar Baishya, Mr. Umakanta Dash and Dr. Akkala Reddy Sumalatha.

International Yoga Day Celebration

IARI Assam celebrated International Yoga Day, with enthusiastic participation from both students and staff on June 21st, 2024.

Independence Day celebration

The 78th Independence Day was celebrated at IARI Assam on 15 August, 2024. Dr. Lohit Kumar Baishya, Campus In-charge, IARI Assam hoisted the tricolour.

In his address, he highlighted the sacrifice made by the freedom fighters and also expressed his gratitude to all our soldiers who are protecting our sovereignty. On the occasion, he also requested all the staffs of IARI Assam to join hands and work together for the betterment of the Institute. Scientists, Administration Staff, Technical staff along with their family attended the programme. The programme also witnessed the active participation of undergraduate students of IARI Assam. Besides, school children and Scouts team from Halakbari High school and Diamond Mission School also participated in the program with patriotic performances.

Plant 4 mother campaign

An awareness cum plantation drive was organized by IARI-Assam on 20th August 2024 under the "Plant 4 mother campaign". Dr Lohit K. Baishya (Campus-

In-Charge & Head, NRM) spoke about the importance of plants in combating climate change. As a part of the campaign a total of 16 saplings of three major tree species

namely, *Delonix regia* (Krishnachura), *Caesalpinia pulcherrima* (Radhachura) and *Terminalia arjuna* (Arjun) were planted. Women farmers from nearby villages and all the scientific and administrative staffs of the institute actively participated in the plantation drive. The programme was coordinated by Dr Lohit K. Baishya, Mr Bhagirath Das and Dr Ravi Bhushan Prasad.

Parthenium Awareness Campaign

On 22nd August 2024, IARI-Assam organized a Parthenium Awareness Campaign to sensitize school students about the adverse effects of Parthenium during the Parthenium Awareness Week (16-22 August, 2024).

Total 30 Students from Halakbari Janjati High School and Diamond Mission School, Gogamukh, respectively, had attended the campaign. The programme was graced by: Chief guest, Dr. Sanjay Kumar (Director, ICAR-Indian Institute of Seed Science, Mau); Guest of Honour, Dr. Robin Gogoi (Nodal Officer, IARI Assam); special guests, Dr. Utpal Bhattacharya (Sr. Scientist & Head KVK, Longding, Arunachal Pradesh) and Dr. Utpal Baruah (Sr. Scientist & Head KVK, Namsai, Arunachal Pradesh). The distinguished guests informed the audience about the detrimental effects of Parthenium and the role society should assume in eradicating this noxious weed from proximate areas. Dr. Arpan Bhowmik, I/C PME cell, IARI Assam subsequently apprised the audience of the nationwide awareness campaign being conducted by various ICAR institutes during this Parthenium awareness week. Dr. Lohit Baishya then delivered a comprehensive presentation on the introduction, life cycle, adverse health implications for humans and animals due to Parthenium, its effects on crops, and the control measures (both chemical and biological). All staff members of IARI Assam participated in the event. The program was coordinated by Dr. Lohit Kumar Baishya, Dr. Arpan Bhowmik, Dr. Sunil Mandi, and Dr. Bhagirath Das.

Hindi Pakhwada

Hindi Pakhwada was observed at ICAR-IARI Assam during the second week

of September 2024. Various activities, including quiz competitions and extempore speeches, were organized by the Hindi Cell of IARI Assam under the supervision of Dr. Lohit Kumar Baishya, Campus In-Charge. The scientific, technical, administrative, and contractual staff of the institute participated in these events. Certificates were awarded to the winners of the various programs.

World Egg Day

ICAR-Indian Agricultural Research Institute, Assam celebrated a series of events to celebrate the World Egg Day on 10th October, 2024. The UG students have imprinted their talents on the delicate egg shells alongside active participation in

several other personality building activities. The organising team for this awareness programme constituted of, Course Director Dr. L.K. Baishya, Co-Course Director: Dr. Amjad K. Balange, Program Coordinator: Dr. Azhaguraja M, Co-Coordinators: Dr. M.B.Chaudhary, Dr. Bornalee Handique, Dr. Manish Pandey, Mr. Da U Ruhi Pde and Dr. Deepjyoti Baruah.

Vigilance Awareness Week

Vigilance Awareness Week was observed in IARI Assam during 28th October to 03rd November, 2024. All the staffs participated in the program. The integrity pledge was read by the Campus-in-charge in presence of CAO and other officials. The programme was coordinated by Dr. Dibyendu Deb and Dr. Manish Pandey.

National Agricultural Education Day

On the occasion of National Agricultural Education Day, Dr. Ansheef Ali, Scientist, ICAR- Indian Agricultural Research Institute, Assam, delivered a

lecture on "Opportunities in agricultural education in the present scenario" on 03rd December 2024 at Christ King Higher Secondary School, Gogamukh, Dhemaji Assam. Around 100 students participated in the programme.

World soil day

Students for development Assam region with a special collaboration of IARI-Assam organized a session on world soil day through online mode on 05th December 2024. Dr. Arpan Bhowmik, attended the program as an invited guest and talked about important concerns about soil health. Dr. Umakanta Dash delivered a presentation on "Nurturing soil health through sustainable management practice" during the event. Participants across the country have joined the programme along

with the national and regional student coordinators.

Inauguration BAERC Upper Assam Chapter

The inauguration ceremony of the Bhartiya Agro-Economic Research Centre (BAERC) Upper Assam Chapter was held on 9th December 2024, in the Conference Hall of ICAR-IARI Assam. Dr. Manivannan, Principal Scientist, IARI Assam highlighted the history of BAERC and its connection with Bhartiya Kisan Sangh (BKS), emphasizing their shared vision for agricultural development and farmer welfare. Dr. Amjad Balange, Head of the Animal, Poultry, and Fisheries Division, attended and graced the occasion. Dr. A.K. Srivastav, Principal Scientist, emphasized the importance of soil conservation in the Northeast and its role in enhancing fruit crop productivity to improve farmers' livelihoods in Upper Assam. Guest of Honour, Dr. S.K. Dubey, National Vice President of BAERC, elaborated on BAERC's role as a non-political think tank with centres across India. He explained its membership guidelines, fund allocation processes, and efforts to address farmer issues through conferences and policy-making.

The Chief Guest, Mananiya Dinesh Kulkarni, Margdarshak of BAERC and Rashtriya Sangathan Mantri of BKS, traced BAERC's journey and its reach across 525 districts and 60,000 villages and emphasized the need for collective efforts to bridge policy gaps and support farmers. An interactive session with 20 farmers and faculty members followed, where participants expressed enthusiasm for agricultural research in enhancing livelihoods. Dr. S.K. Dubey then announced Dr. Manivannan as the Convener and Dr. Rachit Saxena as the Co-Convener for the BAERC Upper Assam Chapter.

Regional Citrus Biodiversity Fair

A Regional Citrus Biodiversity Fair was organized by the College of Horticulture and Forestry, CAU, Pasighat (Arunachal Pradesh) in collaboration with KVK, East Siang from 10-11 th December 2024, under the aegis of the ICAR-AICRP on Fruits. With the region being designated as the centre of diversity for Citrus species, the fair aimed to bring together farmers, researchers, and

other stakeholders on a common platform to witness the rich biodiversity of citrus species, promote sustainable practices, and share valuable knowledge about the challenges and opportunities facing the citrus industry. The chief guest on the occasion was Dr. Prakash Patil, PC, AICRP (Fruits), ICAR-IIHR, Bengaluru, who in the inaugural session emphasized on the need to devise strategies to preserve and conserve wild and underutilized citrus

species in the region while also advocating sustainable production systems.

ICAR-IARI Assam was represented at the fair by Dr. Alemwati Pongener and Mr. Raghavendra H R, Scientists (Fruit Science) who set up the technology stall to exhibit the institute`s farm technologies, value-added products, and to address the queries of the visitors. The Chief Guest and the visitors appreciated the IARI Assam exhibits and expressed their best wishes for the further progress of the institute.

Visit of delegates

On 14th February 2024, Honourable Member of Parliament, respected Shree Pradan Baruah visited IARI Assam and interacted with all the scientific and administrative staffs. During the interaction, Dr. L. K. Baishya (In-charge, IARI Assam) presented an overview of the Institute, focusing on the activities, scope and opportunities of IARI-Assam and the role of this emerging national institute for benefiting the farming community of north east region. The H'able MP assured all types of support for the betterment of IARI-Assam.

H'able Secretary, DARE and DG-ICAR, Dr. Himanshu Pathak visited IARI-Assam for the first time during 24-25th May, 2024. During his visit, he interacted with the UG students, Scientists, Technical, Administrative and Finance staff of IARI Assam. He also enquired about the progress of the ongoing construction work being done by NPCC. Dr. Pathak accompanied by Director, Dr. A. K. Singh, scientific and other staffs of IARI Assam, Circle office, Gogamukh and NPCC staff, also visited the research farm of IARI-Assam to overview the research works and field trials initiated at IARI-Assam.

Hon'able DDG (Crop Science), ICAR and Director, IARI, Dr. T. R. Sharma visited IARI-Assam for the first time during 12-14 December, 2024 along with Dr. D. K. Singh, Professor (Ag. Engineering) and Chairman Works Committee, IARI Assam. During the visit, the delegates interacted with

scientists, administrative and technical staffs to review the institute's activities, ongoing construction works and the research farm. They also interacted with UG and PG students during this visit.

The District Commissioner of Dhemaji, Shri Rahul Javir, IAS, accompanied by the Additional Deputy Commissioner, Dhemaji, and Circle Officer, Gogamukh visited the institute on 16th December, 2024. The visit was aimed to strengthen collaboration between the district administration and IARI-Assam to explore developmental and promotional opportunities in agriculture and allied sectors. Shri Rahul Javir interacted with scientists and emphasized the importance of implementing development programs, particularly in the field of agriculture and allied to uplift the livelihoods of farmers in the district.

Meeting with NABARD

A meeting with DDM, NABARD North Lakhimpur and Dhemaji district was held on 28 August, 2024 between Campus in charge of IARI Assam Dr. Lohit Kumar Baishya and DDM NABARD Mr. Amlan Tamuli. The meeting was focused on possible future collaborations between IARI Assam and NABARD for betterment of agriculture and allied activities in North Lakhimpur and Dhemaji district. Dr. Arpan Bhowmik, Senior Scientist, Dr. Omprakash Naik, Scientist, Dr. Sumalatha Reddy, Scientist and Dr. Akshay Kumar, Scientist attended the meeting. The meeting was also attended by a representative of Subansiri FPC Mr. Sidananda Pegu and others.

Students' exposure visit to IARI-Assam

On 1st March 2024, students from 156 schools of Dhemaji district visited IARI Assam during an educational tour. In total 312 students (Two students from each school) majority of which are girl students have visited the institute guided by a total of 10 teachers from different schools. A brief discussion was made about the history, scope

and opportunities of IARI-Assam. Besides, students were also briefed and encouraged for agricultural education and different career opportunities in Agriculture. The study visit was coordinated by Dr. Lohit Kumar Baishya, Dr. Arpan Bhowmik, Dr. Madhab Chaudhary, Dr. Bornalee Handique and Dr. Ravi Bhushan Prasad.

On 12th March 2024, a total of 44 students from Kachutali High School, Gogamukh, Assam along with their teachers visited IARI-Assam campus. Out of the 44 students, 30 were girl students. History of IARI Assam, it's role and activities were briefed to the students. The visit was coordinated by Dr. Lohit Kumar Baishya, Dr. Arpan Bhowmik and Dr. Bhagirath Das.

Another team of 25 students of class 6-8 from Lakhipathar High School, Dhemaji visited IARI-Assam campus on 18th March 2024, during an exposure visit. The visit was coordinated by Dr. Lohit Kumar Baishya, Dr. Arpan Bhowmik and Dr. Ravi Bhushan Prasad.

The next day, on 19th March 2024, a total of 24 students visited IARI Assam campus from Nilakh High School, Dhemaji, which was coordinated by Dr. Lohit Kumar Baishya, Dr. Arpan Bhowmik, Dr. Bhagirath Das, Dr. Ravi Bhushan Prasad and Dr. Umakant Dash.

On 9th April 2024, a total of 37 B.Sc. (Agriculture) students from Assam Agricultural University Visited IARI-Assam as a part of exposure visit in their RAWE program under KVK, Dhemaji. Students were made aware about the activities undergoing at IARI Assam and its future role in shaping agriculture in north east region of the country. The visit was coordinated by Dr. Lohit Kumar Baishya, Dr. Arpan Bhowmik, Dr. Abhijit K P and Dr. Bhagirath Das.

A group of 35 Class V students from Ge nius Academy, North Lakhimpur including 22 girls and 13 boys, visited ICAR-IARI, Assam, on an educational trip on 27th November, 2024. The visit aimed to enhance their knowledge and provide practical exposure to agricultural science. The students toured various laboratories

and explored the campus to gain insights into the institute's work. The visit was coordinated by Dr. Arpan Bhowmik, Dr. Bornalee Handique, Dr. M. B. Chaudhary and Mr. Bhagirath Das.

A group of about 300 students and 12 teachers from PM Shree Government Higher Secondary School, North Lakhimpur, visited the institute on 12th December, 2024. During the visit, Dr. Lohit Kumar Baishya, the Scientist-in-Charge, addressed the students, sharing insights about the institute's history, role, activities and

highlighted the scope and opportunities in agricultural education, encouraging students to consider pursuing a B.Sc. (Agriculture) as a promising career path. The students toured the campus to learn more about the institute's work and its contributions to the field. The visit was coordinated by Dr. L. K. Baishya, Dr. Arpan Bhowmik, Dr. M. B. Chaudhary, Dr. Manish Pandey, and Shri Bhagirath Das.

On December 17th 2024, a group of 169 students (99 girls and 70 boys) from PM Shree Machkhowa Higher Secondary School visited ICAR-IARI, Assam, on an educational trip. The program aimed to broaden their knowledge and provide exposure to agricultural science. The visit was organized and coordinated by Dr. Lohit Kumar Baishya, Dr. Arpan Bhowmik, Dr. Bornalee Handique and Mr. Umakanta Dash.

STUDENTS' ACTIVITIES

Harmony Fiesta (24 May, 2024)

It was a vibrant cultural event organized to warmly welcome students to the campus, marking the first student-led celebration at the institution. The event featured energetic performances,

showcasing the diverse talents of the students. Gracing the occasion as Chief Guest was the Director General of ICAR, whose inspiring address added prestige and encouragement to the celebration. The event fostered a sense of unity, enthusiasm, and belonging among the newly joined students.

Independence Day

The Independence Day celebration was a grand and patriotic affair, with students and faculty coming together. Dance performances, filled with energy and

enthusiasm, captivated the audience, while soulful patriotic songs stirred emotions of love and respect for the country. A street

play, beautifully enacted by the students, portrayed the essence of freedom and democracy, leaving a lasting impact on everyone. The event was a beautiful blend of culture, patriotism, and unity, making the celebration truly memorable for all staff, students, scientists.

Fresher's party "Rendezvous"

On a faithful august noon, familiar faces with welcoming grins handed the batch of 2023 certain white envelopes sealed with the most awaited letter- personalized invites to the first ever Fresher's welcome of IARI ASSAM, Rendezvous 2024. As the sun set on the eve of 15th August, the 'freshers' owned the red carpet all decked to the stars, while the Pilot batch of IARI-Assam cheered the loudest in actions and words. Somewhere along the months of icebreakers and getting to know each other, an unbreakable bond of fraternity and solidarity ringed its echo amongst the novices and the pioneers.

Ganesh Chaturthi

Ganesh Chaturthi, a significant 10-day Hindu festival celebrating the birth of Lord Ganesha, was celebrated in Assam on 7th of September 2024. It took place at the reception area of the academic administrative Building, organised

primarily by the institute's scientists with active student participation. The celebration featured soulful aarti and bhajans, creating a peaceful and devotional atmosphere, followed by the distribution of prasad. The celebrations concluded with the visarjan process conducted with respect and care for the environment. The event was a grand success, promoting unity & cultural values among students.

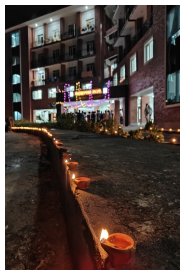
Events during world egg day

On the eve of world egg day, Students participated in essay-writing competition, expressing the nutritional value and versatility of eggs. The creative spirit was further sparked with an egg shell painting contest, where students transformed ordinary eggs into beautiful pieces of art. Additionally, a poster-making activity allowed participants to design eye-catching visuals, promoting the benefits of eggs in a fun and educational way. The event was a perfect blend of creativity, learning, and

awareness, making it an enjoyable and meaningful celebration for both scientist and students.

Diwali celebration

Diwali was celebrated with great joy at IARI Assam on 31st October, 2024.



The campus came alive with beautiful decorations made from bamboo and hand-crafted paper flowers, reflecting both culture and creativity. A range of creative competitions added to the excitement of students. Groups were formed to design theme based rangolis and diyas. The highlight of the day was the serene diya lighting ceremony, spreading warmth and light. The celebration was based on tradition, sustainability and creativity.

New year celebration (31 Dec, 2024)

The New Year celebration at the college lit up the front of the main academic building aglow with dazzling lights and balloons. Laughter echoed as seniors and

juniors came together in playful harmony, followed by a vibrant DJ night. At the stroke of midnight, all gathered for the ceremonial cake cutting, sharing wishes—welcoming the New Year with hope, joy, and dreams yet to bloom.

SWACHHTA HI SEVA CAMPAIGN

ICAR-IARI Assam joined the rest of the nation in organizing the Swachhta Hi Seva Campaign 2024 from 14th September -2nd October 2024. On the theme of 'Swabhav Swachhata - Sanskaar Swachhata'. The campaign was carried out based on the three pillars of activities viz., Swachhata Ki Bhaagidari, Sampoorna Swachhata including Swachhata Lakshit Ekayi and Safai Mitra Suraksha Shivir.

The campaign kicked off with the administering of the Swachhta Pledge on 14th September 2024. The pledge was administered to all the scientists and staff

of the institute. During the campaign, several cleanliness drives were organized at different locations in the institute with the aim of collective participation towards achieving a clean campus.

With a view to encouraging students and staff to creatively express their thoughts on cleanliness and sanitation, an Essay Writing competition was held on 16th September 2024. The topic of the

essay was, "The Importance of Individual Contribution in Achieving a Clean India".

On 23rd September 2024, a Debate competition on the topic, "Frozen Processed Food: Convenience or Compromise" was conducted where two teams of scientists vociferously put forth their arguments for and against the motion. The debate helped the the participants and audience in absorbing both views, resulting in knowledge for all. A live photo caption contest was also conducted that evoked witty remarks and poetic expressions.

To promote fitness with the mantra of healthy body and healthy mind, a Shot-put competition was held on 26th Septemebr 2024 for both ladies and gentlemen. The event saw active participation from all the staff members.

A photography competition was also organised among the scientists and staff of the institute, whereby entries were solicited to highlight Black Spots and Clean spots in Dhemaji and Lakhimpur districts of Assam. The contest resulted in identification of spots that are littered with wastes and dirt, and spots that are difficult to clean.

Involving mass participation among the scientists and staff, an activity on repotting of flower pots was held at the centre. The ornamental horticulture and landscaping unit (OHLU) took the lead in the activity that not only resulted in beautification of the campus but also helped the staff in knowing the basic principles and practices for repotting of flowering plants and foliages for homes.

As part of the SafaiMitra Suraksha Shivir, the Swachhta Committee held an awareness programme on social welfare linkages and registration of sanitation workers and their families. Hygiene and PPE kit along with protective gear and cleaning essentials were provided to the SafaiMitras of the institute to encourage the everyday heroes who work tirelessly to ensure clean campus and working spaces.

On 1st october 2023, a Food and Culinary Excellence Fest was organized. The purpose behind the food fest was to encourage traditional food and cuisine, while ensuring clean and healthy food. The fest saw participation from the scientists, staff and families, where a wide variety of food and drinks were on display.

The Swachhta Hi Seva Campaign 2024 at ICAR-IARI Assam culminated with a Grand Cultural Fest, where several ethnic and traditional forms of music, dance, songs, were performed and traditional attire were on display. The show not only entertained the audience but also underscored the strong message about the importance of tradition and culture.

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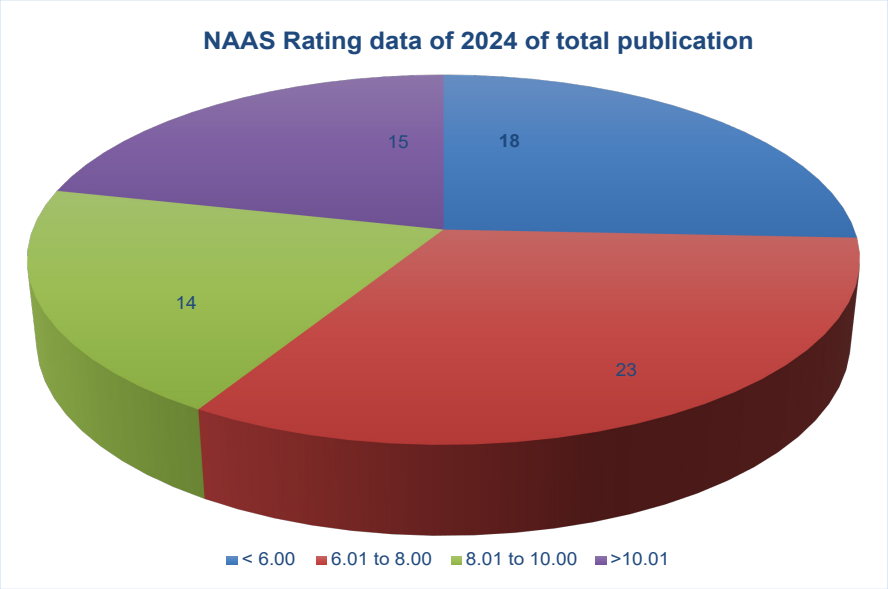

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No.	Title	Names of the developer	Number	Year
1	*R Package:* GRCdesigns *Version 1.0.0* **(Co-eveloper)**	Anindita Datta, Seema Jaggi, Cini Varghese, Eldho Varghese, Ashutosh Dalal and Arpan Bhowmik	License: **GPL-2 | GPL-3** [expanded from: GPL (≥ 2))]	2024
2	*R Package:* hrtlFMC *Version 0.1.0* **(Developer)**	Arpan Bhowmik, Eldho Varghese, Seema Jaggi, Bijoy Chanda, Anindita Datta, and Tanuj Mishra	License: **GPL-3**	2024
3	*R Package:* minFactorial *Version 0.1.0* **(Developer)**	Arpan Bhowmik, Bijoy Chanda, Seema Jaggi, Eldho Varghese, Cini Varghese and Anindita Datta	License: **GPL-3**	2024
4	*R Package: equiBSPD Version 0.1.0* **(Co-developer)**	Bijoy Chanda, Arpan Bhowmik, Cini Varghese, Seema Jaggi, Eldho Varghese, B N Mandal, Anindita Datta, Soumen Pal and Dibyendu Deb	License: **GPL-3**	2024

CONFERENCES, SEMINARS & SYMPOSIA

8

PARTICIPATION IN SEMINARS/SYMPOSIA/CONFERENCES

Sl. No.	Name	Title	Organizer	Duration
International				
1	Arpan Bhowmik	Ninth international webinar, "Recent Trends in Statistical Theory and Applications (WSTA 2024)	University of Kerala *Online mode*	29.06.2024 to 02.07.2024 (4 Days)
2	Machanuru Raviteja	Global Conference on Nano Connect (GCNC-2024)	TNAU, Coimbatore	05.09.2024 to 06.09.2024 (2 Days)
3	Azhaguraja M	International Conference on Frontier Areas of Science and Technology	IIT, Guwahati	06.09.2024 to 07.09.2024 (2 Days)
4	Bhagirath Das	7th International Conference on Advances in Agricultural Technology and Allied Sciences (ICAATAS 2024)	The Neotia University, West Bengal	15.09.2024 to 16.09.2024 (2 Days)
5	Akshay Kumar H M	International Conference on plant protection in horticulture (ICPPH 2024)	ICAR-IIHR, Bengaluru	25.09.2024 to 27.09.2024 (3 Days)
6	Mythra R			
7	Arpan Bhowmik	Tenth International Conference on Statistics for the Twenty-First Century ICSTC-2024	University of Kerala *Online mode*	13.12.2024 to 16.12.2024 (4 Days)
National				
8	Arpan Bhowmik	IPS North-Eastern Zonal Meet & AAAS National Conference on "Advances in Innovative Technologies & Plant Health Management Strategies in Climate Resilient Agriculture"	College of Agriculture, Lembucherra, Tripura	26.09.2024 to 27.09.2024 (2 Days)
9	S. Manivannan	National Conference on Soil, Water and Energy Management for Sustainable Agriculture and Livelihood Security	University campus, Kanpur	18.10.2024 to 20.10.2024 (3 Days)

10	Azhaguraja M	National Conference on "Management of Biodiversity in North Eastern India (NCMBN-2024)"	ICAR NEH Region, Umiam	23.10.2024 to 25.10.2024 (3 Days)
11	Bornalee Handique			
12	Da u ruhi Pde			
13	Manish Pandey			
14	Ramavath Ramesh Babu			
15	Akkalareddy Sumalatha	National Conference on Hill Agro-Ecosytem: Challenges and opportunities for achieving sustainable Development Goals	ICAR Research Complex for NEH Region, Nagaland Centre, Medziphema, Nagaland	29.11.2024 to 30.11.2024 (2 Days)
16	A.K. Srivastava			
17	Azhaguraja M			
18	Ch. Jamkhokai Mate			
19	Kishore Chandra Sahoo			
20	Lohit K Baishya			
21	M. B. Chaudhary			
22	Omprakash Naik			
23	Ramavath Ramesh Babu			
24	Umakanta Dash			
25	Ansheef Ali TP	National conference on Plant Physiology 2024: Frontiers in cell to whole plant physiology: Bridging science and sustainability	ICAR-CPCRI, Kasaragod, Kerala	17.12.2024 to 19.12.2024 (3 Days)

PAPERS PRESENTED IN SEMINARS/SYMPOSIUM/CONFERENCES

- Paper entitled "Nano-TIO_2: dose-dependent impacts on soil health and plant growth in rice ecosystem" was presented in the "Global conference on Nano connect (GCNC-2024)" which was held during 5-6 September, 2024 at TANU, Coimbatore (Mr. Machanuru Raviteja).
- Paper entitled "investigating genetic diversity among XANTHOMONAS species causing bacterial leaf spot in tomato using MLSA" was presented in "international conference on plant protection in horticulture (ICPPH-2024)" which was held during 25-27 September, 2024 at IIHR, Bengaluru (Mr. Akshay Kumar H M).
- Paper entitled "molecular characterization of polymorphisms of prolactin gene and its association with production traits in native Indian breed of chicken. Was presented "international conference on frontier areas of science and technology" which was held during September 6-7, 2024 at IIT, Guwahati. (Dr. Azhaguraja M).
- Following paper was presented in the national conference on Managing

agro-biodiversity in north eastern India (NCMBN-2024) which was held during 23-25 October 2024 at the ICAR research complex for NEH region Umiam, Meghalaya.

- "Fisheries and aquaculture in northeast India: status, issues, and sustainable development opportunities" (Mr. Da u ruhi pde)
- "Traditional animal husbandry practices among the missing tribal population of Dhemaji District, Assam: a case study on livestock and poultry management"(Dr. Manish Pandey)
- "Preparation, quality evaluation and in vitro studies of cabbage and cauliflower waste silage" (Dr. Bornalee Handique)
- "Decoding selective sweeps associated with tropical adaptability in guinea fowl through whole-genome sequencing" (Dr. Azhaguraja M)
- "Relevance of plant microbe interactions for crop improvement"-(Dr. Ramavath Ramesh Babu)

- Presented lead talk in the national conference on soil, water and energy management for sustainable agriculture and livelihood security during 18-20th October 2024 at the university campus, Kanpur (Dr. S. Manivannan).
- Following paper was presented in the national seminar on hill agro-ecosystem: challenges and opportunities for achieving sustainable development goals which was held during November 29-30, 2024 at ICAR research complex for NEH region, Nagaland centre, Medziphema, Nagaland.

- "Challenges of fruit nutrition in hill agroecosystem: next-gen preparedness" (Dr. A. K. Srivastava).
- "Application of tree-gum as a green adsorbent for remediation dye contaminated water" (Dr. Ch. Jamkhokai Mate).
- "A Spatio-temporal analysis of bovine population dynamics and milk production trends in north east india" (Mr. Omprakash Naik).
- "Faunistic studies on moths (Insecta: Lepidoptera) of Odisha, India" (Mr. Kishore Chandra Sahoo).
- "Phenotypic and functional traits of curcuma longa in response to nutrient sources and populus deltoids tree spacing" (Mr. Umakanta Dash).
- "Development of carotenoid rich sterile hybrids for enhancing market value and industrial applications in marigold (tagetes erecta l.)" (Dr. Akkalareddy Sumalatha)
- "Status and prospects of vegetable crop production in northeast region". (Dr. Ramavath Ramesh Babu)
- "Unravelling selection signatures associated with immune response in guinea fowl using whole genome sequencing" (Mr. Azhaguraja M)
- "Livelihood improvement of farmers of NEH region through integrated farming system"(Dr. Lohit k Baishya)
- "Joha rice: a promising future nutraceutical food" (Dr. M. B. Chaudhary).

- Paper entitled "Characterizing the metabolite and enzyme based rancid behaviour of pearl millet flour for evaluating its nutritional status" was presented in the "National conference on plant physiology (NCPP-2024) which was held during 17-19 December, 2024 at ICAR-CPCRI, Kasagord, Kerala. (Dr. Ansheef ali)
- Paper entitled "molecular characterization of polymorphisms of prolactin gene and its association with production traits in native Indian breed of chicken" by was presented in the "international conference on advances in agriculture technology and allied sciences" which was held during September 15-16, 2024 at the Neotia university, West Bengal (Mr. Bhagirath Das).
- Paper entitled "In vitro screening of Rhizobacteria for biological control of major pathogens in tomato and chilli" was presented in the "international conference on plant protection in horticulture (ICPPH 2024)" to be held during September 25-27, 2024 at ICAR-IIHR, Bengaluru (Dr. Mythra R).
- Paper entitled "Response surface based genetic algorithm-based optimization of total phenolic content (TPC) from potato peel with ultrasound assisted extraction (UAE)" was presented in the "IPS north-eastern zonal meet & AAAS national conference on "advances in innovative technologies & plant health management strategies in climate resilient agriculture" during September 26-27, 2024 at college of agriculture, Lembucherra, Tripura. (Dr. Arpan Bhowmik)
- Paper entitled "FMC, min Factorial and hrtl FMC: R packages for minimally changed factorial and fractional factorial run order was presented in the "Tenth International Conference on Statistics for the Twenty-First Century –ICSTC-2024" during September 13-16th December, 2024 at University of Kerala (Online) (Dr . Arpan Bhowmik)
- Paper entitled "Optimal Incomplete Equivalent-Estimation Split Plot Designs through Algorithmic Intervention" on "Recent Trends in Statistical Theory and Applications-2024 (WSTA – 2024), June 29 - July 02, 2024, organized by Department of Statistics, School of Physical & Mathematical Sciences, University of Kerala jointly with International Statistics Fraternity (ISF), Kerala Statistical Association (KSA) and Statistics Fraternity Kerala (SFK) (Dr. Arpan Bhowmik).

AWARDS & RECOGNITIONS

9

AWARDS

- Dr. Ch. Srinivasa Rao, Director of IARI, was honored with the esteemed N.S. Randhawa Award by the National Academy of Agricultural Sciences (NAAS) during the XVII Agricultural Science Congress 2025 held at Pantnagar.

- Dr. Viswanathan Chinnusamy, Joint Director (Research) at IARI, was conferred the prestigious NAAS Recognition Award during the XVII Agricultural Science Congress.

- Dr. Ch. Jamkhokai Mate: The Outstanding Scientist in Agricultural Chemicals Award was presented by the Green Plant Agrotech Foundation on 23rd April 2024.
- Dr. Abhijith K P: The Best Presentation Award was conferred at the 1st International Conference on Agricultural Research and Environmental Genomics for Nutritional Security (IACRAEGNS-2024), jointly organized by ICAR-IISR, Lucknow, and the Uttar Pradesh Council of Agricultural Research on November 18-19, 2024.
- Dr. Abhijith K P: The International Rice Research Institute (IRRI) awarded a fully sponsored training slot to participate in the "Fundamentals of Genomic Predictions and Data-Driven Breeding" course, scheduled for November 18-22, 2024, at ICAR-Indian Institute of Rice Research, Hyderabad, India.

- Kishore Chandra Sahoo: The 1st Prize for Best Oral Presentation was awarded for the paper titled "Faunistic Studies on Moths of Odisha" at the National Conference on "Hill Agro-Ecosystem: Challenges and Opportunities for Achieving Sustainable Development Goals," held from November 29-30, 2024, at ICAR Research Complex for NEH Region, Nagaland Centre, Medziphema. The event was organized in collaboration with the Indian Association of Hill

Farming (IAHF).

- Akshay Kumar H M: The Best Oral Presentation Award was conferred at the International Conference on Plant Protection in Horticulture (ICPPH-2024): Advances and Challenges, held from September 25-27, 2024, at ICAR-IIHR, Bengaluru, for the paper titled “Investigating Genetic Diversity of Xanthomonas Species Associated with Bacterial Leaf Spot Disease in Tomato Using Multiple Locus Sequence Analysis.

- Dr. Azhaguraja M: Received the IPSA Professor K. Pani Award for Best Research in Poultry Genetics - 2024 during the XXXIX Annual Conference of the Indian Poultry Science Association (IPSACON-2024), held from October 16-18, 2024, at MAFSU, Nagpur, Maharashtra.
- Dr. Azhaguraja M: Awarded 1st Prize for Best Oral Presentation at the National Conference on Managing Agro-Biodiversity in North Eastern India, held from October 23-25, 2024, at ICAR Research Complex for NEH Region, Umiam, Meghalaya.

- Dr. Azhaguraja M: Received the International Best Researcher Award for Research & Excellence in Poultry Science at the ISSN International Research Awards & Congress held on June 23, 2024.
- Akkalareddy sumalatha: Awarded 2nd Prize for Best Oral Presentation for the paper titled "Feministic Studies on Moths" at the National Conference on Hill Agro-Ecosystem: Challenges and Opportunities for Achieving Sustainable Development Goals, held from November 29-30, 2024, at ICAR Research Complex for NEH Region, Nagaland Centre, Medziphema. The event was organized in collaboration with the Indian Association of Hill Farming (IAHF).

- Bhagirath Das: Awarded 1st Prize for Best Oral Presentation at the 7th International Conference on Advances in Agriculture Technology and Allied

Sciences (ICAATAS 2024), held from September 15-16, 2024, at The Neotia University, West Bengal, for the paper titled "Analyzing Success Drivers for Agricultural Startups Using Analytic Hierarchy Process

- Dr. Arpan Bhowmik: Selected for the prestigious NAAS Associateship-2025 of National Academy of Agricultural Sciences.
- Dr. Arpan Bhowmik: Received Young Scientist Award-2024 from Academy for Advancement of Agricultural Sciences in recognition of valuable contribution to Social Sciences. The award was conferred during AAAS National Conference on "Advances in Innovative Technologies & Plant Health Management Strategies in Climate Resilient Agriculture" during September 26-27, 2024 at College of Agriculture, Lembucherra, Tripura.

HONOURS & PROFESSIONAL RECOGNITION

Sr. No.	Peer recognition	Description
Dr S Manivannan		
1	Key Note Lecture	Key note on Role of Engineering Structures in Watershed Management to mitigate the climate change impact delivered in International Symposium on "Agricultural Engineering Education for Aspiring Youth in Transforming Agriculture "during November, 12-14, 2024 at VNMKV, Parbhani, (M.S.) India.
2	Lead Lecture	Lead lecture on Managing Soil and Water Resources for achieving land degradation neutrality in India delivered in National Conference on Soil, water and Energy Management for sustainable agriculture and livelihood security during 18-20 th October 2024 at Chandra Shekhar Azad University of Agriculture and Technology, Kanpur, India.
Dr. Arpan Bhowmik		
1	Session Organizer	Invited to act as Session Organizer for a session of invited papers on Design of Experiments in the Ninth International Webinar on "Recent Trends in Statistical Theory and Applications-2024 (WSTA – 2024), June 29 - July 02, 2024, organized by Department of Statistics, School of Physical & Mathematical Sciences, University of Kerala jointly with International Statistics Fraternity (ISF), Kerala Statistical Association (KSA) and Statistics Fraternity Kerala (SFK) (Online mode).

2	Session Organizer	Invited to act as Session Organizer for a session of invited papers on Computational Statistics: Theory and Application in the Tenth International Conference on "Statistics for Twenty-first Century-2024" (ICSTC-2024), 13 - 16 December, 2024, organized by International Statistical Fraternity(ISF), Department of Statistics and School of Physical and Mathematical Sciences, University of Kerala, Trivandrum (Online mode).
3	Invited Speaker	Invited Speaker Application in the Tenth International Conference on "Statistics for Twenty-first Century-2024" (ICSTC-2024), 13 - 16 December, 2024, organized by International Statistical Fraternity(ISF), Department of Statistics and School of Physical and Mathematical Sciences, University of Kerala, Trivandrum (online mode).
4	Invited Speaker	Served as Invited Speaker for the knowledge upliftment of the M.Sc. and Ph.D. students at Uttar Banga Krishi Viswavidyalaya (UBKV), Pundibari, Cooch Behar, West Bengal on 05 July, 2023.
5	Guest Faculty	Guest Faculty for teaching UG and PG Agricultural Statistics courses at College of Agriculture, CAU, Pasighat, Arunachal Pradesh.
6	Special invitee	Served as Special invitee at LTK college, North Lakhimpur during an interaction session with the students organized under the aegis of Institution Innovation Council (IIC) in association with DBT-NER Institutional Biotech Hub (Phase-II) and Science Forum of LTK college, Azad, North Lakhimpur on 19 February, 2024.
7	Chief Guest	Served as chief guest for inauguration of different activities on the auspicious occasion of Saraswati Puja-2024 at Purna Tamuli Prathomik Vidyalaya at Bowalguri, North Lakhimpur, Assam
8	Editorial Board Member	Editorial Board Member of Journal of Agriculture and Technology (Print ISSN: 2348-4721; Online ISSN: 2349-610X; Sr. no.- 1511; ID- J032; NAAS 2020 rating- 3.39), society Journal of Cooch Behar Association for Cultivation of Agricultural Sciences (COBACAS)
9	Editorial Board Member	Editorial Board Member for the Journal Acta Scientific Agriculture (ISSN: 2581-365X; Impact Factor-0.869)
10	Review Editor	Review Editor for the Journal Frontiers in Horticulture
Dr. A.K. Srivastava		
1	Lead Lecture	Lead Lecture on Challenges of Fruit Nutrition in Hill Agro-ecosystem: Next gen Preparedness in National Seminar On Hill Agro-ecosystem: Challenges and opportunities for achieving Sustainable Development Goals During 29-30th November, 2024 at ICAR Research Complex for NEH Region, Nagaland Centre, Medziphema, Nagaland.
Dr. Lohit Kumar Baishya		
1	Lead Lecture	Lead Lecture on Livelihood Improvement of farmer of NEH Region Through Integrated Farming System in National Seminar On Hill Agro-ecosystem: Challenges and opportunities for achieving Sustainable Development Goals During 29-30th November, 2024 at ICAR Research Complex for NEH Region, Nagaland Centre, Medziphema, Nagaland.

10 PERSONNEL

DIRECTOR

S. No.	Name	Designation
1	Dr. Ch. Srinivasa Rao	Director (since December, 2024)
2	Dr. T. R. Sharma	Director (July to December, 2024)
3	Dr. A. K. Singh	Director (till June, 2024)

NODAL OFFICER

S. No.	Name	Designation
1	Dr. Robin Gogoi	Nodal Officer, IARI Assam

SCIENTIST IN-CHARGE

S. No.	Name	Designation
1	Lohit Kumar Baishya	Scientist-in-charge

SCIENTIFIC STAFF

S.No.	Name	Designation	Date of joining at IARI, Assam
1	Dr. Lohit Kumar Baishya	Head (NRM)	19.06.2023
2	Dr. Amjad Khansaheb Balange	Head (APF)	30.06.2023
4	Dr. Anoop Kumar Srivastava	Principal Scientist	12.01.2023
5	Dr. S. Manivannan	Principal Scientist	16.01.2023
6	Dr. Deepjyoti Baruah	Principal Scientist	08.02.2021
7	Dr. Prabhat Pramanik	Principal Scientist	11.03.2024
8	Dr. Rachit Kumar Saxena	Head (A) (CI)	28.06.2024
9	Dr. Dibyendu Deb	Senior Scientist	17.10.2020
10	Dr. Arpan Bhowmik	Senior Scientist	11.04.2022
11	Dr. Alemwati Pongener	Scientist	02.07.2021

S.No.	Name	Designation	Date of joining at IARI, Assam
12	Dr. Sunil Mandi	Scientist	30.08.2022
13	Dr. Ch. Jamkhokai Mate	Scientist	01.11.2022
14	Dr. Arunjyoti Baruah	Scientist	17.10.2020
15	Dr. Palmei Gaibimei	Scientist	11.10.2021
16	Dr. Azhaguraja M.	Scientist	11.04.2023
17	Mr. Bhagirath Das	Scientist	11.04.2023
18	Dr. Sumalatha A.	Scientist	11.04.2023
19	Mr. Umakanta Dash	Scientist	11.04.2023
20	Mr. Da U Ruhi Pde	Scientist	11.04.2023
21	Dr. M.B.Chaudhary	Scientist	11.04.2023
22	Dr. Bornalee Handique	Scientist	20.07.2023
23	Dr. Machanuru Raviteja	Scientist	20.07.2023
24	Dr. Ravi Bhushan Prasad	Scientist	20.07.2023
25	Mr. Raghavendra H.R.	Scientist	20.07.2023
26	Mr. Sunny Arya	Scientist	20.07.2023
27	Dr. Abhijith K. P.	Scientist	20.07.2023
28	Dr. Manish Pandey	Scientist	20.07.2023
29	Dr. Ansheef Ali T P	Scientist	20.07.2023
30	Dr. Ramavath Ramesh Babu	Scientist	20.07.2023
31	Mr. Akshay Kumar H.M	Scientist	21.07.2023
32	Mr. Kishore Chandra Sahoo	Scientist	21.07.2023
33	Dr Mythra	Scientist	29.10.2023
34	Dr. Omprakash Naik	Scientist	29.10.2023

ADMINISTRATION & FINANCE STAFF

S. No.	Name	Designation	Date of Joining of IARI Assam
1	Mr. Saroj Kumar Singh	CAO and Head of Office	01.11.2023
2	Mr Prashant Kumar Sharma	Comptroller	01.12.2023
3	Mr. Jitender Singh Gaite	AAO	08.12.2023

TECHNICAL STAFF

S. No.	Name	Designation	Date of Joining of IARI Assam
1	Mr. Sushant Kumar	Technician (T1)	01.05.2024
2	Mr. Sanjay Kumar	Technician (T1)	06.05.2024
3	Mr. Dipanjan Panda	Technician (T1)	08.05.2024
4	Mr. Kishan Singha Ray	Technician (T1)	08.05.2024
5	Mr. Chandan Maji	Technician (T1)	24.06.2024

ICAR-Indian Agricultural Research Institute, Assam

Dirpai Chapori, Gogamukh, Dhemaji, Assam-787035