2019-20

A Feeder University of the North East and a Premier Institution of Assam

Annual Report

ASSAM AGRICULTURAL UNIVERSITY

ANNUAL REPORT
2019-20

ASSAM AGRICULTURAL UNIVERSITY
JORHAT - 785013, ASSAM

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Citation
(AAU 2020) Annual Report 2019-20
Assam Agricultural University, Jorhat, Assam

Published by
Vice-Chancellor, AAU, Jorhat – 13, Assam

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Printed at
Chandrakanta Press Pvt. Ltd.
Tarun Nagar, Guwahati-781005

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FOREWORD

In alignment with its motto, *Vigyanam Lokasevaratam*, Assam Agricultural University believes that scientific examination and research should be for the benefit of humankind. Hence, AAU is committed to better the lives of millions of stakeholders across North-Eastern India, while simultaneously imparting quality education to its students. It is a privilege on my part to present the Annual Report of the university, for the period starting from April 1, 2019 to March 31, 2020.

AAU endeavours to achieve excellence in the fields of education, research and extension of agriculture and allied subjects, and the university has been striving hard to outshine in these areas and sit in the same row with the best in the business. Currently, the total number of students under the roll of different faculties are 2983 with 2048 pursuing bachelor degree, 612 masters degree and 323 are PhD scholars. The total number of passed out students are 684 with 397, 215 and 72 students getting bachelors, masters &PhD degrees respectively. More than 300 students also excelled by qualifying in National Eligibility Test or by earning scholarships and fellowships of various national and international agencies. Further, a total of 1398 publications in the form of research articles, books, book chapters, technical bulletins, popular articles, etc. were published by the faculties of this university during this period.

On the research front, the university has been working tirelessly not only to fulfil the mandate but also to solve the field-oriented problems of the farming community. A total of 273 externally funded projects are under different stages of progress. While formulating the projects, present and futuristic farm-oriented problems of the region are always kept in mind. Moreover, it gives me delight to inform that two inventions entitled "Use of empty shell of Gaint African snail (Achatinafulica) as lighting lamp (diya)" and "Development of a Jatropha based ointment as herbal remedy for livestock against ectoparasites and pathogenic microorganisms" have been filed for patents.

The Directorate of Extension Education, which bears the responsibility of extending synchronised assistance and backing to the farmers, has been fulfilling its mandate by developing and nurturing linkages between various government and non government organizations, organizing trainings,and providing advisory service to extension personnel, farmers, farm women, rural youth and SHG members, through its twenty three KVKs. The Directorate is also engaged in conducting demonstration of transfer of technology and motivating unemployed youths and farmers (including farm women) to explore the various avenues to become Agripreneur and job creators, thus fulfilling their own needs and also the needs of the society.

As the sole agricultural university of the state, AAU has to take a lot of responsibility for the farming community of Assam. One of our goals is to transform the rural economy of Assam by making it the organic hub of South East Asia. Though it is easier said than done, our pool of efficient teachers, scientists and

extension personnel, through their enthusiasm and commitment, secure my faith in the possibility of the venture. I firmly believe that with a systematic approach and a positive mindset, we will soon realise this aim as well.

There is a rapidly growing market, nationally and internationally, for organic food. India accounts for only 2.59 per cent (1.5 million hectares) of total organic cultivated area out of global total of 57.8 million hectares (World of Organic Agriculture 2018 report). This segment has its own niche with an immense growth potential. The Indian organic food sector is expected to grow at a compound annual growth rate (CAGR) of about 20.5% to reach a value of about US $ 10.75 billion by 2025, while the global organic food & beverage market size is expected to reach USD 320.5 billion by 2025.Assam enjoys the benefit of several factors to advance in this direction. Most significantly, the largest part of the cultivable area of Assam is considered organic by default. However, agricultural products must be certified by a certifying agency to be considered as organic. In this regard, AAU needs to play an active role in educating farmers about the process and protocol for organic farming and in facilitating the network for organic certification. To begin with, AAU will prepare a roadmap demarcating the areas practicing organic agriculture traditionally, areas with good agricultural practices and areas engaged in commercial agriculture. Subsequently, the areas of traditional organic agricultural practices can be earmarked as exclusive organic farming zones, and a "cluster" approach can be initiated among the adjacent farmers,to fulfil the criteria of systematic organic cultivation. Accordingly, the areas with good agricultural practices can be gradually brought under organic agriculture in a step-by-step manner. The areas engaged in commercial agriculture must be handled prudently because these areas are the primary suppliers of agricultural produce.

Among Indian states, Sikkim has turned into a fully organic state in 2016. Maharashtra has already earmarked around 932 exclusive clusters for organic farming. Taking cues from these states, we must set our goals. Fortunately, the per hectare consumption of fertilizer (N+P+K) of Assam is almost half of the national average and significantly less than that of Maharashtra, the state which has been making inroads in organic farming in an organised manner. Changing the standard agricultural practices would require a lot of conviction on the part of all the stake-holders. Proper planning and timely execution of the plan is the key to materialise the eventual goal of turning Assam into the organic hub of South East Asia.

I know our university has a strong base; we now need to work on the edifice to bring to fruition our aspirations, which I believe will be done with utmost sincerity. I am certain that each member of the AAU fraternity will persevere to realise his/her aims, and will in du e course of time propel this institution towards the pinnacle of excellence, hence conceiving a milieu of incessant progress.

I offer my sincere gratitude to Govt. of Assam, ICAR, Govt of India and the other agencies for their financial and technical support to the university. I am also grateful to the various national, international, non-government and private organizations for their unstinted support.

I appreciate the efforts of the members of the Editorial Board for their efforts in compiling, editing and presenting this report in its present form.

(Bidyut. C. Deka)

::: CONTENT :::

1. The University

Assam Agricultural University was established as the Assam Agricultural College in 1948 in Jorhat, with an aim to uplift the livelihood of the farming community in the north-eastern part of India. This was the first institution of its kind in the whole of the north-eastern region of India till the Central Agricultural University was established in Imphal in 1993. Because of the college's importance, it transformed into a full-fledged Agricultural University on April 1, 1969 undver The Assam Agricultural University Act, 1968. The base of this new institution comprised of the erstwhile Assam Agricultural College at Jorhat as the head-quarter and the Assam Veterinary College at Khanapara.

Figure 1.1. A night time view of AAU Administrative Building in its' headquarters at Jorhat

The foundation of agricultural research and education in the northeastern corner of India was laid in as early as the first quarter of the 20th century when the two rice research stations, one at Karimganj in the Barak Valley and the other at Titabor in the Brahmaputra Valley, were established in 1913 and 1923, respectively. Even while the stations were performing well in research and training, the necessity for an agricultural college was felt immediately after independence. Thus, the Assam Agricultural College at Jorhat and Assam Veterinary College at Nagaon came into existence in 1948 as a result of exemplary will-power and dedication of Bharat Ratna Late Gopinath Bordoloi, the first Chief Minister of erstwhile Assam. Initially, the colleges were affiliated to Gauhati University, and then to Dibrugarh University, before the Assam Agricultural University (AAU) came into being.

1.1 Mandate

- *Imparting technical education in agriculture and allied branches of learning*
- *Furthering the advancement of learning through innovative research in agriculture and allied sciences, and*
- *Taking the technologies to the stakeholders' doorstep to harness optimum benefits in production, profitability, an Provisioning of quality human resource to facilitate agricultural renaissance; rejuvenating post-green-revolution agriculture; ensuring environmental sustainability; targeting a minimum of 4% agricultural growth while taking into account the food and nutritional security, commerce in agriculture as well as regional, national and global food crisis, taking advantage of innovation, market reforms, and liberalization.*

1.2 Vision

Provisioning of quality human resource to facilitate agricultural renaissance; rejuvenating post-green-revolution agriculture; ensuring environmental sustainability; targeting a minimum of 4% agricultural growth while taking into account the food and nutritional security, commerce in agriculture as well as regional, national and global food crisis, taking advantage of innovation, market reforms, and liberalization.

1.3 Mission

To fill up the talent gap in agriculture and allied sectors to combat emerging challenges in agriculture and ensure productivity increase in

agri-horti-animal-fish crops in the face of shrinking and fragmented land holdings, ailing soil health, diminishing water and other natural resources, and increasing population.

1.4 Goals

- *Provide quality education and training in the areas of agriculture and allied sciences.*
- *Undertake basic, applied and adaptive research relevant to the needs of the farmers and entrepreneurs of Assam.*
- *Transfer the technologies to the stakeholders, particularly, farmers for increasing the production, productivity and income to ultimately improve the socio-economic conditions of the people, and*
- *Play a key role in transforming the state's agriculture of subsistence to agriculture of abundance.*

1.5 Organization

To address the mandate of education, the University has six faculties: Agriculture, Veterinary, Community Science, Fishery, Horticulture and Sericulture with 9 constituent colleges; three in agriculture, two in veterinary science and one each in community science, fishery, horticulture and sericulture. Except Horticulture and Sericulture, the other seven colleges have individual facilities for imparting education in designated locations in the state. The Dean is the official head and the Chairman of the Board of Studies of the respective Faculty. The Director of Post Graduate Studies coordinates the Post-Graduate Studies in all the departments and colleges. To coordinate the research activities, AAU has two full-fledged Directorates of Research, one for Agriculture and Community Science, and the other for Veterinary Science and Fisheries, headed by a Director. The extension programmes of the University are taken care by the Directorate of Extension Education. Apart from these, the University has Director of Students' Welfare (DSW), Director of Physical Plant (DPP), Chief Librarian and other important officers as per the Statute. The DSW is responsible for the welfare of housing, counseling and placement of the students, besides supervising their extra-curricular activities and general needs. The DPP is responsible for all construction-related activities and repair/renovation of the University. The organizational structure of the University is depicted in the organogram presented in Figure 1.2.

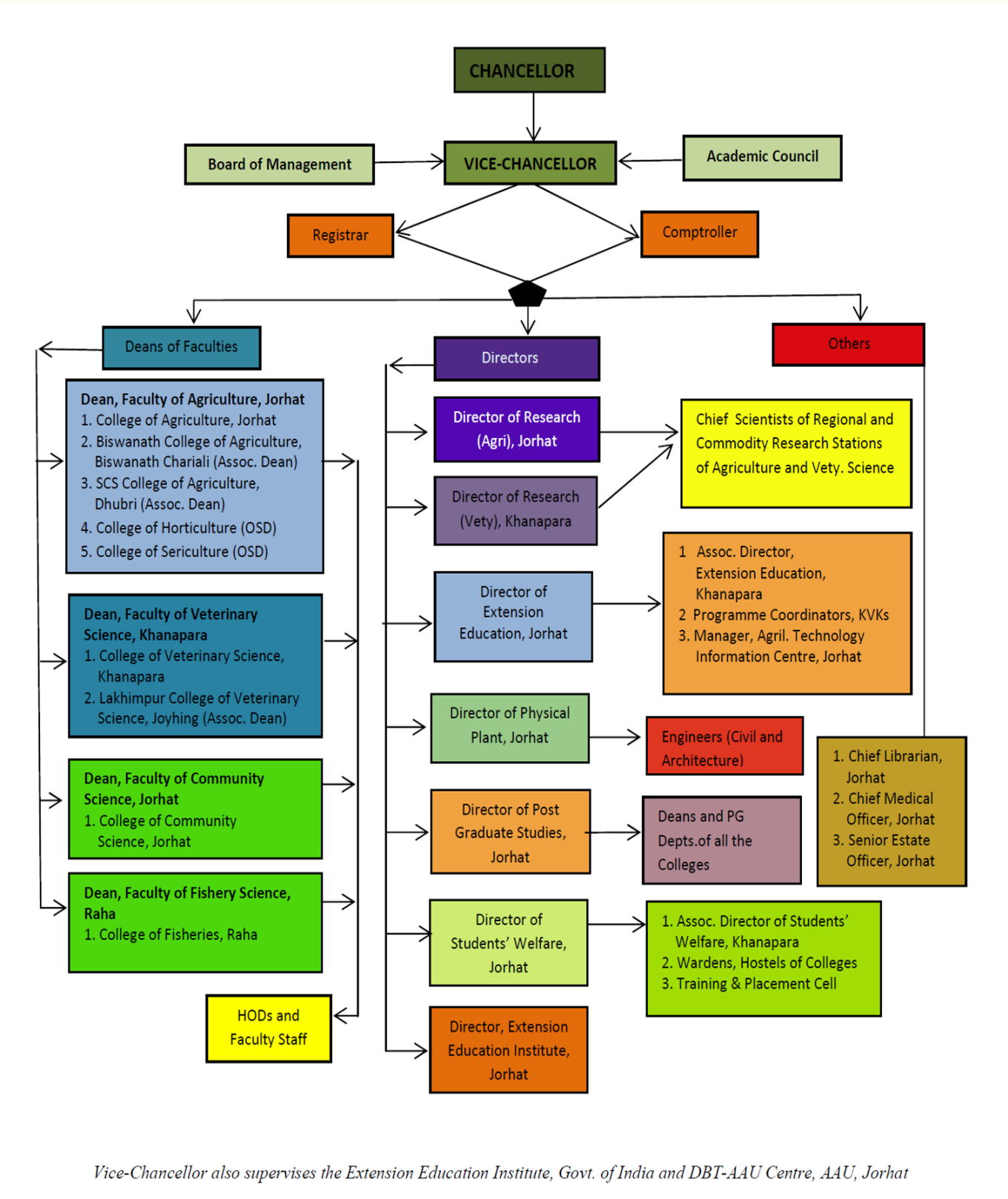


Figure 1.2. Organizational structure of Assam Agricultural University, Jorhat

2. Awards and Recognitions

A. Padma Shri title awarded to AAU scientist, Prof Kushal Konwar Sarma

The fourth highest civilian award, the Padma Shri title was awarded to Prof KK Sarma on the occasion of the Republic Day, 2020. Prof Sarma is a scientist of the College of Veterinary Science, AAU and is well-known for his works on Asian elephants. He is popularly known as the 'elephant doctor of Assam', and has helped the state authorities to tackle elephant-related issues on several occasions. Acknowledging his vast experience and knowledge about elephants, he has been invited to train scientists across several Southeast Asian countries and has been honoured with several awards; he has been entrusted with several national and international assignments as well. The Padma Shri award in the field of medicine has been so far the most valuable feather in his cap, and the Hon'ble Governor and the Chief Minister of Assam had felicitated him on his latest achievement.

Figure 2.2. Prof KK Sarma with a tamed tusker.

Figure 2.1. Felicitation of Prof KK Sarma by Hon'ble Governor of Assam Jagdish Mukhi and Chief Minister Sarbananda Sonowal on Republic Day, 2020 on being awarded Padma Shri.

B. Weed-expert Prof Iswar Chandra Baruah receives Recognition Award for Weed Taxonomy Works

Figure 2.3. Prof IC Baruah receiving the Recognition Award for Weed Taxonomy Works.

Prof IC Barua, Department of Agronomy, was selected for the prestigious Recognition Award for Weed Taxonomy Works from the Directorate of Weed Research, Jabalpur in October, 2019. Prof Baruah is known for his vast experience and knowledge of weed as well as other plants. The award was ceremonially given to him in a function held in the XXVI Review Meeting of the AICRP on Weed Management, held in October in AAU, Jorhat.

C. AAU Biotechnologist invited to Bangladesh as Key Note Speaker

CVSc Biotechnologist, Prof Prabodh Borah earned a rare honour from Bangladesh in 2019 when his wisdom and expertise was acknowledged internationally. Prof Borah was invited to act as the Key Note Speaker for the International Conference on 'Intensification of Livestock and Fisheries for Achieving Food Safety and Nutritional Security: Challenges and Opportunities' held at Chittagong Veterinary & Animal Sciences University, Bangladesh. The conference was held from 19th to 20th October, 2019. Prof Borah was also invited as the Resource Person for International Hands-on Training on 'Genomic Data Science and Cloud computing' on 21st October, 2019 in the same university.

Figure 2.4. Prof P Borah delivering his speech in Chittagong Veterinary & Animal Sciences University, Bangladesh

D. AAU entomologist awarded with Dr BV David Women Scientist Awarda

Dr BV David Foundation is a renowned foundation from Tamil Nadu, and this foundation awards few scientists, including few women scientists, every year to recognize their scientific achievements in the field of entomology and allied areas. AAU scientist, Dr Purnima Das, Department of Entomology, was awarded the Dr. B.V. David Women Scientist Award in the field of Agricultural Entomology for the year 2019, among few others from various parts of the country. The award was given to her in a prestigious function on 17th November, 2019 in Chennai. Dr Das also presented her works on 'Reaction of mutant line of rice against rice leaf folder, *Cnaphalocrocis medinalis* (Lepidoptera: Pyralidae)'.

Figure 2.5. Dr P. Das receiving the Dr BV David Women Scientist Award

E. Ten scientists selected for one month training in Europe under AdaptNET (Erasmus plus programme)

Erasmus Plus is a prestigious umbrella programme for knowledge and scientific exchange between India and Europe. AdaptNET was such a programme (coordinated by Prof BK Sarmah, Dr BK Borah and Dr S Acharjee, Dept of ABT) designed targeting the challenge of climate change; this programme included training of scientists and students from four Indian institutions (AAU, ICRISAT, UASD and Tezpur University) and four European institutions. Under this programme, ten scientists from various stations of AAU (Dr P. Bharali, Dr T. Nath, Dr R. Kalita, Dr R. Baruah, Dr P. Das, Dr R.L. Deka, Dr M. Gohain, Dr B. Gogoi, Dr M. Gogoi and Dr N. Rahman), and nineteen from the three other Indian partner institutions were selected for one month training in four institutions (University of Milano and Polytechnic University of Merche, Italy, and

Agricultural University of Athens and Academy of Athens (Greece) during January-February, 2020. The trained scientists would come back and start new courses or redesign existing courses on climate change mitigation strategies.

Figure 2.6. Scientists from AAU during their training workshop in Europe.

2.1.1. Awards won by teachers

2.1.1.1. College of Agriculture, Jorhat

- Prof. B.K. Sarmah, Department of Agricultural Biotechnology.
  * Appointed as member of Institutional Bio-Safety Committee (IBSC) of Assam Agricultural University.
  * Appointed member of Research Monitoring and Advisory Teams for AICRP/AINP/Ad-hoc projects implemented at Jorhat campus, 2018 - 19.
  * Appointed as Adviser to the selection committee for scientist recruitment under ASRB, New Delhi, 2019.
  * Appointed as Expert member for Rajasthan Public Service Commission recruitment, 2019.
  * Appointed as Expert member for DBT Special Scientific and Technical Appraisal and Advisory Group (STAG) to review proposal approved by SBT for Mission programme on Characterisation of Genetic Resources on 10th December, 2019.
  * Awarded Outstanding reviewer certificate, 2019 awarded by the Indian Society of Genetics and Plant Breeding, New Delhi.
  * Appointed as Expert Member for Biotechnology Industry Research Assistance Council (BIRAC), DBT, GoI, to identify priority research areas in the field of Agriculture & Plant Sciences, 2019.
  * Appointed resource person for the induction training for new faculty at Teaching Learning Centre, Tezpur University under the MHRD Govt of India initiative of Madan Mohan Malviya National Mission in 2019.
- Dr. Madhumita Barooah, Department of Agricultural Biotechnology, was awarded to hold a joint workshop under UK India Education & Research Initiative (UKIERI) of DST, India and UKIERI foundation in the last week of September, 2019.
- Dr. Priyadarshini Bharali, Dr. Tankeswar Nath, Dr. Ratna Kalita and Dr. Moloya Gohain, Department of Biotechnology, were selected for one month European AdaptNet training funded by the European Union (Erasmus+) in Europe during January - February, 2020.
- Dr. Ratna Kalita, Department of Biotechnology received the Best Oral Presentation award at National Workshop on Potential Biotechnology Programmes Using Bioresources of the NE Region from 12th - 14th September, 2019, DBT-NECAB, AAU, Jorhat, for presentation entitled 'Understanding incidence of viral disease in *Capsicum chinense* Jacq. - A systems Biology approach'.
- Dr. R. Sarma, Department of Agricultural Economics and Farm Management, was deputed as member of Interview Panel for recruitment of Agricultural Marketing Expert under ARIAS Society on 3rd March, 2020.
- Dr. B. Bharali, Department of Crop Physiology, received Reviewer Excellence Award: Legume Research, ARCC Journal, Haryana (India).
- Dr. Anjumoni Devee, Department of Entomology, received Young Scientist Award, 2019 given by Agricultural & Environmental Technology Development Society, US Nagar, Uttarakhand, India, in International Conference on Global Perspective in Agricultural and Applied Sciences for Food and Environmental Security (GAAFES-2019), held from 1st-2nd December, 2019.

- Dr. M. K. Deka, Department of Entomology, was appointed as External expert by the Hon'ble VC of Nagaland University, evaluation committee for assessment of research progress and recommend for up gradation from National fellowship for higher education of NU.
- Dr. (Mrs.) N. Deka, Department of Agril. Economics and FM.

  * Evaluated MBA (Agri-business) project report entitled 'A study on value chain of Tea in Manipur', College of Post Graduate Studies in Agricultural Science, Central Agricultural University, Imphal, Manipur.

  * Evaluated M.Sc. (Agri) Thesis entitled 'An economic Analysis of Arecanut Cultivation in Mokokchung district of Nagaland', Department of Agricultural Economics, School of Agricultural Sciences and Rural Development, Nagaland University.

  * Invited as External Examiner for PhD Thesis Viva Voce at Utkal University, Bhubaneswar on 19th June 2019. Thesis title: An Economic Analysis of Production and Marketing of Milk in Dhenkanal District of Odisha.

  * Invited as guest speaker to the awareness meeting on World Population Day at Mukti Jujaru Bhobon, Jorhat on 11th July, 2019.

  * Deputed as observer for CTET (Central Teacher Eligibility Test) on 7th July 2019 at KV, ONGC Jorhat.

  * Invited as Resource Person guest speaker to a five days in campus training programme on 'Improved techniques of weaving and product diversification for capacity building' for the selected members of SHG from adopted villages under AICRP-Home Science, CT component under the Department of Textile and Apparel Designing from 29th July - 2nd August 2019. She delivered a lecture on 'Market and Market Linkage' on 1st August, 2019.

  * The Society of Economics and Development presented Annual Membership (January-December 2019) in recognition and sincere appreciation of outstanding loyalty and dedication to the society.

  * Attended a meeting of Board of studies of the RDAP Department of North Eastern Hill University on 30th September 2019.
- Dr. R. K. Sarma, Department of Agril. Economics and FM, Evaluated M.Sc. (Agri) Thesis entitled 'Study on marketing pattern and post-harvest management of organic large cardamom and ginger in east Sikkim', Department of Agricultural Economics, School of Agricultural Sciences and Rural Development, Nagaland University.
- Dr. (Mrs) Manashi Gogoi, Department of Agril. Economics and FM.

  * Awarded a Research Project entitled "Exploring Agribusiness Opportunities in indigenous fruits of Assam" by Indian Council of Social Science Research (ICSSR) under Impactful Policy Research in Social Science (IMPRESS) Scheme of Ministry of Human Resource Development , GOI on 8th July, 2019

  * Shortlisted for 30 days workshop on 'Strengthening education, research and innovation for climate smart crops in India' under AdaptNet Programme of Eramus + to be held in January - February, 2020, in Europe.

* Mr. Dipanjan Kashyap, Department of Agril. Economics and FM.

  * Awarded a Research Project entitled 'Moving towards a sustainable private sector by creating responsible business behaviour in tea industry in Assam' with total fund amounting to Rs. 3,27,800/- by an organization viz., 'Save the Children'.

  * Selected for faculty upgradation Programme under National Agricultural Higher Education Project (NAHEP) at Rutgers University, New Brunswick, New Jersey, United States.

  * Received two awards in International Conference of Excellence in Research Innovation held in Athens, Greece, for his contributions in the field of food, Agriculture and Biological Sciences (i) Young Researcher Award 2019-20 (ii) Best Oral Presentation Award.

Figure 2.7. Dr. D. Kashyap receiving the awards in the International Conference of Excellence in Research Innovation

- Dr. Abhijit Borah, Department of Agricultural Engineering.
  * Assigned as Co-supervisor of PhD programme of M.J. Barooah by Assam University, Silchar.
  * Appointed as External Member in Board of Under Graduate Studies in Agril. Engineering of Assam University, Silchar.
  * Assigned as Supervisor of PhD programme of Mrs. R. Deka by USTM, Meghalaya.
- Er. Manas Jyoti Barooah, Department of Agricultural Engineering.
  * Assigned as Mentor to Incubate Mr. Amar Jyoti Chomua under North East Agriculture Technology Entrepreneurs' Hub (NEATHUB), An AIC-AAU Incubator (NITI AAYOG).
  * On behalf of All India Coordinated Research Project on Farm Implements and Machinery, bagged Chaudhary Devi Lal Outstanding AICRP Award-2018 of Indian Council of Agricultural Research.
- Dr. Samindra Baishya, Department of Biochemistry & Agricultural Chemistry.
  * Nominated as a Member, BSMA Committee for Basic Sciences, Indian Council of Agricultural Research, New Delhi.
  * Nominated as a Member, Scientific Advisory Committee, Tea Research Association, Tocklai Tea Research Institute, Jorhat, Assam.
- Dr. Ananta Madhab Baruah, Department of Biochemistry & Agricultural Chemistry.
  * 'Distinguish Scientist in Biochemistry', conferred by Venus International Foundation-Centre for Advanced Research & Design, 3rd August, 2019, Chennai, India.
  * The Dewang Mehta National Education Awards- 'Best Professor in Biochemistry Studies' in the award ceremony held on 26th February, 2020 in Hotel Vivanta, Guwahati, organized by the Business School Affairs & Dewang Mehta National Education Awards, India
- Dr. Ranjan Kandali, Department of Biochemistry & Agricultural Chemistry, as selected as a Member of the Editorial Board (2019-20) of the Indian Journal of Agricultural Biochemistry.
- Dr. G.C. Bora, Professor, Department of Plant Breeding & Genetics, as nominated as ISVS fellow for 2018.
- Dr. S.C. Barua, Tea Husbandry & Technology.
  * Nominated as a member of the Scientific Advisory Committee of the Tocklai Tea Research Institute under Tea Research Association.
  * Attended as an Expert Member, the Scientific Advisory Meeting of Tocklai Tea Research Institute, Tea Research Association held at Nagrakata, North Bengal on 17th February, 2020.
  * Nominated as members of the Expert Committee formed by Tea Board, India for fixing of cut off dates for plucking and manufacturing tea in N.E. India.
- Dr. G.K. Saikia, Tea Husbandry & Technology.
  * Nominated as a member of the Board of Visitors to the Central Jail, Jorhat by the Addl. Chief Secretary, Govt. of Assam.
  * Nominated as members of the Expert Committee formed by Tea Board, India for fixing of cut off dates for plucking and manufacturing tea in N.E. India.
- Dr. Jamini Saikia, Dr. A.C. Barbora., Dr. R.K., Kakoti, Dr. J.P. Dutta, Dr. Sikha Deka, and Dr. Arunima Gogoi, Citrus Research Station, AAU, Tinsukia, received the Best Paper Award (Poster Session; paper: 'Effect of different methods of propagation on vegetative characters of

Assam lemon (*Citrus limon*) selections') under Technical Session II: Citrus Production System on the tropic at National Citrus Meet – 2020, held at Biswanath College of Agriculture, AAU, during January 10th - 12th, 2020 organized by ICAR- Central Citrus Research Institute, Nagpur.

- Dr. P. Saikia, RARS, North Lakhimpur.
  * Nominated as member, Academic Council, AAU.
  * Nominated as member of the PG Advisory Board, Lakhimpur Girls College (Home Science), 2019-20.
  * Nominated as member, Governing Body of North Lakhimpur Civil Hospital, 2016-2019.
  * Nominated as member, IQAC & one of the Advisor of Placement Cell of NL College, Lakhimpur under the Human Resource Development Programme for Training Technologist for Life science and Biotechnology w.e.f. 12th February, 2009
  * Selected as Honorary Wildlife Warden, Dept of Environment & Forest, GOA for 2018-2020.
  * Nominated as member, District Pest Surveillance Advisory Unit (DPSAU), Dept of Agriculture, GOA Lakhimpur w.e.f. 7th January, 2009.
  * Nominated as Technical member & Resource person of Zonal meeting of Dept. of Agriculture, Govt. of Assam North Zone II, District Development Committee, Lakhimpur, ATMA, Lakhimpur
  * Selected as coordinator, Oryza Science Club, (VIPNET Club under DST, GOI), RARS, North Lakhimpur.
  * Selected for Young Scientist Award 2019, given by Agricultural & Environmental Technology Development Society, US Nagar, Uttarakhand, India

2.1.1.2. College of Horticulture, Nalbari

- Dr. Nilay Borah, Department of Soil Science, was conferred with the 'Gold Medical Award-2018' for his contribution in the field of Natural Resource Management including Soil and Water Conservation through Research, Teaching and Extension at Joint International Conference of SCSI, WASWAC and ISCO on Soil and Water Resources Management for Climate Smart Agriculture and Global Food and Livelihood Security New Delhi, organized by Soil Conservation Society of India (SCSI), New Delhi from 5th - 9th November, 2019.

2.1.1.3. College of Veterinary Science, Khanapara

- Dr. P. Borah, Professor & Head, Department of Animal Biotechnology.
  * Acted as the Key-Note Speaker in the International Conference on 'Intensification of Livestock and Fisheries for Achieving Food Safety and Nutritional Security: Challenges and Opportunities' at Chittagong Veterinary & Animal Sciences University, Bangladesh from 19th to 20th October, 2019.
  * Acted as the Resource person for International Hands on Training on 'Genomic Data Science and Cloud computing' at Chittagong Veterinary & Animal Sciences University, Bangladesh from 8th to 10th March, 2019.
  * Appointed as a member of the Expert Committee on 'Genomics and Transgenics in Plants, Animals and Fisheries' for the National Agricultural Science Fund (NASF), Constituted by Indian Council of Agricultural Research, New Delhi.
  * Appointed as a member of the Executive Committee constituted by DBT, Govt. of India to review the DBT Network programme on bovine tuberculosis control: Mycobacterial diseases in animals network (MyDAN) programme.
  * Appointed as a Member of the Research Council of Gauhati University, Guwahati.
  * Delivered the 4th Prof. Pratul Chandra Goswami Memorial Talk on the topic "Novel molecular tools and techniques with potential biomedical application", Department of Biochemistry, Gauhati Medical College & Hospital.
  * Visited University of Veterinary Medicine, Hanover, Germany on invitation from WHO Collaborating Centre for Research and Training for Health at Human-Animal- Environment

Interface for a training under the pilot project on VetCab-ID (Veterinary Consumption of Antibiotics-International Documentation) from 23rd to 30th July, 2019.

- Dr. Kamal Behari Dev Choudhury, Department of Veterinary Anatomy & Histology received 'Dr. A.M. Srivastava Gold Plated Silver Medal & Award For Outstanding Ph.D. Research in Anatomy during the year 2018' On XXXIV Annual Convention Of Indian Association of Veterinary Anatomists and National Symposiumheld in Department of Veterinary Anatomy, Veterinary College, Bengaluru - 560024 from 28th - 30th November, 2019.
- Dr. (Ms) Munmun Sarma, Department of Veterinary Anatomy & Histology.
  * The secretariat of the United Nations Convention to combat Desertification (UNCCD) invited to the Fourteenth session of the Conference of the Parties (COP-14), the eighteen session of the Committee for the Review of the Implementation of the Convention (CRIC-18) and fourteen session of the Committee on Science and Technology (CST-14) to the UWCCD held at India, Expo centre and Mart, New Delhi, India from 2nd - 3rd September, 2019.
  * Invited to present Lead paper in XXXIV Annual Convention of the Veterinary Anatomists & National Symposium on the topic 'Climate change: its effect on co-existance of humans and wildlife' organised by Veterinary College, Bengaluru, Karnataka from 28th -30th November, 2019.
- Dr. Saidul Islam, Department of Parasitology.
  * Won the Best Oral Paper Presentation Award in Annual Convention of Veterinary Internal and Preventive Medicine Society & National Symposium on 'Sustainable Improvement in Animal Health and Production –Bridging Science and policy for Economic Upliftment of Farmers', held in CVSC & AH, Uttar Pradesh Pandit Deen Dayal Upadhyaya Pashu Chikitsa Vigyan Vishwavidyalaya Evam Go Anusandhan Sansthan, Mathura & Central institute for Research on Goats, Mathura from November 8th - 9th, 2019.
  * Invited for presenting a Lead Paper entitled 'Reclassification of *Fasciola jacksoni* of Asian elephant (*Elephas maximus*)' in XXIV National Congress of Veterinary Parasitology and National Symposium held at Nanaji Deshmukh Veterinary Science University, Jabalpur, Madhya Pradesh, from 5th - 7th February, 2020.
  * Acted as Chairman, Technical Session-3 of 'Brain Storming Session on Improving the Quality and Relevance of Agricultural Education' in Consultative Workshop on Academia-Industry-Government on Linkage for Quality Agricultural Education (NAHEP Component 2) held on 27th and 28th January, 2020 at the CVSc, Khanapara.
  * Acted as Co-chairman of Technical Session - I of 33rd Biennial General Conference of Assam Animal Husbandry & Veterinary Service Association held at Goalpara town from 18th-20th January, 2020.
- Dr. M. Hazarika, Department of Livestock Production Technnology.
  * Invited as speaker and Co-chairman in International symposium cum 9th Conference of Indian Meat Science Association.
  * Invited as speaker, International Conference on Veterinary and Animal Sciences, Kualalumpur, Malaysia.
  * Selection Committee member for JRF, DBT sponsored Duck project, ICAR – Regional Centre, Borapani, Meghalaya.
  * Member, Board of Directors, Agri Incubation Centre, AAU, Jorhat.
- Dr. Dilip Kumar Sarma, Department Of Microbiology.
  * Member National Advisory Committee of the International Conference on Evolution of viruses and viral diseases (Virocon-20) held at Indian National Science Academy, New Delhi, India on 18th – 20th February, 2020.
  * Lead speaker International Conference on Evolution of viruses and viral diseases (Virocon-20) held at Indian National Science Academy, New Delhi on 18th – 20th February, 2020.
  * Co-Chairman of the Session 5 - Emerging

and Re-emerging Viruses (Animal) of the International Conference on Evolution of viruses and viral diseases (Virocon-20) held at Indian National Science Academy, New Delhi on 18th – 20th February, 2020.

* Coordinator of the National level workshop cum competition for bioscience students on the topic entitled 'Development of smart antimicrobial; agent to fight AMR' held at the Department of Veterinary Microbiology, AAU, Khanapara, Guwahati from 27th - 28th September, 2019.

- Dr. N.N. Barman, Department of Microbiology, acted as Lead speaker in International Conference on Evolution of viruses and viral diseases (Virocon-20) held at Indian National Science Academy, New Delhi on 18th – 20th February, 2020.
- Dr. D.C. Roy, Department of Pharmacology and Toxicology.

  * Awarded Adarsh Vidya Saraswati Rastriya Puruskar, 2019.

  * Bharat Ratna Dr. Abdul Kalam Gold Medal Award, 2019.

  * Mahatma Gandhi Life Time Achievement Award, 2019.

  * Bharat Udyog Ratan Gold Medal Award, 2018.
- Dr. Dhruba Jyoti Kalita, Department of Veterinary Biochemistry won National Agricultural Higher Education Project (NAHEP) Fellowship, Indian Council of Agricultural Research.
- Dr. R.A. Hazarika, Department of Veterinary & Public Health was awarded Certificate of appreciation for involvement as Core group member in Research Capacity Building Programme by Public Health Foundation of India, Gurgaon, held on 1st April, 2019 at New Delhi.
- Dr. Anubha Baruah, Department of Veterinary Physiology, acted as Executive Member from North Eastern Region, Chairman of Technical Session 4 on 'Small Ruminants, Poultry, Fish and Wildlife Physiology' under XXVIIIth Annual Conference & National Symposium on 'Physiological approaches to address environmental challenges for increasing animal productivity and farmer's income' held at ICAR-Central Sheep and Wool Research Institute, Avikanagar, 18th -19th February 2020.
- Dr. K.K. Sarma, Department of Surgery & Radiology

  * Padma Shri award, declared on Republic Day, 2020

  * Nominated as Fellow of Indian Society of Animal Production & Management, 2020.

  * Awarded Lifetime achievement Award-2020 by Kaziranga Wildlife Society on 28 February, 2020.

  * Member, State Board of Wildlife, Government of Assam.

  * Member, Captive Elephant Healthcare Committee, Project Elephant, Ministry of Environment, Forests & Climate Change, Govt of India.

  * Member, Technical Committee, Nandan Kanon Zoo, Bhubaneswar.
- Dr. Bhupen Sarma, Department of Surgery & Radiology was awarded the Best paper award; they won the Gold Medal for paper presentation titled 'Detomidine, Azaperone, butorphanol anaesthesia and reversal with Atepamezole in Asian Rhinos' at symposium of Indian society for Veterinary Surgery (ISVS-2019) at Nausari, Gujarat, held from 14th to 16th November, 2019.
- Dr. Ditul Barman, Department of Veterinary Clinical Medicine, Ethics & Jurisprudence, received Veterinary Internal and Preventive Medicine Society Appreciation Award, 2019 at VIPM conference 2019 held in Mathura, UP, from 8th to 9th November, 2019.
- Dr. Sayed Abdul Arif, Department of Veterinary Clinical Medicine, Ethics & Jurisprudence, got the ISVM Merit Award for Ph.D. Thesis Research, 2018.

2.1.2. Awards won by students

2.1.2.1. College of Agriculture, Jorhat

- DBT-AAU Centre Scholarship awarded: 07 PhD scholars.
- Partha Pratim Gyanuday Das, Department of Entomology, received Bayer's fellowship on 3rd

April, 2019.

- Awaneesh Kumar, Department of Entomology, won the Best Researcher award Best oral Presentation in 3rd International Conference on 'Global Initiatives in Agricultural and applied sciences for Eco Friendly environment' (GIASE-2019) organized by Agricultural Technology Development Society, Ghaziabad, UP, at Kathmandu, Nepal, held from 16th – 18th June, 2019
- Khirud Panging, Department of Plant Breeding and Genetics, was awarded Distinction in 'Resource management in Rainfed Drylands' organized by agMOOCs. The five-week course was organized from 25th March, 2019.
- Priyankee Dutta, Department of Plant Breeding and Genetics, won the First Prize in Poster Presentation in 'Zonal Symposium of Indian Phytopathological Society' held at ICAR Barapani.
- Kasturi Goswami, Department of Nematology, won the Best Poster Presentation at International Conference of SCSI, WASWAC & ISCO on Soil and Water Resources Management for Climate Smart Agriculture, Global Food and Livelihood Security, held from 5th - 9th November, 2019 at New Delhi.
- Shraddha Mohanty, Department of Soil Science won the First prize in oral presentation in the All India Post Graduate Student's Research Convention in Soil Science (2019).
- Shraddha Mohanty, Department of Soil Science won the Best Research Scholar Award in the National Conference on Promoting & Reinvigorating Agri-horti, Technological Innovations 'PRAGATI-2018' held in Jaipur from 15th to 16th December, 2018.
- Shraddha Mohanty, Department of Soil Science won presentation award of Clay Minerals Society of India, New Delhi on the basis of M.Sc. (Agri) academic records & Research work.
- Pithungo L. Kikon bagged the Best Paper Presentation award on her paper entitled 'Business Performance Evaluation of Rural Haats in Nagaland' in the 'Regional Seminar of Indian Society of Agricultural Economics on Perspective of Horti-business in Development of North Eastern Region' organized by College of Horticulture and Forestry, CAU, Pasighat co-organized by NABARD-Itanagar in association with ICAR-ATARI, Guwahati and Rajiv Gandhi University, Itanagar.
- Rajkumari Rameshori Devi bagged the Best Paper Presentation award on her paper entitled 'Status and Prospects of Pineapple and Mandarin Orange in Manipur, India' in the 'Regional Seminar of Indian Society of Agricultural Economics on Perspective of Horti-business in Development of north Eastern Region' organized by College of Horticulture and Forestry, Central Agricultural University, Pasighat co-organized by NABARD-Itanagar in association with ICAR-ATARI, Guwahati and Rajiv Gandhi University, Itanagar.
- Pubali Bezbaruah, Department of Tea Husbandry and Technology, was awarded the Most Outstanding Delegate of the FAO at Asia Youth International Model United Nations on 'Global Diplomacy Amongst the Sovereign Nations' held at Kuala Lumpur, Malaysia, held from 15th -18th February, 2020.
- Gayatri Kumari, Department of Agronomy, was awarded as young research fellow at JNU Delhi in the 'International conference on Advances and Innovations in Agriculture and Allied Sciences' held from 31st January - 1st February, 2020.
- G. Babu Rao, Department of Agronomy, bagged the PG research award in the 'International Conference on Advances and Innovations in Agriculture and Allied Sciences' held from 31st January - 1st February, 2020.
- G. Babu Rao, Department of Agronomy bagged the Best scholar award at National Conference on Recent Trends and New Frontiers in Biotechnology, Agriculture, Science and Environment held from 22nd - 23rd February, 2020 at St. Jon's College, Agra, UP.
- Ruby Gupta, Department of Agricultural Biotechnology, got selected for 'International Biosafety and Biotechnology Programme' at Michigan State University, USA, held on 4th April, 2019.

- Mamta Bhattacharjee, Lipika Khataniar, Sandhani Saikia, Shaswati Sharma, Richita Saikia, Department of Agricultural Biotechnology, were selected for European AdaptNet training, to be held in various parts of Europe next year.

2.1.2.2. College of Veterinary Sciences, Khanapara

- Neelakshi Deka, received Young Scientist Award for Best M.V.Sc. Thesis from Indian Association for the Advancement of Veterinary Parasitology, in an event organized by Nanaji Deshmukh Veterinary Science University, Jabalpur, Madhya Pradesh from 5th - 7th February, 2020.
- Sangeeta Das bagged the First prize in the oral paper presentation for her paper entitled 'Characterization and immunogenic potential of lentogenic Newcastle disease virus isolates from duck and parrot'(authored by Sangeeta Das, Pankaj Deka, Parikhit Kakati, Moushumee Das, Aman Kumar, Pubaleem Deka, Sophia M Gogoi and Dilip Kumar Sarma) at the International Conference on 'Evolution of Viruses and Viral Diseases' held at Indian National Science Academy, New Delhi, India from 18th -20th February, 2020.
- Sangeeta Das received Certificate of Appreciation for successfully completing her research project under the Research Capacity Building Programme by Public Health Foundation of India, Gurgaon, in an event held on 1st April, 2019 at New Delhi.
- Monalisa Ahmed won the University Gold Medal for the year 2019.
- Monalisa Ahmed bagged Smt. Padmawati Dutta Memorial Cash Prize for her research work.
- Monalisa Ahmed Late Dr. Durlav Chandra Baruah Memorial Cash Prize.
- Reema Shrestha won the Best presentation award at International conference on Animal Nutrition (INCAN) 2019, held at Kolkata during 17 to 19 December, 2019.
- Pooja Sonar bagged the Second prize in Avian Medicine section (paper presentation) on 'Successful treatment of Vitamin B1, deficiency in 2 pegions' in Indian Society of Veterinary Medicine (ISVM) Annual Convention 2020, held at Bangalore on 5th February, 2020.
- Prerona Patowary won the Third prize in Infectious Diseases of Companion Animal section (Poster presentation) on 'A study on epidemiology, clinicopathology and therapeutic management of Demodex canis infestation in dog' in ISVM annual convention 2020, held at Bangalore on 5th February, 2020.

2.1.2.3. Biswanath College of Agriculture

- Mr. Nayanjyoti Sarmah, a 3rd year student bagged the Second prize in the All Assam Institutional Quiz Competition held at Rangia on 29th January, 2020.
- Mr. Dibyajyoti Mahanta, a 2nd year student bagged 1st prize in the All Assam Dr. Upen Kakati Memorial Sangeet Competition held at Golaghat on 4th January, 2020.

2.1.2.4. College of Horticulture, Nalbari

- Prateeti Barua participated in the 'National Youth Conclave' held from 20th – 21st February, 2020 at G.B. Pant University of Agriculture and Technology, Pantnagar. She presented a paper on the topic 'A Study on Some of the Factors of Floricultural Market in Assam with Respect to Kamrup District'. Her paper was adjudged as the Best Paper of the conclave.

3. Important Events

A. The 21st AAU Convocation

The 21st Convocation was held on May 4, 2019 at the AAU headquarters in Jorhat. The ceremony was presided over by the Chancellor of Assam Agricultural University His Excellency the Governor of Assam, Prof. Jagdish Mukhi. Distinguished Special Guest Sjt Sarbananda Sonowal, Hon'ble Chief Minister of Assam in his address praised the students for their academic achievements and urged the students to go to the doorsteps of the farmers for rendering their expertise. The Chief Minister informed that the govt has ambitious plans for agriculture and allied subjects, and establishments of a Veterinary University and an Organic Agriculture University are on the agenda of the Assam Government. The Chancellor, in his presidential address, stated that the agrarian economy of Assam must be uplifted by improving the livelihood of the farming community, and praised the efforts of AAU for its efforts to achieve this goal.

Figure 3.1. The 21st Convocation of AAU. From left to right in the front row, Hon'ble Vice-Chancellor Prof KM Bujarbaruah, Hon'ble Chief Minister of Assam Sjt Sarbananda Sonowal, His Excellency the Governor of Assam and Chancellor Prof Jagdish Mukhi, Hon'ble Minister of Agriculture Sjt Atul Borah and Hon'ble MP Sjt KP Tasa.

Figure 3.2. Hon'ble Governor and Chancellor Prof Jagdish Mukhi delivering his address in the 21st Convocation of AAU.

B. Closing ceremony of the Golden Jubilee Year of AAU

The AAU had completed the 50th year of its existence in 2018 and the year 2018-19 was celebrated as the Golden Jubilee Year with various functions across its establishments. The celebration came to an end with the closing ceremony organized in the headquarters in Jorhat on 17th June, 2019. Hon'ble Minister of Education, Health & Family Welfare and several other departments, Dr Himanta Biswa Sarma graced the occasion with his presence. In addition to addressing the gathering in the auditorium, he inaugurated the newly constructed AAU museum, and visited important research establishments such as the DBT-AAU Centre. Dr Sarma also inaugurated the newly constructed CCS guest house in the university premises.

Figure 3.3. Hon'ble Minister Dr Himanta Biswa Sarma being felicitated by Hon'ble Vice-Chancellor Prof KM Bujarbaruah in the Closing Ceremony of the Golden Jubilee Year of AAU. Hon'ble MP Sjt KP Tasa and Joint Registrar Prof Anup Kumar Das look on.

Figure 3.4. Hon'ble Minister Dr Himanta Biswa Sarma interacting with the scientists in the DBT-AAU Centre. Hon'ble Vice-Chancellor Prof KM Bujarbaruah; Director DBT-AAU Centre Prof BK Sarmah, and Hon'ble MP Sjt KP Tasa are also seen.

C. International Seminar on Elephant Endotheliotropic Herpes Virus & 4th Asia Working Group Meeting

Faculty of Veterinary Science, Khanapara and Wildlife Reserves, Singapore jointly organized the International Seminar on EEHV & 4th Asia Working Group Meeting in Khanapara premises of AAU from 28th to 30th November, 2019. There were representatives from almost all of the Asian elephant range countries and included presenters from Japan, China and Pakistan. AES also provided funding for three Asian Elephant Support (AES) grant recipient veterinarians to present about EEHV in their respective countries: Dr. Amir Sadula (Nepal), Dr. Zaw Min Oo (Myanmar) and Dr. Vijitha Perera (Sri Lanka). AES Secretary Janet Dray represented AES. The workshop organizers packed each of the three days full of activities that included allowing each region/country to present their status of EEHV and for international scientists to show their latest findings and recommendations on detecting and treating the disease. Besides, the Thailand Task Force presented their findings as well as the forms they use to collect data. One recommendation from the Assam workshop was for India to form its own Task Force. The last day of the workshop was a field trip to Pobitora Wildlife Sanctuary.

Figure 3.5. A scene from the seminar on EEHV & 4th Asia Working Group Meeting

D. Inauguration of Indoor Stadium in BNCA

The new Indoor Stadium of BNCA was inaugurated by Dr. Himanta Biswa Sarma, Hon'ble Minister of Finance, PWD, Health and Family Welfare, Govt. of Assam in the presence of Hon'ble Vice-Chancellor of AAU, Dr. A. Bhattacharyya; Mr. Pallab Lochan Das, Hon'ble MP, Tezpur; Mr. Promod Borthakur, Hon'ble MLA, Biswanath; Dr. R. N. Barman, Associate Dean, BNCA; Mr. D. J. Das, DC and Mr. Rakesh Roshan, SP of Biswanath along with other dignitaries on Nov. 24, 2019. All the teachers, scientists, employees and students of Biswanath College of Agriculture were present on the occasion. The new Indoor Stadium will fulfill the need of the students of the college; it also showcased the growing emphasis of the university on extra-curricular activities, in addition to academics.

Figure 3.6. Hon'ble Minister Dr HB Sarma inaugurating the Indoor Stadium.

E. National Workshop on Biotechnology organized by DBT-NECAB Centre

The DBT-AAU Centre of AAU organized A National Workshop on Potential Biotechnology Programmes Using Bioresources of the NE Region from 12th to 14th September, 2019. The DBT, Govt. of India sponsored programme was attended by several scientists and researchers from all the northeastern states and eminent biotechnologists from the country delivered thought-provoking lectures in the three-day event. Prof. Prabhakar Ranjekar, Eminent Biotechnologist and Retired Director of IRSHA; Dr. Kuldeep Singh, Director, ICAR-NBPGR, New Delhi; Dr. P. M. Bulakh, Director, BCUD, Bharati Vidyapeeth University & Ex-Dean, B.J. Medical College, Pune and Dr. Arvind Kumar, Director, IRRI-SARC, Varanasi were among the dignitaries who graced the event with their presence.

Figure 3.7. The participants and the dignitaries attending the National Workshop on Potential Biotechnology Programmes Using Bioresources of the NE Region

F. National Quinquennial Review of AICRP on Weed Management

The Department of Agronomy of AAU organized the National Quinquennial Review of East Zone on 9th and 10th July 2019 in AAU premises. The two-day event was sponsored by AICRP on Weed management. Prof K.M. Bujarbaruah, Hon'ble Vice-Chancellor, AAU and Prof. A.K. Singh, Chairman of the QRT team were among the few important dignitaries attending the inaugural ceremony of the meeting. The QRT team expressed satisfaction about the progress of the work in the east zone; a roadmap for the next review period was designed in the meeting.

Figure 3.8. Inaugural session of the Quinquennial Review, chaired by Hon'ble Vice-Chancellor, Prof. K M Bujarbaruah. Dr. A K Singh, Chairman of the Team and other dignitaries are also seen.

3.1. College of Agriculture

- The second Scientific Advisory Committee meeting cum Steering Committee meeting of DBT North East Centre of Agricultural Biotechnology (DBT-NECAB) was held from 23rd to 24th January, 2020 at DBT-AAU Centre, Jorhat. The SAC meeting was chaired by Dr. T. J. V. Higgins of CSIRO, Canberra and the SC meeting was chaired by Dr. A Bhattacharyya, Vice-Chancellor. Dr. M Aslam, Adviser, DBT, GoI; Dr. T Madhan Mohan, Senior Consultant Adviser, DBT-NERBPMC; Dr. N K Singh, ICAR-National Professor and Director NIPB; Dr. Arvind Kumar, Director, IRRI South Asia Centre; Dr. M. V. Deshpande, Scientist, Director, Greenvention Pvt Ltd., Pune were present in the meeting as members from outside AAU.

Figure 3.9. SAC-meeting of DBT-NECAB

- State–level ICAR-sponsored training on Technology of Tuber Crops Cultivation was organized on 31st May, 2019.
- State-level workshop on Recent Trends in Production, Processing and Marketing of spices in Assam was organized from 21st August, 2019 to 22nd August, 2019. The event was organized by DASD, Kerala, GoI.
- District-level training on Cultivation Practices of Strawberry was organized on 30th August, 2019. The event was organized by the department of Horticulture, AAU, Jorhat, in Gohanipar, Bokakhat.
- Field visits to Anthurium Growing areas (Dhenususa and Cinamora, Jorhat) of Jorhat were organized on 28th August, 2019. The event was organized by the department of Horticulture, AAU, Jorhat.
- State-level workshop on Good Agricultural and collection practices on MAP & Betelvine was organized by the department of Horticulture (under AICRP on MAP & Betelvine) on 15th September, 2019 in Amguri. The programme was sponsored by ICAR. The programme was repeated on 20th September, 2019 in Duliajan.
- The 32nd Horticultural Show and Competition was organized in AAU, Jorhat, by the department of Horticulture on 7th February, 2020.

Figure 3.10. The Hon'ble Vice Chancellor (i/c) and other dignitaries inaugurating the annual horticultural show.

- A 15-days regional-level entrepreneurship development training on Apiculture was taken up by AICRP on Honeybees and Pollinators in AAU. EEI, AAU, Jorhat organized and Department of skill development, Ministry of Agriculture and Farmers Welfare, New Delhi, Govt. of India sponsored the programme.
- A one-day ICAR-sponsored regional-level training on 'rodent pest management in pulse crops : Field training and method demonstrations of bait preparations, field applications and precautions to be taken in the use of rodenticides' was organized by AINP on Vertebrate Pest Management.
- A regional-level one-day training and awareness programme on scientific cultivation of Lac was organized by the Network project on Conservation of Lac Insect Genetic Resources in Dhemaji. The programme was organized by ICAR-IINRG.
- A one-day awareness meeting cum distribution of plant materials was organized by AINP-Soil Arthropod pests in AAU. The programme was organized by ICAR.
- Five nos. of one-day training wef. 7-12 January, 2020 was organised on scientific beekeeping for TSP beneficiaries by AICRP on Honeybee and pollinators in Goreswar & Tamulpur, Baksa. The programme was organized by ICAR.
- Hands-on-training was conducted to generate

awareness and to disseminate technology on lac cultivation 30th August, 2019 and on 2nd September, 2019, in Baksa and Barpeta. The programme was organized by the Network project on Conservation of Lac Insect Genetic Resources, and was sponsored by ICAR-IINRG.

- Training cum material distribution under TSP programme was organized in Boralipar, Baksa on 29th November, 2019. The programme was organized and sponsored by AICRP on Biocontrol. The programme was repeated in Sontala, Baksa on 30th November, 2019, in different places of Baksa district from 23rd to 26th March, 2020.
- AICRP on Biocontrol organized BIPM of Field and Vegetable Crops in five locations (Dangdhora, Jorhat; Neulgaon, Jorhat; Kachamari, Golaghat; Bampothar, Jorhat and Garigaon, Golaghat) from 20th to 24th January, 2020.
- A one-day lecture on "All about Global Warming & Climate Change" was organized on 1st June, 2019 in the Community Hall, Department of Agrometeorology.
- Regional level programme on Preparation and dissemination of Agromet and Advisories at block was organized at DEE, AAU from 26th to 31st August, 2019. The programme was jointly organized by IMD and ICAR level under GKMS Scheme" for SMS (Agromet) of KVKs, NE Region, and was sponsored by IMD.
- A 21-day CAFT-training on Organic farming was organized by the department of Soil Science from 4th to 24th September, 2019. The programme was ICAR-sponsored, and was participated by 23 participants from 11 states.

Figure 3.11. Dignitaries in the inauguration of CAFT-training on Organic farming

- Regional-level training on Advances in Livestock Husbandry approaches for popularizing Agricultural Technology was organized by EEI, from 26th to 30th November, 2019.
- A state-level workshop on Nanoparticles Tracking Analysis was organized by Department of Plant Pathology on 22nd August, 2019. The programme was sponsored by the NAHEP.
- A state-level workshop on the use of foldscope was organized by Department of Plant Pathology on 12th September, 2019. The programme was sponsored by DBT, GOI.
- National workshop on Leveraging Artificial Intelligence to secure the future of global agriculture was conducted from 22nd January to 1st February, 2020 by the department of Plant Pathology. The programme was sponsored by NAHEP.
- National workshop on making greater use of Biocontrol agents for Organic Agriculture was conducted from 4th to 13th November, 2019 by the department of Plant Pathology. The programme was sponsored by ICAR.
- National-level Awareness training on Popularization of soybean for food, nutritional and livelihood security of tribal farmers in

Dhemaji and Udalguri district of Assam was organized from 26th September, 2019 by Department of Plant Pathology in Baligora, Dhemaji. The programme was sponsored by ICAR. This event was repeated in four more locations of Dhemaji, Lakhimpur and Udalguri district on 10th, 21st, 22nd January, and 28th February, 2020.

- ICAR-sponsored regional Technology and Machinery Demonstration Mela was organized by the department of Agricultural Engineering on 28th February, 2020.

Figure 3.12. Interaction in the Technology and Machinery Demonstration Mela.

- Department of Extension Education, AAU, organized national training on Personality Development for 4th Year ELP Students from 15th to 25th October, 2019 in AAU.

3.5. College of Veterinary Science, Khanapara

- National workshop on Fundamentals of Bioinformatics in Genomic & Proteomic Research was organized by Bioinformatics Infrastructure Facility, CVSc from 26th to 29th November, 2019. The workshop was sponsored by DBT, Govt of India.
- National workshop on Computational approaches for understanding biomolecular interactions was organized by Bioinformatics Infrastructure Facility, CVSc from 17th to 20th February, 2020. The workshop was sponsored by DBT, Govt of India.
- Regional workshop Programme on Capacity building in artificial insemination in pig was organized by the department of ARGO, CVSc from 6th to 8th August, 2019. The workshop was sponsored by DBT, Govt of India. The workshop was repeated from 20th December to 21st December, 2019.
- On- day state-level training programme on waste to health in sahiwal cattle farm was organized by Instructional Livestock Farm Complex on 10th February, 2020, with funding from the project, "Implementation of small scale biogas plant in sahiwal cattle farm".
- State-level training on Processing and Value Addition of Meat and Meat Products was organized on 28th May, 2019. The training was organized by AICRP on PHET in collaboration with Department of LPT, and was sponsored by ICAR.
- State-level training on Hygienic Production and Processing of Meat and Utilization of Slaughterhouse By-products for Entrepreneurship Development was organized from 13th to 14th February, 2020 in KVK,

Morigaon. The training was organized by AICRP on PHET in collaboration with Department of LPT, and was sponsored by ICAR-CEPHET, Ludhiana.

- National Winter School on Advances in diagnosis and control of endemic and emerging infectious diseases of livestock and poultry in North Eastern Region of India was organized by Department of Microbiology, CVSc, from 3rd to 23rd December, 2019. The programme was sponsored by ICAR.

Figure 3.13. Hon'ble Vice Chancellor (i/c) and other dignitaries releasing the hands-on manual during the inauguration of the Winter School on Livestock Microbiology

- Regional workshop on Development of smart antimicrobial agent to fight AMR was organized by Department of Microbiology, CVSc, from 27th to 28th September, 2019. The programme was sponsored by Wetlab Championship and Shaastra, IIT Madras.
- Regional workshop on Development of Smart Antimicrobial Agent to Fight AMR was organized by Department of Microbiology, CVSc, from 27th to 28th September, 2019. The programme was sponsored by Wetlab Championship and Shaastra, IIT Madras.
- Extension Programme on distribution of ducklings to the rural woman was organized by ICAR All India Network Programme on Gastrointestinal Parasitism, Department of Parasitology, CVSc, on 4th March, 2020 at Ahatguri, Morigaon. The programme was sponsored by ICAR All India Network Programme on gastrointestinal parasitism. The programme was repeated in Maloibari, Kamrup District (R) on 10th July, 2019.
- State-level training programme on "Skill development for poultry production technology" for farmers was organized by Department of Poultry Science, CVSc, from 17th to 23rd June, 2019.
- State-level training programme on "Skill development for poultry production technology" for educated youths was organized by Department of Poultry Science, CVSc, from 10th to 16th September, 2019.
- National programme, Pipping 2019, Poultry Symposium was organized by Department of Poultry Science, CVSc, on 27th July, 2019. The programme was sponsored by six companies.

Figure 3.14. Dignitaries in the dais in the inauguration of Poultry Symposium (Pipping19).

- National two days Workshop and Hands-on training on OIE-Compliant Diagnosis of Rabies in Animals was organized by Department of Veterinary Epidemiology & Preventive Medicine, CVSc, from 5th to 6th August, 2019. The programme was sponsored by OIE-Twinned-CVA-KVAFSU Rabies Diagnostic Laboratory, Department of Microbiology, Bangalore Veterinary College, KVAFSU, Bengaluru.
- Regional training on Clinical Haematology" under Clinical training to the Para Vets of Sikkim was organized by DEE, AAU, in Department of Veterinary Physiology, CVSc, from 20th July to 2nd September, 2019. The programme was sponsored by Govt of Sikkim.
- State-level Farmers sensitization and awareness programme on duck rearing, A training on duck production with special reference to counteract food borne mycotoxins, was organized by Department of Veterinary Physiology, CVSc, DEE, AAU in Jhargaon Gaon Panchayat, Morigaon from 5th to 6th February, 2020. The programme was sponsored by ICAR-NASF research project, Aflatoxin tolerant duck production through genetic and epigenetic approaches.

3.3. College of Community Science

- National Handloom Day organized at the university premises on 8th August, 2019.
- National-level training on Statistical methods for behavioural science with R-Software was organized in the university premises on 19th and 20th September, 2019. The event was sponsored by Indian Statistical Institute, Kolkata.

Figure 3.15. Dignitaries in the inauguration of the training on Statistical methods for behavioural science with R-Software.

- Aarhi Daycare Center was inaugurated on 29th October, 2019 in the college premises.
- Constitutional Day was celebrated at the university premises on 26th November, 2019. The event was sponsored by the District Legal Service Authority, Jorhat.
- Child Protection Day was celebrated on the university premises on 4th March, 2020. The event was sponsored by Assam State Commission for Protection of Children Rights.
- District level Awareness Camps on Reproductive Health for Adolescent Girls was organized on the occasion of installation of incinerators in five different schools of adopted villages on 21st, 26th and 28th November, 2019. The event was sponsored by ICAR, CIWA.

Figure 3.16. Awareness Camps on Reproductive Health for Adolescent Girls in Kakojan Girls' High School, Jorhat.

- World Environment Day was celebrated at district level on 5th June, 2019 on Concept Junior College, Titabor.
- World Ozone Day was celebrated at district level on 16th September, 2019 in the university premises.

Figure 3.17. Celebration of the World Ozone Day in the CCSc premises.

- District level workshop on Economic Empowerment of Farm Women through Bee Keeping was organized on 11th January, 2020 in the university premises. The event was sponsored by Entrepreneurship Development Institute of India, New Delhi.
- District level workshop on Floriculture – The way of Economic Empowerment of Farm Women was organized on 12th January, 2020 in the university premises. The event was sponsored by Entrepreneurship Development Institute of India, New Delhi.
- District level workshop to Generate Income through Bag Making was organized on 28th November, 2019 in Social Ecological and Health Welfare Association (SNEHA), an NGO, Bahona, Jorhat. SNEHA itself sponsored the event.
- State level Plantation Programme Women was organized on 2nd July, 2020 at Mudoijan Bharalua, Pirakata Bharalua, Badulipukhuri Majgaon and Dewan Bharalua. The event was sponsored by ICAR, CIWA, Bhubaneswar.
- State level International Women's Day was organized from 4th to 7th March, 2020 at Dhekiajuli Sonari Gaon, Mudoijan Bharaluwa, Teok. The event was sponsored by ICAR, CIWA, Bhubaneswar.
- State level awareness programme on GKMS and Its Use was organized on 29th May, 2019 at Mudoijan Bharaluwa, Teok. The event was sponsored by ICAR, CIWA, Bhubaneswar.
- State level awareness programme on GKMS and Its Use was organized on 25th September, 2019 at Pirakata Bharaluwa, Teok. The event was sponsored by ICAR, CIWA, Bhubaneswar.
- State level workshop on Capacity Building of SHG Members on Quail Rearing for Gainful Employment was organized on 27th June, 2019 at Mudoijan Bharaluwa Gaon, Teok. The event was sponsored by ICAR, CIWA, Bhubaneswar.

Figure 3.18. Workshop on Capacity Building of SHG Members on Quail Rearing for Gainful Employment at Mudoijan Bharaluwa Gaon, Teok.

- State level workshop on Capacity Building of SHG Member on Mushroom Cultivation for Livelihood Security was organized on 14th February, 2020 at Mudoijan Bharaluwa Gaon, Teok. The event was sponsored by ICAR, CIWA, Bhubaneswar.
- State level Demonstration Programme on Vermicompost Production was organized on 14th February, 2020 at Mudoijan Bharaluwa Gaon, Teok. The event was sponsored by ICAR, CIWA, Bhubaneswar.
- International Women's Day was celebrated in Dhekiajuli Sonari Gaon on 4th March, 2020. The event was sponsored by ICAR, CIWA, Bhubaneswar.
- International Women's Day was celebrated in

Mudoijan Bharalua Gaon on 8th March, 2020. The event was sponsored by ICAR, CIWA, Bhubaneswar.

3.4. Biswanath College of Agriculture

- National event on Training of Teachers organized in the Biotech Hub, under Agricultural Skill Council of India; 5-14 August, 2019.
- National event on Technical Training of Agri Advisors of PRAGYA, Gurgaon, Haryana organized in the Biotech Hub; 16 -19 March, 2020.
- National event on Demonstration of Mushroom Spawn Production and Cultivation Technique organized by the Biotech Hub in Balajan Village, Balipara and Kasokota Village, Behali; 16 and 18th December, 2019.
- Village level event on Training cum method demonstration on Root dip treatment and line sowing system of paddy by the ICAR-CRIDA in Marolgaon, Biswanath Chariali; 2nd July, 2019.
- Village level event on Training cum method demonstration on Methods of soil sampling for Soil analysis by ICAR-CRIDA in Dishiri Village, Biswanath Chariali; 5th July, 2019.

Figure 3.19. Training cum method demonstration in Dishiri Village, Biswanth Chariali.

- Village level event on Training cum method demonstration on Root dip treatment and line sowing system of paddy by ICAR-CRIDA in Dishiri Village, Biswanath Chariali; 18th July, 2019.
- Village level event on Demonstration of Agricultural Farm Machinery by ICAR-CRIDA in NICRA village, Chamua, Lakhimpur, Biswanath Chariali; 24th July, 2019.

Figure 3.20. Demonstration of Agricultural Machinery in Chamua, Lakhimpur, Biswanath.

- Village level event on Training cum method demonstration on Root dip treatment and line sowing system of paddy by ICAR-CRIDA in Marolgaon , Biswanth Chariali; 2nd September, 2019.
- Village level event on Training cum method demonstration on Assam lemon cultivation by ICAR-CRIDA in NICRA village, Chamua, Lakhimpur, Biswanath Chariali; 2nd September, 2019.

Figure 3.21. Training cum method demonstration on Assam lemon cultivation by ICAR-CRIDA in NICRA village, Chamua, Lakhimpur, Biswanath Charial.

3.5. College of Fishery Sciences

- State-level SCSP training programme on Post harvest Management of Fish was organized by the department of Aquaculture in collaboration with ICAR-CIPHET, Ludhiana, Punjab from 15th to 17th October, 2019. The programme was sponsored by ICAR-CIPHET, Ludhiana, Punjab.
- State-level project launch workshop on Scientific Conservation Programme of Indigenous Fishes was organized by the department of Aquaculture, FRM and FEES on 26th February, 2019.
- State-level one-month training programme on Aquaclinics and Aquaentreneurship development programme was organized by the department of Aquaculture from 27th August to 25th September, 2019. The programme was sponsored by NFDB, Hyderabad.

Figure 3.22. Dignitaries in the closing ceremony of training programme on Aquaclinics and Aquaentreneurship development

- State-level project Launch workshop of SCSP project Socio-Economic Upliftment of Scheduled Caste Community of Thekeraguri Village, Nagaon & Morigaon District, Assam through Scientific Fish Farming and Fish-Based Ecotourism Interventions was organized by the department of Aquatic Environment Management on 2nd March, 2020. The programme was sponsored by ICAR- Directorate of Coldwater Fisheries Research, Bhimtal, Uttarakhand.
- National state government-sponsored Launching Workshop of Scientific Conservation Programme for Indigenous Fish was organized by Department of Fisheries Resource Management on 26th February, 2020.
- A National-level awareness camp on Piglet & Poultry Maintenance and Scientific Fish Culture Practices was organized by the department of Fisheries Resource Management from 24th October, 2019 to 27th October, 2019 in Nagaon & Morigaon. The programme was organized by DBT, Govt. of India.
- National-level Training on Integrated Farming System was organized by Department of Fisheries Resource Management from 28th December, 2019 to 31st December, 2019 in Nagaon & Morigaon. The programme was organized by DBT, Govt. of India.
- Training of trainers on Fisheries and Aquaculture for Rural Transformation in Assam was organized from 10th to 12th February, 2020 in CFSc, Raha.

Figure 3.23. Training of trainers on Fisheries and Aquaculture for Rural Transformation in Assam

3.6. Events organized in various outstations of AAU

- District-level Farmers Fair was organized by Sugarcane Research Station, Buralikson on 19th November, 2019. The programme was sponsored by AICRP on Sugarcane.
- A regional level Farmers-Scientists Interaction was organized by RARS, North Lakhimpur in collaboration with AIR, Dibrugarh on 21st October, 2019.
- Training on Improved Production Technology of Toria was organized by RARS, North Lakhimpur on 1st November, 2019. The programme was sponsored by ICAR-AINP.
- Zonal Farmers' Meet 2019 was organized by RARS, North Lakhimpur in collaboration with KVKs of NBPZ, BNCA, AAU and LCVSc, Joyhing on 7th December, 2019 in RARS, North Lakhimpur. The programme was sponsored by ICAR-AINP on Vertebrate Pest Management.

Figure 3.24. Farmers-Scientists Interaction in the Zonal farmers meet 2019.

- A regional level Farmers-Scientists Interaction was organized by RARS, North Lakhimpur in collaboration with KVKs of NBPZ on 7th December, 2019 in RARS, North Lakhimpur. The programme was sponsored by ICAR-AINP on Vertebrate Pest Management.
- A regional Training on Production technology and vertebrate management in summer paddy was organized by RARS, North Lakhimpur on 6th February, 2020. The programme was sponsored by ICAR-AINP.
- A district level Training programme on Strengthening Post Harvest Management was organized by RARS, North Lakhimpur from 3rd to 5th February, 2020. The programme was sponsored by APART.

Figure 3.25. Training on Strengthening Post Harvest Management

- Regional Farmers Fair and Exhibition was organized by RARS, North Lakhimpur in collaboration with Mising Autonomous Council, Dhemaji from 8th to 9th February, 2020 in Gogamukh, Dhemaji. The programme was sponsored by Mising Autonomous Council, Dhemaji.
- A regional-level Farmers-Scientists Interaction was organized by RARS, North Lakhimpur in collaboration with Mising Autonomous Council, Dhemaji from 8th to 9th February, 2020 in Gogamukh, Dhemaji. The programme was sponsored by Mising Autonomous Council, Dhemaji.
- District-level Rice Knowledge Bank training was organized by RARS, North Lakhimpur from 17th to 18th February, 2020. The programme was sponsored by APART.
- Regional level Farmers-Scientists Interaction was organized by RARS, North Lakhimpur in collaboration with KVK, Chirang on 25th February, 2020. The programme was sponsored by ICAR-AINP.
- State-level Farmers Day was organized by RARS, Titabor on 7th November, 2019.
- A national Writeshop for content development of RESILIENCE project was organized by RARS, Titabor from 11th to 13th June, 2019. The programme was sponsored by MSSRFs.
- Training on Post Harvest Management at Titabor was organized by RARS, Titabor from 11th to 12th February, 2020. The programme was sponsored by APART.
- Regional level Training on Quality seed production was organized on 8th June, 2019 by APART on Rice.
- Regional level Training on Quality seed production was organized on 14thFebruary, 2020 by APART.
- Regional level Training on Quality seed production was organized on 14th February, 2020 by APART.
- Regional level Farmer's fair was organized on 19th November, 2019 by Sugarcane Research Station, Buralikson. The programme was sponsored by AICRP on Sugarcane.
- Regional level Farmers-Scientists Interaction was organized on 21st October, 2019 by RARS, North Lakhimpur in collaboration with AIR, Dibrugarh.
- Regional level training on improved production technology of toria was organized on 1st November, 2019 by RARS, North Lakhimpur. The programme was sponsored by ICAR-AINP.
- State level Zonal Farmers' Meet and Farmers-Scientists Interaction was organized on 7th December, 2019 by RARS, North Lakhimpur in collaboration with KVKs of NBPZ, BNCA, AAU and LCVSc, Joyhing, Lakhimpur. The programme was sponsored by ICAR-AINP on Vertebrate Pest Management.
- Regional level Kisan Mela was organized on 29th and 30th January, 2020 by Citrus Research Station, Tinsukia. The programme was sponsored by Department of Agriculture, Govt. of Assam.
- Regional level Training on Production technology and vertebrate management in summer paddy was organized on 6th February, 2020 by RARS, North Lakhimpur. The programme was sponsored by ICAR-AINP on Vertebrate Pest Management.
- District level Trainings on Strengthening Post Harvest Management and Rice Knowledge Bank were organized from 3rd to 5th February and 17th to 18th February, 2020 by RARS, North Lakhimpur. The programme was sponsored by APART.
- Regional level Farmers Fair and Exhibition and Farmers-Scientists Interaction was organized on 8th and 9th February, 2020 by RARS, North Lakhimpur. The programme was sponsored by Mising Autonomous.
- Regional level Farmers-Scientists Interaction was organized on 25th February, 2020 by RARS, North Lakhimpur in collaboration with KVK, Chirang. The programme was sponsored by ICAR-AINP.
- State level Farmers day was organized on 7th November, 2019 by RARS, AAU, Titabor.
- National level workshop for content development of RESILIENCE project was organized from

11th to 13th June, 2019 by RARS, AAU, Titabor. The programme was sponsored by MSSRFs.

- State level training on Post-Harvest Management was organized on 11th and 12th February, 2020 by RARS, Titbor. The programme was sponsored by APART, AAU.
- National level 62nd Annual Maize Workshop was organized from 5th to 7th April, 2019 by RARS, Gossaigaon. The programme was sponsored by ICAR, AICRP MAIZE, New Delhi.
- State level Zonal Research and Extension Advisory Committee Meeting (Rabi) was organized on 3rd September, 2020 by RARS, Gossaigaon.
- State level Zonal Research and Extension Advisory Committee Meeting (Kharif) was organized on 6th February, 2020 by RARS, Gossaigaon.
- State level Training on Quality Seed Production of Sali Rice was organized on 7th June, 2020 by RARS, Gossaigaon. The programme was sponsored by APART, AAU.
- State level Field Day on Machine Transplanted Rice Variety Bina Dhan11 was organized on 18th and 19thJune, 2019 by RARS, Gossaigaon. The programme was sponsored by APART, AAU.
- State level Field Day on Stress Tolerance Rice Variety Bina Dhan11 was organized on 27th and 28th June, 2019 by RARS, Gossaigaon. The programme was sponsored by APART, AAU.
- State level Field Day on Wet Drum Seeded Rice Variety Bina Dhan11 was organized on 29th June, 2019 by RARS, Gossaigaon. The programme was sponsored by APART, AAU.
- State level Field Day on Wet Drum Seeded Rice Variety Ranjit Sub-1 was organized on 20th and 21st November, 2019 by RARS, Gossaigaon. The programme was sponsored by APART, AAU.
- State level Field Day on Stress Tolerance Rice Variety Ranjit Sub-1 was organized on 21st and 23rd November and 4th and 6th December, 2019 by RARS, Gossaigaon. The programme was sponsored by APART, AAU.
- State level Field Day on Stress Tolerance Rice Variety Bahadur Sub-1 was organized on 22nd November, 2019 by RARS, Gossaigaon. The programme was sponsored by APART, AAU.
- State level Field Day on Stress Tolerance Rice Variety Swarna Sub-1 was organized on 5th December, 2019 by RARS, Gossaigaon. The programme was sponsored by APART, AAU.
- State level Field Day on Premium Quality Rice Variety, Keteki Joha was organized on 9th, 10th and 11th December, 2019 by RARS, Gossaigaon. The programme was sponsored by APART, AAU.
- State level Training on Usage of Assam Rice Knowledge Bank was organized on 14th and 15thFebruary, 2020 by RARS, Gossaigaon. The programme was sponsored by APART, AAU.
- State level Training on Quality Seed Production of Early Ahu Rice was organized on 28th February, 2020 by RARS, Gossaigaon. The programme was sponsored by APART, AAU.
- State level Training on Rice Value Chain was organized on 29th February, 2020 by RARS, Gossaigaon. The programme was sponsored by APART, AAU.
- State level Front line demonstration on Lentil was organized from 12th to14th February, 2020 by RARS, Gossaigaon. The programme was sponsored by APART, AAU.
- State level Training on Scientific cultivation of Oyster mushroom (10 nos of training) were organized from 1st to 6th and 8th to 11th April, 2019 by RARS, Gossaigaon. The programme was sponsored by ICAR, TSP.
- State level Training on seed production technology on Rapeseed and Mustard was organized on 27th February, 2020 by RARS, Gossaigaon. The programme was sponsored by ICAR, TSP.
- State level Field day on scientific cultivation of finger millet was organized on 14th December, 2019 by RARS, Gossaigaon. The programme was sponsored by ICAR, AICRP MILLET.
- State level Training on Promotion of GAP and PHT in Black Pepper and Turmeric for enhancing farm income was organized from 4th to 7th November, 2019 by HRS, Kahikuchi,

Guwahati. The programme was sponsored by ICAR-IISR, Kerala.

- State level programme on World Coconut day was organized on 2nd October, 2019 by HRS, Kahikuchi, Guwahati. The programme was sponsored by Coconut Development Board, RO Guwahati.
- National level Annual Group Meeting of AICRP on Palms was organized from 5th to 7th June, 2019 by HRS, Kahikuchi, Guwahati. The programme was sponsored by ICAR, CPCRI, Kerala and TNAU, Coimbatore.
- National level 5th QRT of AICRP on Agroforestry was organized from 10th to 11th February, 2019 by AICRP on Agroforestry, HRS, Kahikuchi, Guwahati. The programme was sponsored by ICAR-AICRPAF.
- National level Summer Internship Programme on Nursery Management with special reference to Plant Propagation in partial fulfilment of BSc Programme in Agriculture and Food Business was organized from 24th May to 20th June, 2019 by HRS, Kahikuchi, Guwahati. The programme was sponsored by Amity University of Organic Agriculture, Uttar Pradesh.
- Regional level Training on an approach to Horticulture with special reference to landscape and kitchen gardening was organized on 23rd and 24th November, 2019 by HRS, Kahikuchi, Guwahati. The programme was sponsored by BSF, Base Camp, Patgaon.
- State level Training on Nursery Management for Beginners of SCSP farmers was organized from 2nd to 4th May, 2019 by HRS, Kahikuchi, Guwahati. The programme was sponsored by ICAR-DFR, Pune.
- Regional level Training on Preparation and dissemination of Agromet Advisories at block level under GKMS Scheme was organized from 26th to 31st August, 2019 by IMD and ICAR. The programme was sponsored by IMD.
- State level Technology cum Machinery Demonstration Mela was organized by AICRP on PHET and AICRP on FIM, Dept of Agricultural Engineering. The programme was sponsored by ICAR.
- National level Training on Exploitation of Beneficial Microbes in Organic Agriculture was organized from 4th to 24th September, 2019 by CAFT in Organic Farming. The programme was sponsored by ICAR.
- National level Training on Organic Agriculture and Soil Health was organized from 20th February to 11th March, 2020 by CAFT in Organic Farming. The programme was sponsored by ICAR.
- Regional level Training on entrepreneurship development training on Apiculture was organized by AICRP on Honeybees and Pollinators and EEI, AAU, Jorhat.
- Regional level Training on rodent pest management in pulse crops, field training and method demonstrations of bait preparations, field applications and precautions to be taken in the use of rodenticides were organized by AINP on Vertebrate Pest Management.
- Regional level Training on and awareness programme on Scientific cultivation of Lac were organized by Network project on Conservation of Lac Insect Genetic Resources.
- Regional level awareness Meeting cum Distribution of Plant Protection Materials was organized by AINP on soil arthropod pests.
- State level Training on Scientific beekeeping was organized from 7th to 12th January, 2020 by AICRP on Honeybee and pollinators. The programme was sponsored by ICAR
- State level Training cum material distribution under TSP programme was organized on 29th and 30th November, 2019 by AICRP on Biocontrol. The programme was sponsored by AICRP on Biocontrol.
- State level BIPM of Field and Vegetable Crops were organized on 20th and 24th January, 2020 by AICRP on Biocontrol. The programme was sponsored by AICRP on Biocontrol.
- State level Training cum material distribution under TSP programme was organized on 23rd and 26th March, 2020 by AICRP on Biocontrol. The programme was sponsored by TSP, AICRP on Biocontrol.
- National Awareness programme on Fertilizer

application was organized for a day by KVK, Baksa. The programme was sponsored by Brahmaputra Valley Fertilizer Corporation Ltd.

- National Skill development training on Job Role of Nursery Workers and Vermicompost producer were organized for a period of 25 days (each) by KVK, Baksa in Tamulpur and Barama. The programmes were sponsored by Agriculture Skill Council of India (ASCI).
- Two state-level Kisan Melas was organized in April, 2019 and March, 2020 by KVK, Cachar. The programme was sponsored by ICAR-ATARI.
- Three state-level Skill cum STRY (Skill Training of Rural Youth) trainings was organized between April, 2019 and March, 2020 by KVK, Cachar. The programmes were sponsored by MANAGE, Hyderabad.
- Three state-level CFLD (Cluster Frontline Demonstrations) trainings were organized between April, 2019 and March, 2020 by KVK, Cachar. The programme was sponsored by DAC (Development Assistance Committee), Ministry of Agriculture, GoI.
- Nine state-level APART trainings were organized between April, 2019 and March, 2020 by KVK, Cachar. The programme was sponsored by AAU and World Bank, CSS ATMA (Agricultural Technology Management Agency).
- Two CSS ATMA-sponsored Farmer Scientist Interactions on Sali paddy were organized by KVK Cachar in collaboration with District Agricultural Office on 30th July, 2019 and on 24th January, 2020 in Silchar and Sonai.
- National Webcasting of National Animal Disease control programme on FMD (Foot-and-mouth disease) and Brucellosis and National AI programme was organized on 11th September, 2019 by KVK, Cachar. The programme was sponsored by ICAR- ATARI.
- National level Tree plantation programme was organized on 17th September, 2019 by KVK, Cachar. The programme was sponsored by DAC (Development Assistance Committee), Ministry of Agriculture, GoI.
- National level programme on 150th Gandhi Jayanti was organized on 2nd October, 2019by KVK, Cachar. The programme was sponsored by ICAR-ATARI.
- National level Workshop on Petroleum Conservation in Agriculture was organized on 27th December, 2019 by KVK, Cachar. The programme was sponsored by PCRA (Petroleum Conservation Research Association), Ministry of Petroleum and Natural Gas, GoI.
- National level programme on "Swachata Hi Seva" and "Swachata Pakhawada" was organized from June and December, 2019 by KVK, Cachar. The programme was sponsored by ICAR-ATARI.
- International level Webcasting of Global Potato Conclave 2020 was organized on 28th January, 2020 by Division of Agri. Extn, ICAR, New Delhi and KVK, Cachar. The programme was sponsored by ICAR.
- National level Fertilizer application awareness programme was organized on 12th February, 2020 by KVK, Cachar. The programme was sponsored by ICAR-ATARI and IFFCO.
- International Women's' Day was celebrated on 8th March, 2020 by KVK, Cachar. The programme was sponsored by ICAR-ATARI.
- District level World Environment Day and International Yoga Day were Celebration on 5th June and 21st June, 2019 respectively, by KVK, Dhubri.
- District level Webcasting of live inauguration programme of PM-KISAN, PM-KMY and launching of NADCP (National Animal Disease Control Programme) for FMD (Foot-and-mouth disease) and Brucellosis and National AI programme was organized on 11th September, 2019 by KVK, Dhubri.
- District level programme on World Food Day was organized on 12th October, 2019 by KVK, Dhubri.
- District level awareness programme on Fertilizer Application was organized on 20th October, 2019 by KVK, Dhubri.
- District level programme on World Soil Health Day Fertilizer Application was organized on 5th December, 2019 by KVK, Dhubri.

- District level Kisan Mela was organized on 5th December, 2019 by KVK, Dhubri under NICRA.
- District level Kisan Divas was celebrated on 23rdDecember, 2019 by KVK, Dhubri.
- District level Awareness Programme on Operation of Gramin Kisan Mausam Sewa was organized on 8th, 10th, 28th January, 2020 and 5th March, 2020by KVK, Dhubri. The programme was sponsored by DAMU (District Agrometeorological Unit).
- District level Workshop on PCRA (Petroleum Conservation Research Association) was organized on 20th January, 2020 by KVK, Dhubri.
- District level Webcasting on International Potato conference was organized on 28th January, 2020 by KVK, Dhubri.
- District level Kisan Mela was organized on 5th March, 2020 by KVK, Dhubri.
- District level International Women's day was celebrated on 8th March, 2020 by KVK, Dhubri.
- National level Tree plantation programme was organized on 17th September, 2019 by KVK, Dibrugarh.
- National level Awareness programme on Fertilizer application was organized on 22nd October, 2019 by KVK, Dibrugarh. The programme was sponsored by NADCP (National Animal Disease Control Programme).
- National level Workshop on Petroleum Conservation was organized on 31st December, 2019 and 24th January, 2020 by KVK, Dibrugarh. The programme was sponsored by PCRA (Petroleum Conservation Research Association), Ministry of Petroleum and Natural Gas, GoI.
- FMG-CMSGUY (Chief Minister's Samagra Gramya Unnayan Yojana) organized on 16th March to 20th March 2020 by KVK Dibrugarh in collaboration with CFSc. The programme was sponsored by Mega Mission Society, Dibrugarh.
- International World Veterinary day was celebration on 27th April, 2019 by KVK, Kamrup. The programme was sponsored by ICAR- ATARI.
- National level World Environment Day, Mushroom Day and Constitution Day were celebration on 5th June, 19th September and 26th September, 2019, respectively, by KVK, Kamrup. The programme was sponsored by ICAR- ATARI.
- National level programme on150th Gandhi Jayanti was organized on 2nd October,2019 by KVK, Kamrup. The programme was sponsored by ICAR-ATARI.
- International Yoga day and World soil day were celebration on 21st June and 5th December, 2019 respectively by KVK, Kamrup. The programme was sponsored by ICAR- ATARI.
- National level Kisan and Science Day was celebrated on 25th December, 2019 by KVK, Cachar. The programme was sponsored by ICAR-ATARI.
- International Women's Day was celebrated on 8th March, 2020 by KVK, Kamrup. The programme was sponsored by ICAR-ATARI.
- District level World Environment Day and Yoga day were celebration on 5th June and 21st June 2019 by KVK, Karbi Anglong. The programme was sponsored by ICAR- ATARI.
- District level Kisan Mela and Tree plantation programme were organized 7th and 17th September, 2019, respectively, by KVK, Karbi Anglong.The programme was sponsored by ICAR- ATARI.
- District level Webcasting programme of NADCP (National Animal Disease Control Programme) was organized on 11th September, 2019 by KVK, Karbi Anglong.
- District level programme on 150th Gandhi Jayanti and World Food Day were organized on 2nd and 16th October, 2019, respectively, by KVK, Karbi Anglong. The programme was sponsored by ICAR-ATARI.
- National level Awareness programme on Fertilizer application was organized on 22nd October, 2019 by KVK, Karbi Anglong.
- District level Rastriya Ekta Diwas, Indian Constitution Day and Kisan Diwas were celebrated on 31st October, 26th November and 23rd December, 2019, respectively, by KVK,

Karbi Anglong.

- District level Workshop on Petroleum Conservation was organized on 10th February, 2020by KVK, Karbi Anglong. The programme was sponsored by PCRA (Petroleum Conservation Research Association), Ministry of Petroleum and Natural Gas, GoI.
- International Women's' Day was celebrated on 8th March, 2020 by KVK, Karbi Anglong. The programme was sponsored by ICAR-ATARI.
- Regional level Workshop on Petroleum Conservation was organized on 1st September, 2019 by KVK, Karimganj. The programme was sponsored by ICAR-ATARI.
- Regional level Awareness programme on Fertilizer application was organized on 22nd October, 2019 by KVK, Karimganj. The programme was sponsored by ICAR-ATARI (Agricultural Technology Application Research Institute).
- Regional level Farmer's day was organized on 26th December, 2019 by KVK, Karimganj.
- District level field days on Rice varieties, Potato, Oilseeds were organizes by KVK, Lakhimpur. The programme was sponsored by APART and ICAR-ATARI.
- District level Group discussion on formation of FPO in regards to Honey and Toria were organizes by KVK, Lakhimpur.
- State level and district level Farmer's fairs were organizes by KVK, Lakhimpur and RARS, North Lakhimpur.
- District level Mahila Kisan Divas and Kisan Divas were organizes by KVK, Lakhimpur.
- District level Awareness progrmmes on Animal health, Swachhata etc. were organized by KVK, Lakhimpur.
- District level International Women's day was celebrated on 8th March, 2020 by KVK, Lakhimpur.
- District level programme on Parthenium week was organized by KVK, Lakhimpur.
- District level webcasting of Fertilizer Application programme and Global Potato Conclave 2020 were organized by KVK, Lakhimpur.
- District level Webcasting on launching of NADC & Nationwide Al Insemination Programme was organized by KVK, Lakhimpur.
- District level programme on 150th Gandhi Jayanti and Tree plantation cum distribution programme were organized on 2nd October, 2019 by KVK, Lakhimpur.
- District level Workshop on Petroleum Conservation in Agriculture was organized by KVK, Lakhimpur. The programme was sponsored by PCRA (Petroleum Conservation Research Association), Ministry of Petroleum and Natural Gas, GoI.
- Many Field days were organized by RARS, Lakhimpur. They were: field days on rice variety Padumoni (Gosanibari), Potato variety Kufri bahar (Sandhokhowa), Boro rice variety Bina dhan-11 (Ahomgohaingaon, Silonibari, Gopalpur, Podumoni, Pukhuriporia), Sali rice var. Ranjit sub-1 /Bahadur sub-1 (Pukhuriporia, Podumoni, Bongalchuk, Sandohkhuwa, Ahomgohaingaon, Garmur), and Mustard variety NRCHB-101 (Magurmari, Kasojuli).
- ICAR-sponsored State level Regional Farmers Fair was organized by RARS, Lakhimpur.
- ICAR-sponsored District level Sericulture farmers fair was organized by RARS, Lakhimpur.
- ICAR-sponsored Animal Health cum awareness programme was organized by RARS, Lakhimpur in Kalarigaon.
- District level Mahila Kisan Divas was organized by RARS, Lakhimpur in Pukhuriporia.
- Various days were organized by RARS, Lakhimpur. They were World Food Day (Ghilamora), World Soil Day (Simaluguri), International Yoga Day (Chandmari), World Environment Day (Narayanpur), Kisan Divas (Silikhaguri), International Women Day (Pukhuriporia), and Foundation day of KVK.
- Regional Exposure visit to Apiary unit of Khetri and SPREAD NE Farm at Sonapur was organized on 7th April, 2019 by KVK, Morigaon. The programme was sponsored by TSP (Tribal Sub-Plan).
- Regional level Training on Potato Cultivation was organized on 15th October and 17th November, 2019 by KVK, Morigaon. The

programme was sponsored by ICAR-NEH.

- Regional level Tree plantation cum distribution programmewas organized on 17th September, 2019 by KVK, Morigaon.
- Regional level Awareness programme on Fertilizer application was organized on 22nd October, 2019 by KVK, Morigaon. The programmes were sponsored by DAC, Govt. of India.
- Regional level Field days on Rabi Oilseed, Potato, Oil seed, Maize, Pulses, were organized during 2019-2020 by KVK, Morigaon. The programmes were sponsored by NMOOP (National Mission on Oilseeds and Oil Palm), RKVY (Rashtriya Krishi Vikas Yojana) and ICAR-NEH.
- Regional level Training on Cluster Frontline Demonstration of Kharif pulse (Blackgram) and Rabi pulse (Lathyrus) was organized on 13th and 21st January, 2020, respectively, by KVK, Morigaon. The programme was sponsored by NFSM.
- Regional level Training on Cluster Frontline Demonstration of Rabi oilseed (Toria) was organized on 22nd January and 4th February, 2020 and Frontline Demonstration of Rabi oilseed (Groundnut) was organized on 24th January, 2020 by KVK, Morigaon. The programme was sponsored by NMOOP.
- Regional level Workshop on Petroleum Product Conservation in Agricultural Sector was organized on 20th January, 2020 by KVK, Morigaon. The programme was sponsored by PCRA, Ministry of Petroleum and Natural Gas, GoI.
- Regional level Training on Cluster demonstration on organic farming was organized on 4th November, 2019 and 14th March, 2020 by KVK, Morigaon. The programme was sponsored by PKVY (Paramparagat Krishi Vikas Yojana).
- Regional level Skill Training of Rural Youth on Fish Rearing and Management was organized in Association with SAMETI & MANAGE from 24th January to 1st February, 2020 by KVK, Morigaon. The programme was sponsored by STRY (Skill Training of Rural Youth).
- Regional level Training on Hygeinic Production and Processing of Meat and Slaughter home for Entrepreneurship Development was organized on 13th and 14th February, 2020 by KVK, Morigaon. The programme was sponsored by CVSc Khanapara.
- Regional level Training on Seed Selection & Storage & Orientation of Community on Service Provided by KVK, Morigaon was organized on 14th February, 2020 by KVK, Morigaon. The programme was sponsored by Women development centre & CRS India.
- Regional level Training on quality seed production, Carp polyculture in pond fisheries, post-harvest machinery, Rice value chain machinery, Scientific cultivation of maize, Mat nursery etc. were organized during 2019-2020 by KVK, Morigaon. The programmes were sponsored by APART.
- National level Exposure visit cum training at ICAR-NRRI, Odisha was organized from17th to 19th February, 2020 by KVK, Morigaon. The programmes were sponsored by APART.
- State level Workshop on Petroleum Product Conservation in Agricultural Sector was organized on 14th March, 2020 by KVK, Nagaon. The programme was sponsored by PCRA, Ministry of Petroleum and Natural Gas, GoI.
- State level programme on International Yoga Day was organized on 21st June, 2019 by KVK, Nagaon.
- State level programme on World Environment day and World Honey Bee Day was conducted on 5th June and 15th August, 2019, respectively, by KVK, Nagaon.
- District level Tree plantation programme was organized on 17th September, 2019 by KVK, Udalguri.
- District level Training on Vegetable Nursery was organized on 28th September, 2019 by KVK, Nagaon. The programme was sponsored by RUDSETI (Rural Development and Self-Employment Training Institute)
- State level programme on International Food day was organized on 16th October, 2019 by

KVK, Nagaon.

- District level awareness programme on Fertilizer Application was organized on 22nd October, 2019 by KVK, Udalguri. The programme was sponsored by DAC and FW, GoI.
- State level programme on International Women's day was organized on 8th March and 2020, respectively, by KVK, Nagaon.

4. Education

4.1. Faculties

Assam Agricultural University was the first agricultural university established in the northeastern region. The other agricultural university of the region, the Central Agricultural University, Imphal, was established in 1993. However, AAU is still the sole agricultural university of the state. The frontier mandate of the University, like any other agricultural university in the country, is education. There are four faculties in the University to carry out this mandate. They are (1) Faculty of Agriculture with its headquarters at Jorhat (2) Faculty of Veterinary Science with its headquarter at Khanapara (3) Faculty of Community Science at Jorhat and (4) Faculty of Fishery Science at Raha, Nagaon. The College of Horticulture and the College of Sericulture operate under the Faculty of Agriculture.

Including all the faculties, there are nine colleges under the administrative control of the university. They are: College of Agriculture, Jorhat; Biswanath College of Agriculture, Biswanath; Sarat Chandra Sinha College of Agriculture, Dhubri; College of Veterinary Science, Khanapara; Lakhimpur College of Veterinary Science, Lakhimpur; College of Community Science, Jorhat; College of Fisheries, Raha; College of Horticulture, Nalbari and College of Sericulture, Titabor.

4.2. Degree Programme

Assam Agricultural University offers degree programmes in six areas of agriculture and allied sciences, viz., Agriculture, Veterinary Science, Community Science, Fishery Science, Horticulture and Sericulture. While Bachelor's degrees are offered in all the six areas, postgraduate (Master's and PhD) degrees are offered in the first four areas, viz., Agriculture, Veterinary, Community Science and Fishery Science. With the implementation of the 5th Deans Committee's recommendation in the academic session 2016-17 (in all the Faculties except Veterinary science), the four-year Bachelor's degree programme was devided into two parts; the first part consisting of three consecutive years devoted to course works and the second part consisting of the final year, when students are exposed to the 'Student READY' (Rural Entrepreneurship Awareness Development Yojana) Programme. The Student READY programme comprises of 40 credits; 20 credits each in the 7th and 8th semester. The duration of the BVSc degree programme was increased from 5 years to 5½ years comprising of course work for 4½ years and internship for one year. Besides, the nomenclatures of the degrees were also modified in the areas of Agriculture, Community Science, Horticulture and Sericulture in accordance with the recommendations of the ICAR.

In addition to the degree programmes, the University also offers various certificate courses for interested agripreneurs. However, due to the pandemic situation in the year, only one such course could be completed. The course conducted through Directorate of Extension Education was on Tea Production Technology & Management; it included 25 rural agripreneurs. The six month course was held from 1st November, 2019 to 30th April, 2020.

4.3. Course Curricula

Assam Agricultural University follows the ICAR scheme of course curricula, in general. At present, the university has been following the undergraduate Course Curricula prescribed by the 5th Deans Committee of ICAR in the Faculty of Agriculture, Community Science and Fishery Science. However, the colleges under the Faculty of Veterinary Science follow the course curricula approved by the Veterinary Council of India as per the MSVE, 2016. The present UG Curricula is a market/ time driven curriculum as it includes the 'Student READY' Programme (prescribed by the ICAR 5th Deans Committee from the year 2016-17) designed to develop much needed skill and entrepreneurial expertise among the graduates to become employment-generators. The 'Student READY'

Programme is being offered in all the colleges of the University since the academic Session 2016-17.

4.4. Intake and Output

During 2019-20, 946 students were admitted in the University of which 520 in Bachelor's, 302 in Master's and 124 in PhD degree programmes. In regards to output, 791 students obtained degrees during the year, of which 441 were awarded Bachelor's Degree, 265 Master's Degree and 85 PhD Degree. The constituent college-wise student enrollment and output under different degree programmes are shown in Table 4.1.

Table 4.1: Fresh students enrolled and students passed out in different degree programmes in AAU during 2019-20

Colleges	Bachelors Degree		Masters Degree		Ph D		Total	
	Enrolled	Passed Out	Enrolled	Passed Out	Enrolled	Passed Out	Enrolled	Passed Out
College of Agriculture, Jorhat	152	141	178	188	67	57	397	386
Biswanath College of Agriculture, BiswanthChariali	45	40	25	11	-	-	70	51
SCS College of Agriculture, Dhubri	40	23	-	-	-	-	40	23
College of Veterinary Science, Khanapara	110	106	59	42	34	25	203	173
Lakhimpur College of Vety. Science, Joyhing	30	19	_	_	_	_	30	19
College of Community Science, Jorhat	68	44	29	18	16	3	113	65
College of Fisheries Science, Raha	24	24	11	6	7	-	42	30
College of Sericulture, Jorhat	26	20	_	_	_	_	26	20
College of Horticulture, Jorhat	25	24	_	_	_	_	25	24
Total	**520**	**441**	**302**	**265**	**124**	**85**	**946**	**791**

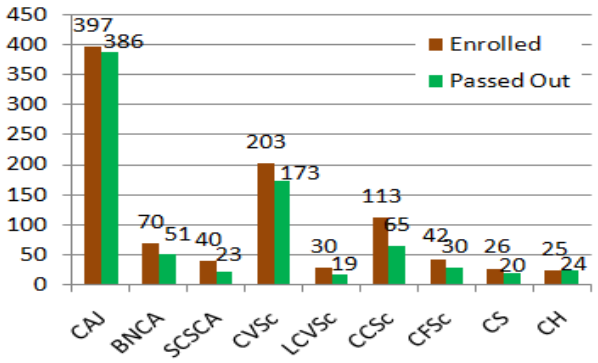


Figure 4.1. Fresh students enrolled and students passed out from different colleges of AAU during 2019-20

4.5. Total Students on Roll

Assam Agricultural University had 2,566 students on roll in the academic year, 2019-20. Of these, around 52 per cent were female-students (1,338). Out of the total students on roll in the said year, 1,933, 418 and 215 pursued Bachelor's, Master's and PhD degree programmes, respectively. The college-wise details of total and female and male-students are shown in Table 4.2 and Figure 4.2

Table 4.2: Total students on roll in different colleges of the University during 2019-20

College	Bachelors Degree			Masters Degree			Ph D			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Grand Total
College of Agriculture, Jorhat	335	227	562	71	107	178	19	48	67	425	382	807
BN College of Agriculture, BNCA	102	70	172	26	21	47	-	-	-	128	91	219
SCS College of Agriculture, Dhubri	57	74	131	-	-	-	-	-	-	57	74	131
College of Veterinary Science, Khanapara	215	243	458	56	67	123	33	37	70	304	347	651
College of Community Science	56	134	190	15	38	53	6	58	64	77	230	307
College of Sericulture, Titabor	55	41	96	-	-	-	-	-	-	55	41	96
College of Horticulture, Nalbari	61	29	90	-	-	-	-	-	-	61	29	90
College of Fisheries, Raha	50	50	100	7	10	17	3	11	14	60	71	131
Lakhimpur College of Veterinary Science, Lakhimpur	61	73	134	-	-	-	-	-	-	61	73	134
Total	**992**	**941**	**1933**	**175**	**243**	**418**	**61**	**154**	**215**	**1228**	**1338**	**2566**

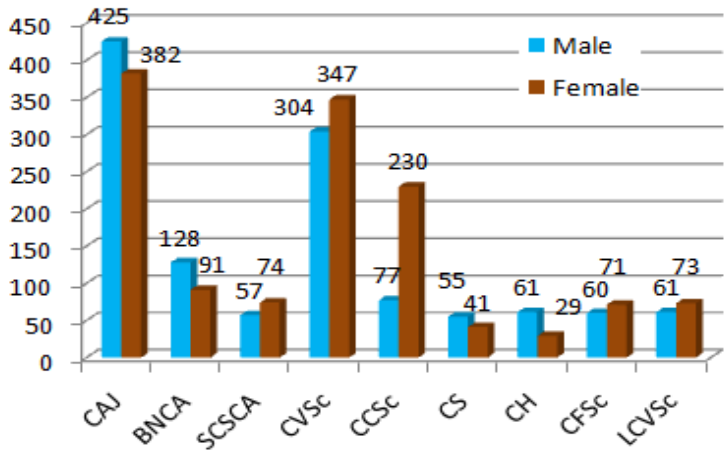


Figure 4.2. College wise male and female students enrolled AAU in 2019-20

4.6. Fellowships awarded to students and national tests qualified

During the academic year, 2019-20, 214 students of the University were either awarded fellowships or qualified for national or state test of which 19 were awarded Junior Research Fellowship, 14 Senior Research Fellowship, 64 qualified for NET. In addition, 102 students (UG & PG) were awarded merit scholarships during the year. It's worth mentioning that out of the total 214 students, qualified for these fellowships, 78 were male and 136 were female students; this emphasizes the rise in women's participation in agricultural knowledge creation and dissemination.

4.7. Publication

The teachers and scientists of the University have published altogether 828 publications during the year. Out of these 501 were research papers in journals, 176 research abstracts in journals and proceedings, 32 books, 32 practical manuals, 37 book chapters, 23 popular articles and 27 others. College of Agriculture, Jorhat had the maximum number of publications (314), which was closely followed by College of Veterinary Science, Khanapara,with 306 publications. The college-wise breakup of the publications is shown in Table 4.3 and depicted in Figure 4.3.

Table 4.3: Publications of different constituent colleges of the University during 2019-20

Particular of publication	Number of publication in constituent colleges								Total
	CAJ	BNCA	CVSc	CCSc	CFSc	LCVSc	CS	CH	
Research paper in journal	180	40	188	52	9	15	4	13	501
Research abstracts in proceeding	33	9	109	22	1	1	-	1	176
Books	11	1	7	2	9	-	1	1	32
Practical manual	21	8	-	-	2	-	1	-	32
Book Chapter	19	2	2	2	12	-	-	-	37
Popular articles	23	-	-	-	-	-	-	-	23
Others	27	-	-	-	-	-	-	-	27
Total	314	60	306	78	33	16	6	15	828

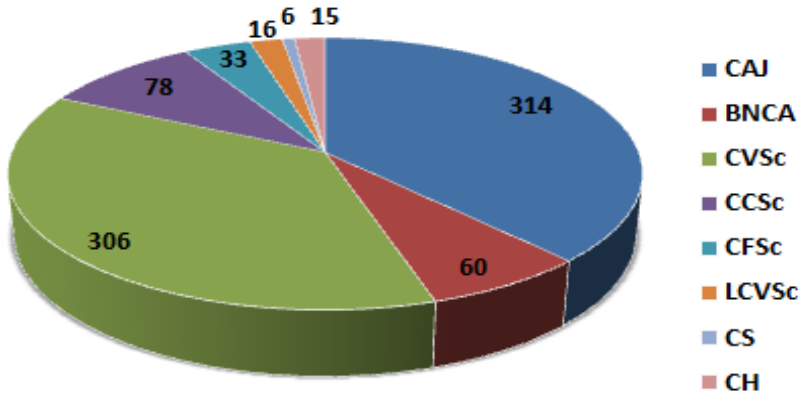


Figure 4.3. College-wise publications in AAU in 2019-20

4.8. Human Resource Development

In the year 2019-29, altogether, 256 teachers/ scientists of the AAU were deputed for attending regional/national/international level training/ workshop/seminar etc during 2019-20. The College of Veterinary Science deputed the maximum number of teachers (84). The college-wise and event-wise breakup of the number of teachers deputed from the University is given in Table 4.4 and Figure 4.4.

Table 4.4: Teachers deputed for attending training, seminar, workshop etc. during 2019-20

Training, seminar, conference attended	Teachers (No.) attending training, seminar, workshop etc.									
	CAJ	BNCA	SCSCA	CVSc	LCVSc	CCSc	CFSc	CH	CS	Total
International training	7	-	-	1	-	1	-	-	-	9
National training	11	2	-	16	1	7	2	5	1	45
Regional training	5	6	-	2	-	2	4	1	-	20
International seminar	6	1	-	22	-	2	2	2	-	35
National seminar	9	6	-	11	-	2	-	1	-	29
Regional seminar	1	-		1	1	-	-	-	-	3
International workshop	3	-	-	1	-	1	-	-	-	5
National workshop	28	0	5	18	-	5	1	1	1	59
Regional Workshop	6	1	-	9	-	15	-	-	-	31
Others	2	-	9	3	-	2	2	2	-	20
Total	78	16	14	84	2	37	11	12	2	256

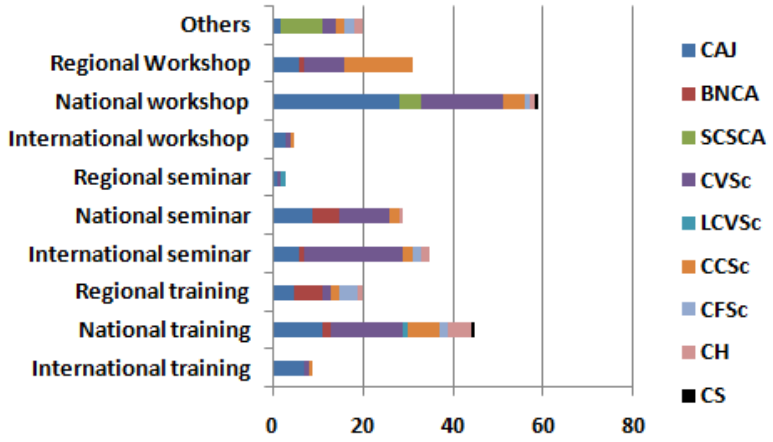


Figure 4.4. College wise number of teachers attending trainings, workshops etc. from AAU in 2019-

4.9. Training/Seminar/Workshop Organized

The University organized 120 regional /national level trainings/ workshops/ seminars etc. during the year. The College of Agriculture, Jorhat (organizing 46 events) was ahead of other colleges of the University in organizing such events. The breakup of the organized events in different colleges of the University is presented in Table 4.5 and Figure 4.5.

Table 4.5: Training, seminar, workshop organized in the colleges during 2018-19

Particulars of Events	Training, seminar, workshop etc organized (No)							
	CAJ	BNCA	CVSc	CCSc	CFSc	CCSc	CFSc	Total
International level training, Seminar, Workshop	-	-	1	-	-	-	-	**1**
National level training Training, Seminar, Workshop	13	3	5	1	-	1	-	**23**
Regional level training Seminar, Workshop	8	6	4	2	4	2	4	**30**
State Level training, Seminar, Workshop	20	-	6	7	-	7	-	**40**
Others	5	-	2	10	-	10	-	**27**
Total	46	9	17	20	4	20	4	**120**

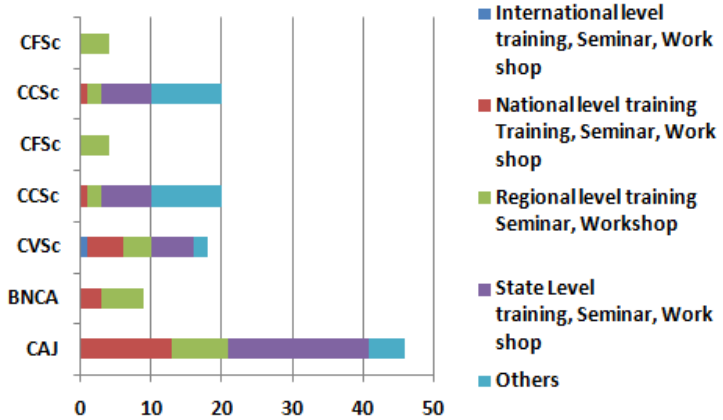


Figure 4.5. College-wise number of trainings, workshops etc. organized in AAU in 2019-20

4.10. Library

The main library of the university is the Rev. B M Pugh Library (RBMPL) located in Jorhat. The library, popularly known as the central library, has been serving as the knowledge resource center on Agriculture and allied areas since its inception in the year 1969 to the diverse user community. The RBMPL offers its Library and Information Services to the four colleges housed within the University Head Quarter, Jorhat viz., College of Agriculture, College of Community Science, College of Horticulture and College of Sericulture. Besides RBMPL, the University has its branch libraries in the following colleges such as College of Veterinary Science, Khanapara; College of Fisheries Science, Raha; Biswanath College of Agriculture, Biswanath Chariali; Lakhimpur College of Veterinary Science, Joyhing and SCS College of Agriculture, Dhubri.

4.10.1. Library Holdings

The total library holdings in the University during 2019-20 were 2,15,589 which include 1,52,297 text books, 36,030 reference books; 67 printed journals / periodicals; 6 periodicals and 16,911 back volume of periodicals, 3,765 e-books, 2,923 e-journals, 3,049 Masters theses and 541 PhD theses. The BMPL constitutes the maximum (approx. 72 per cent) of the total holdings of the University. College-wise details of the types of printed collection during the year are given in Table 4.7. The e-resources available in the RBMPL are accessible to registered users from the other colleges and research stations through the EZ-Proxy server. Out of them, 5,795 were new procurements during the academic year 2019-20.

Table 4.6: New additions of books and periodicals in BMP library of AAU in 2019-20.

Item	Nos.
Text book	1778
Reference Book/ Gift Books	200
Journals (Print)	28
e-book	519
e-journal (CeRA)	2923
Periodicals (Magazines)	06
Back Volumes	100
MSc Theses	200
PhD Theses	41
Total	**5,795**

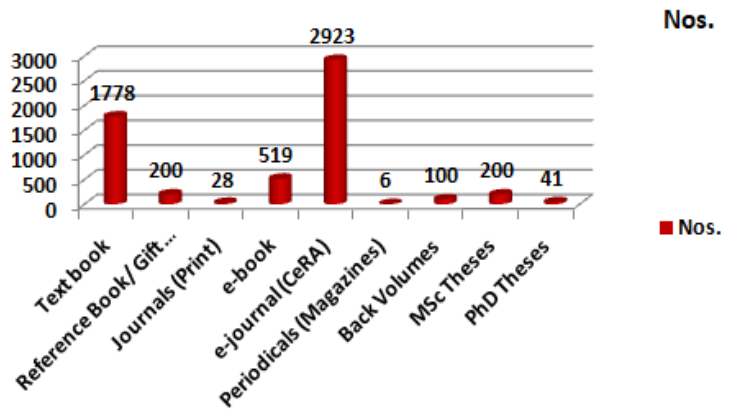


Figure 4.6. New additions of books and periodicals in BMP library of AAU in 2019-20

Table 4.7: Books and other printed collection of the libraries of constituent colleges of the University during 2019-20

Particulars of printed collections	Libraries of the constituent colleges of AAU							
	CAJ (RMBPL)	BNCA	SCSCA	CVSc	LCVSc	CFSc	CH	Total
Text Books	152297	10105	3728	32877	1677	5440	1419	207543
Reference Books	36030	2590	-	-	100	670	-	39390
Journals	67	03	-	-		2	2	74
Periodicals	06	08	-	-		258	-	272
e - book	3765	-	-	470		86	101	4422
e - journals	2923	-	-	-		-	-	2923
Back Volume of Periodicals	16911	221	-	10701		175	-	28008
Theses	3590	62	-	1530		40	-	5222
Total	215589	12989	3728	45578	1777	6671	1522	287854

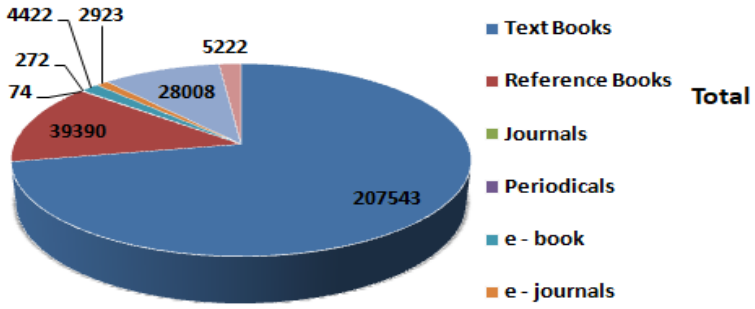


Figure 4.7. The library resources of various constituent colleges of AAU in 2019-20

4.10.2. Rev. B M Pugh Library (RBMPL) and its Activities

Some of the facilities/services of "Rev. BM Pugh Library (RBMPL)" and its activities during the year under report are discussed below.

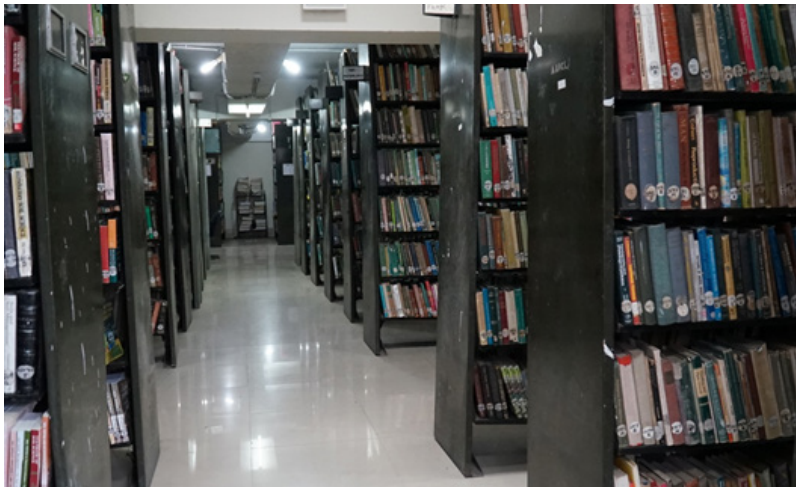


Figure 4.8. A view of the book stakes in Rev. BM Pugh Library, AAU, Jorhat

4.10.2.1. E-Resources Availability

- **CeRA:** Consortium of e-resources in Agriculture. Access to full text electronic journal on Agriculture and allied areas. About 3,765 e-journals are available under CeRA and Access is available to full text 1,174 e-books along with 17 e-book series of Elsevier.
  URL: http://cera.iari.res.in/
  URL: http://jgateplus.com/search/
- **DeLCON:** DBT-Electronic Journal Consortium: About 900 full text journals are covered under DeLCON
  URL: http://delcon.gov.in/eresources.htm
- **Krishprabha:** It is a Full text electronic Database of Agricultural Doctoral dissertationssubmitted by research scholars of the 45 State/ Deemed Agricultural Universities during the period from 1.1.2001- 31.12.2006
  http://14.139.232.167:8080/equestthesis/IPLogin.do
  http://krishikosh.egranth.ac.in/handle/1/466
- **Krishikosh Repository**
  http://krishikosh.egranth.ac.in/
- CAB Abstract available online at www.cabdirect.org and those from 1972 to 2013 areavailable on CD ROM at RBMP Library, AAU.
- International E-Book Packages, CRC Press, Taylor & Francis (617)
  1. AGRICULTUREnetBASE (288)
  2. NUTRITIONnetBASE (112)
  3. VetnetBASE (147)
  4. Agri Economics netBase (70)

  Online Access Link: www.crcnetbase.com
- Cabi E-Books on Veterinary (166)
- Indian E-Book Packages (456)
  1. E-Books on Horticulture (101)
  2. E-Books on Agriculture (223)
  3. E-Books on Aquaculture and Fisheries (10)
  4. E-Books on Veterinary (122)

Online Access Link: www.asapglobe.com

- India AgriStat Database

http://www.indiaagristat.com/default.aspx

- ISO Agriculture in CD ROM (575 E-Resources)

Online Access Link: http://standards.bsbedge.com

E-books & E-Journals of Rev B.M Pugh Library are accessible remotely through OCLC Ezproxysoftware for all registered members including those from outstations of AAU.

4.10.2.2. User Service Provided

- **Users Enrolled:** A total of 2,680 users have been enrolled in the library during the year which include students (1,601 MSc / PhD students in Agri / Community Science), Faculty/scientist (533) and Non-teaching/others (546).
- **Library Membership to Enrolled Users:** In Circulation section, readers (Library Users) can get themselves registered as members of the library by abiding library rules. After enrolment as bona fide member, they have the privilege to borrow books. Books are issued for a period of one month. Number of books to be issued for different categories of students are (i) Under Graduate students: 5 books (ii) Post Graduate students : 7 books and (iii) Research Scholars : 10 books

Figure. 4.9. Students availing study facilities in the Rev. B M Pugh Library, AAU, Jorhat

- **Consultation Services to Outside Scholars:** The library provides consultation facilities to outside scholars on the basis of letter of introduction. Consultation fee @ Rs 10/- per day and Rs 50/- per month is charged.
- **Library Services:** The library provides the services such as Lending service, Reference/ Information service, Current Awareness Service, Documentation service, Internet/E-mail facility, E-journal/ eBook and CD-ROM database searching facility, Resource-sharing facility, User education programme, Document delivery service and Reprography facility.
- **Lending Service to Readers through Text Book Bank:** This section of the library provides minimum five to six books to every enrolled student for the semester and the number of borrowed books depends upon availability of books in this section.
- **Library Service to Patron:** The RBMPL provides service to patrons with an average of 10,000 students and 400 faculty & research scholars annually. The number of faculties and students that used library during the year was 625 and 13,802, respectively.
- **Services to Visitors:** An average of 50 visitors (both national and international) visit the library annually for accessing information in their respective areas of interest and discipline. The number of visitors during 2019-20 was 56.
- **Internet Services:** The internet browsing facility is available in the library premises on the basis of a user account created in the AAU Portal which is strictly provided by the System Administration. i.e.. ARIS cell of the AAU. There is also the provision of access to the internet by the visitors on request of a guest account created by ARIS accordingly. There were altogether 5,333 internet users during the year.

Figure 4.10. Book borrowing section of Rev. B M Pugh Library, AAU, Jorhat

- User Education Programme Provided: The RBMPL, apart from providing dedicated user service, is also extending quality user education programmes. This include :

  * Library orientation which is one of the most common user education programmes is provided to the users of AAU, in particular the under graduate patrons, maintaining a proper discipline-wise streaming in the early part of their formal vocations.

  * Education on Library and Information Service in the form of a non–credit compulsory course (PGS 501) is also conducted to impart appropriate knowledge in the field of information retrieval and dissemination, technical writing stressing more on literature review and citation analysis as well as the proper techniques in browsing the different resources present in the library.
- On-request User Service: Most users, the faculty

and research scholars, in particular enjoy the on request information service from CeRA in print form for those information resources are available only in electronic form and are not downloadable.

- Automation and Digitization: Recently, RBMPL has implemented library automation and digitization process with KOHA LMS software under ICAR library strengthening project. Presently KOHA LMS database has been migrated to Open LX Platform-Best Book Buddies (on Cloud) as per ICAR instructions. Proposal has been made to include all the libraries of the outstation constituent colleges under library automation in a single platform. Rev B M Pugh Library is already a member of Krishikosh / E-granth repository and PhD theses uploading on Krishikosh is going on.
- RFID Library Security System: Library has been implementing the Radio Frequency Identification (RFID) security system for security of rare and reference documents of the library.

4.11. Students' Welfare in College of Agriculture, Jorhat

- The student welfare activities are looked after by the Director of Students' Welfare of the University. Some of the important student welfare activities carried out during the year by the constituent colleges of the University are presented below.

4.11.1. Games and Sport Activities

4.11.1.1. 20th All Inter-Agricultural University Sports and Games Meet (Agri-UniSports)

It was a golden performance by the AAU contingent in the 20th All India Inter Agricultural University Sports & Games Meet, held at Sri Venkateswara Veterinary University in Tirupati from March 1st – 5th, 2020. A total of 65 Universities from Agriculture, Veterinary, Animal Science, Fishery Science and other allied disciplines, across India, came together for the annual sporting extravaganza, and AAU was represented by a 33 member students group led by Professors-in-Charge, Dr. Sailen Gogoi & Dr. Apurba Das. AAU athletes' attained 5th position in Mens' High Jump and entered into the 100 m Mens' Quarter Finals stage, 4 x 100 m Relay Mens' Semi-Final stage. In the Women's 200 m event, the lone AAU athlete reached the Quarter-Finals stage. In the badminton competition, in the Women's section, AAU tamed BAU, Ranchi for the Bronze medal. On the way to the Final, AAU Men's team smoothly overpowered ANGRAU, Hyderabad in the Semi-Finals and defeated CCSHAU, Hisar in straight sets to clinch the maiden Team badminton Gold medal for the University. Ms Ajupi Phukan with her brilliant performance in Table Tennis won the hearts of spectators.

4.11.2. Cultural Programme

4.11.2.1. 19th All India Inter Agricultural University Youth Festival (Agri-Unifest)

Assam Agricultural University participated in the 19th All India Inter Agricultural University Youth Festival (Agri-Unifest) held in IGKV, Raipur during February 8-12, 2020 AAU team was represented by a 27 member students group. The AAU contingent also bagged the fourth prize in One Act Play.

4.11.3. National Service Scheme

4.11.3.1. International Yoga Day: International Yoga Day was celebrated on 21st June, 2019 by NSS units across different campuses. Resource persons with expertise, both from within and outside the university, along with the yoga enthusiasts performed various asanas. In the Jorhat campus, resource persons were invited from Vivekananda Kendra to facilitate the event. Dr Seuji B Neog, faculty member and her group assisted the resource persons besides performing the asanas.

4.11.3.2. Independence Day, 2019: On this occasion, aSwachh Bharat Awareness' procession by NSS volunteers, in and around the AAU Campus was held. A Placard Competition on the theme "Swachh Bharat – Clean Campus, Green India", was held amongst the NSS volunteers. The procession was flagged off by the Hon'ble Vice Chancellor Dr Ashok Bhattacharyya. An essay competition was organized on the theme: "Swatcch Bharat – Clean Campus, Green India".

4.11.3.3. Cleanliness drive (Swachh Bharat Abhiyan): A cleanliness drive was organized during August 6th – 14th, 2019 in the main campus. Hostel boarders cleaned their respective hostels, surroundings and nearby locations. Special cleanliness drive in each hostel was also undertaken on Sunday the 11th August, 2019.

4.11.3.4. NSS training during September, 2019: Three faculty members of the NSS, Dr. Pranjit Sutradhar of CA, Jorhat, Dr. Aditya Boruah, LCVSc and Mr. Rituraj Boruah, CH, attended "Training for Trainers on Life Skills" at the Rajiv Gandhi University, Itanagar, Arunachal Pradesh during September, 16th-20th, 2019.

4.11.3.5. NSS Workshop during September, 2019: Two faculty members, Dr. Pranjal Pratim Neog, BNCA, Mr. Apurba Das, CS, and one NSS volunteer, Sri Nirvikar Shahi, of CCSc, attended a workshop on "Challenges and Opportunities in NSS in the state of Assam, for NSS volunteers and Programme Officers of NSS" at the Don Bosco Institute, Kharguli, Guwahati, during September, 26th-27th, 2019.

4.11.3.6. NSS Special Camp organized: A week-long NSS Special Camp was organized during November 19th-25th, 2019 at the Na Ali Dhekiajuli Yuva Sangha Hall. Above 250 NSS volunteers participated in the week-long Camp that comprised of various Awareness programmes amongst the people covering 6 villages of the area. Dr Rana P Bhuyan, DSW and Programme Co-ordinator of NSS, AAU, Jorhat, expressed his gratitude to the local people. Shri Hemanta Mangal Bordoloi, President, Na-Ali Dhekiajuli Yuva Sangha, Jorhat expressed his appreciation to AAU. Swacch Bharat Cleanliness drives were organized with the participation of the villagers and NSS volunteers in 6 (six) locations.

The closing ceremony was preceded by a tree sapling plantation programme. Dr P K Neog, Director, EEI, speaking as Chief Guest in the Closing Ceremony on November 24th, 2019, appealed to all to make individual efforts to maintain the rich cultural ethos and human values. The Best NSS volunteers of the camp were awarded. There were colourful cultural presentations with recitation, skits, dances and songs. The 7-sisters presentation by a group of NSS volunteers was a special attraction of the programme, highlighting the theme "Communal Harmony for Peace and Prosperity" as a part of the Communal Harmony Campaign Week-2019. There were also presentations by school students from SPB HS School, Titaram Bordoloi HS School, Matri Bhasha Vidyalaya, Sonari Gaon ME School etc. NSS Programme Officers Dr Sajib Borua, Dr Sampreety Gogoi, Shri Rituraj Boruah and Shri Apurba Das coordinated the week long NSS Camp. Shri Spandan Jyoti Bordoloi, an employee of AAU and local youth facilitated the programme.

4.11.3.7. Pre-Republic Day Parade Camp: Four students namely Mr. Kishore Jyoti Bhuyan, Mr Bicky Boro, CA, Ms Barsha Das, and Ms Prerana Das of CS participated in the Pre-Republic Day Parade Camp, organized by the Ministry of Youth Affairs and Sports, National Service Scheme, GoI, at the Regional Centre at National Institute of Technology, Durgapur, Kolkata, West Bengal during November 8th-17th, 2019.

4.11.3.8. Republic Day Parade Camp: Miss Prerana Das, CS, was selected to attend the Republic Day Parade Camp, 2019 organized by the Ministry of Youth Affairs and Sports, National Service Scheme, GoI, at New Delhi from January 1st to 31st, 2020.

4.11.3.9. The students attended a talk by Mr Sunil R. Parekh on "Dream and Passion: StartUps" in the Dr M.C.Das Memorial Auditorium on 10th May, 2019. Mr Parekh is the Chief of Strategy and Corporate Affairs, Zydus Cadilla, Ahmedabad; Founding Curator, World Economic Forum, Geneva, Board Member of 2 business incubators at IIM, Ahmedabad. The lecture followed by an interactive session.

4.11.3.10. Career Orientation Workshop in various colleges: Agripositions.com and AAU conducted a "Career Orientation Workshop" in CFSc and CVSc on 2nd September, 2019, AAU

Jorhat campus on 3rd September, 2019, LCVSc on 4th September, 2019, SCSCA and BNCA on 5th September, 2019, to sensitize the students about future career prospects in Management in Agriculture, Agri-Engineering, Dairy Tech, Veterinary, Fishery, Food Tech, Horticulture and other allied streams. The Workshop was held during September 2nd -5th, 2019. Mr Saurabh K Pandey, CEO - ISAB & Skill Advisory and an alumnus of GBPUA&T, Pantnagar and IIM-Ahmedabad and Mr Narayan Singh Rao, Director, Prakritik Power Pvt Ltd and CEO, the Indian Iris and an alumnus of IIT-Roorkee and IIM- Ahmedabad, acted as Lead Speakers.

4.11.3.11. 10th Bharatiya Chatra Sansad: A delegation comprising of 8 student leaders namely Shi Jogot Jyoti Baruah (CA), Parsha Bharadwaj (CCSc), Dhrubajyoti Mudoi (CCSc), Kanak Keot (LCVSc), Imran Hussain (CFSc), Jyotirmoy Borgohain (SCSCA), Prabal Malla Baruah (CS), Y. Londilong Sangta (CH) attended the 10th edition of the Bharatiya Chatra Sansad on the theme "Inspiring Youth, Strengthening Democracy", held at Vigyan Bhavan, New Delhi during February 20th -23rd, 2020.

4.11.3.12. Workshop on Audio-Visual Skill Development, Documentary and Filmmaking: AAU in association with National Agricultural Higher Education Project (NAHEP) hosted a one-of-a-kind intensive 10-day filmmaking workshop titled CINEMA VERITE from November 20-30, 2019. Heading the mission, film director Shankar Borua, a Ph.D. in Mass Communications from Texas Tech University, US and his team imparted basic filmmaking skills. This unique training and educational endeavor, was highly beneficial to the 25 participants, including 19 UG students and 4 technical persons from the KVKs. The undergraduate students of university were sponsored by NAHEP (Component 1). During the workshop, a total of 7, 5 fiction and 2 technical documentaries, were produced in record time. All the seven productions were screened to a packed audience at the Dr M.C. Das Memorial auditorium on 29th November, 2019. The valedictory ceremony, held on 30th November, 2019, was attended by Mr Arpan Saikia, Registrar, AAU, Dr Jayanta Deka, Dean, CA, Dr Ruplekha Bora, Dean, CCSc, Dr Rana P. Bhuyan, DSW and Dr K.K.Sharma, PI, NAHEP among others. Certificates were handed out to the 25 participants for successfully completing the workshop.

4.11.3.13. Three students participated in the Regional Seminar of Indian Society of Agricultural Economics on Perspective of Horti-Business in Development of North Eastern Region organized by College of Horticulture and Forestry, CAU, Pasighat co-organized by NABARD-Itanagar in association with ICAR-ATARI, Guwahati and Rajiv Gandhi University, Itanagar in February, 2020.

4.12. Students' Welfare in Biswanath College of Agriculture

4.12.1. Games & sports

4.12.1.1. Annual College Meet

The XXX Annual College Meet of BNCA was organized during November, 23rd-26th, 2019. Dr. A Bhattacharyya, Hon'ble Vice Chancellor graced the occasion as Chief Guest on 24th November, 2019 and inaugurated the meet. Mr. Rakesh Roshan, Hon'ble Superintendent of Police, Biswanath District was present as the Guest of Honour. A colourful march past competition was held accompanied by the APBN Police Band, Jamugurihat. The cultural night on 26th November, 2019 was inaugurated by Dr. RN Barman, Associate Dean of BNCA. A popular singer of Assam Mr. Anupam Saikia performed in the programme as the guest artist.

4.12.2. National Service Scheme

4.12.2.1. World Environment Day: On 5th June, 2019 NSS Unit BNCA conducted world environment day programme at the college campus. Dr RN Barman, Associate Dean, inaugurate the programme with about 100 numbers of NSS volunteers. In this occation, about 50 ornamental plant saplings were planted.

4.12.2.2. International Day of Yoga: On 21st June, 2019 NSS Unit, BNCA observed International

Day of Yoga. Sri Nitya Sharma, Coach, Biswanath District Body Builders Association demonstrated Yoga for the teachers and students.

4.12.2.3. Swachhta Pakhwada: Swachhta pakhwada programme was organized by NSS unit, BNCA from 1st -15th August, 2019 to clean out the college and Biswanath Abhyasan school campus. NSS volunteers teachers and employees of the college participated in this programme. During this programme, speech writing was organized by NSS Unit, BNCA. NSS volunteers also organized a demonstration cum awareness programme on the benefit of hand washing at Biswanath Abhyasan school.

4.12.2.4. NSS Day: On 24th September, 2019 NSS Unit BNCA celebrated NSS Day at Desopran Lakhidhar Memorial High School, Panibharal, Biswanath Chariali. On the occasion, different events were organized including speech on history, growth, motto of NSS, awareness about cleanliness, health and hygine and quiz competition among school students.

4.12.2.5. Swachhta Hi Sewa campaign: In connection with 151st Birth annevercery of Mahatma Gandi on 30th September, 2019 NSS Unit, BNCA organized a campaign programme to remove the single use plastic from the college campus. The prgramme was inagurated by the Associate Dean, and about 45 NSS volunteers of the unit participateed in the programme.

4.12.2.6.Rashtriya Ekta Divas: On 31st October, 2019 volunteers and Programme Officer of NSS Unit, BNCA participated "Rashtriya Ekta Divas" programme organized by district administration. On the occasion of 144th birth anniversary of Sardar Vallabhbhai Patel, 34 numbers of NSS volunteers participated "Run for unity" progrmme.

4.12.2.7. Constitution Day: On 26th November, 2019 NSS Unit BNCA celebrated Constitution Day. On 7th December, 2019 Programme Officer, NSS BNCA Unit delivered a classroom lecture on the topic "Fundamental duties" for the NSS volunteers. All total, 45 NSS volunteers participated in the programme.

4.12.2.8. Fund collection drive for Armed Forces Flag Day: On the occasion of observance of Armed Forces Flag Day on 7th December, 2019, a fund collection drive was conducted by NSS Unit BNCA. The NSS Unit distributed Car flag and Token flag among the teachers, employees and NSS Volunteers. The fund collected was sent to Zila Sainik Welfare Office, Sonitpur.

4.12.2.9. Swachh Abhiyan: On 2nd March, 2020 NSS Unit, BNCA organized Swachha Abhiyan. About 100 NSS volunteers, teachers and employees of BNCA cleaned out the various unit of the college campus.

4.12.2.10. Tree plantation programme: NSS Unit, BNCA organized tree plantation programme on 14th March, 2020 at BNCA campus. About 150 number of ornamental plant sapling was planted. Teachers, employees and about 75 numbers of NSS volunteers participated in the programme.

4.12.2.11. Awareness programme on Covid-19: NSS Unit, BNCA organized an awareness programme on Covid-19 at Biswanath Dagaon on 20th March, 2020. The prgramme was launched by Dr RN Barman, Associate Dean. Teachers of the college delivered lectures for the villagers on the topic of corona virus and how pepole should escape from the disease and benefit of hand washing and other sanitary measures. Among the villagers, the NSS Unit distributed face mask, hand wash and lefalets describing the precautonary measures against Covid-19. NSS Unit, BNCA also distributed hand sanitizer prepared by the college.

4.12.2.12. Sanitization and cleanliness programme: NSS Unit, BNCA organized Sanitization and cleanliness programme at BNCA campus on 24th March, 2020. To protect from Covid-19, indoor areas such as entrance of academic blocks, corridors and staircases, office rooms were

senitized. Outdoor areas were disinfected too.

4.12.3. Freshers' Social

Freshers'Social was organized at BNCA on 6th September, 2019 in the College Auditorium. Dr. A. Bhattacharyya, Hon'ble Vice Chancellor graced the inaugural session as the Chief Guest. The cultural night was inaugurated by Mr. Promod Borthakur, Hon'ble MLA of Biswanath.

4.13. Students' Welfare in College of Veterinary Science, Khanapara

4.13.1. 72nd Foundation Day of the College

The Foundation Day of College of Veterinary Science, Khanapara, was organized on 18th August, 2019 with a colourful day long programme. The Dean, Faculty of Veterinary Science hoisted the College Flag. The whole campus was illuminated with colourful lights in the evening. A cultural programme was also organized on the occasion. A Thematic Cultural Procession in a competitive mode among different hostels of the college was held.

4.13.2. Annual Freshman Social

The Freshmen Social was held on 17th September, 2019 with an open session which was graced by the Hon'ble Former Vice-Chancellor, Dr KM Bujarbaruah, as the Distinguished Guest and Sjt. Hitendra Nath Goswami, Hon'ble Speaker, Assam Legislative Assembly, as the Chief Guest. A cultural night was held in the occasion.

4.13.3. Educational Excursion

The Educational Excursion of the 5th year 1st Semester batch was conducted from 4th October to 23rd October, 2019. Dr. Archana Hazarika, Deptt. of Pharmacology & Toxicology and Dr. Utpal Barman, Deptt. of Veterinary Clinical Medicine, accompanied the students as Professor In-charge. A total of 78 of students participated in the Excursion.

4.13.4. 8th Late Lt. Col Dipjyoti Gogoi Memorial All Assam Inter College/University Prize Money Debating Competition-2018

The all Assam Debating Competition was organized in memory of 8th Late Lt. Col Dipjyoti Gogoi, an alumnus of the college, on 29th September, 2019 in the College Auditorium. Lt. Col Dipjyoti Gogoi Memorial Trophy was donated by Dr AR Gogoi, Retd. Dean, CVSc, Khanapara and his family in memory of their youngest son.

4.13.5. Adya Shraddha Ceremony of the Victims of Gas Tanker Blast

Eight students of the college tragically died near the College Campus in the Gas Tanker Blast accident that occurred on 1st November, 1998. Like earlier years, this year also their Adya Shraddha was organized on 1st November, 2019 with Nam Kirton in the premises of New Hostel (PG) and AT Hostel.

4.13.6. Annual College Meet – 2019

The Annual College Meet was organized from 21st to 24th November, 2019. Dr AK Bhattacharyya, Hon'ble Vice-Chancellor was invited as Chief Guest, who inaugurated the meet. Sjt Deepak Kumar, IPS, Commissioner of Police, Guwahati was the Guest of Honour.

4.13.7. Annual Parting Social - 2020

The Annual Parting Social was organized by Students' Union with great zeal and enthusiasm on 18th January, 2020. Dr. Dhiraj Bora, Hon'ble Vice-Chancellor, Assam Science and Technology University, Guwahati was the Chief Guest in the open session. A cultural night was held on the occasion.

4.13.8. Republic Day Camp at New Delhi, 2020

The 47 R & V Squadron NCC unit of the college participated in the Republic Day Parade held at New Delhi. This time, 2 ladies (Ms. Thambireddy Keerthi Sahithi, Ms. Gracy Lotha) and 2 gentlemen (Mr. Dickjyoti Bhuyan, Mr. Udipta Bhuyan) participated in the RDC Camp during the month of January, 2020 from the college to represent North Eastern Region.

4.13.9. 6 A-side Cricket Tournament

Late Achyut Kr. Tamuli Memorial 6 A-Side Day and Night Cricket Tournament was held from 7th to 8th March, 2020 in the Assam Type Hostel playground.

4.13.10. Participation in the Agriunisports

XX All India Agricultural Universities Sports and Games Meet, 2019 – 20, (Agri- Unisports) was held at SVVU, Tirupati, Andhra Pradesh from March 1st – 5th, 2020. Seven students from this college participated in the Agri-Unisports; all of them performed well in the meet.

4.14. Students' Welfare in College of Fisheries, Raha

4.14.1. Debate competition: A debate competition was held in college week 2019 on the topic, "The present education system in India, is unable to cater the needs of the economically marginalized people" and many students from UG and PG participated in that competition and helps to make the event successful.

4.14.2. Quiz Competition: A quiz competition was held in the college week 2019 among the students of our college and an about 50 students participated in that competition.

4.15. Students' Welfare in College of Sericulture

4.15.1. National Service Scheme

- 50 NSS volunteers participated in plantation programme in the AAU campus and nearby villages on occasion of World Environment Day on 5th June, 2019.
- 70 NSS Volunteers from the College attended the video conferencing programme on Launce of FIT INDIA MOVEMENT, Inaugurated by the Prime Minister of India on 19th August, 2019.
- A disaster preparedness drill and demo was organised on 28th September, 2019 by NSS students in collaboration with Jorhat Civil Defence.
- Mr. Pura Kozeen, a 4th Year student participated in the NSS Adventure Camp at NIMAS, Dirang, Arunachal Pradesh held from 25th November to 4th December, 2019.
- 70 NSS volunteers participated in the awareness programme on HIV AIDS, which was organised on 1st December, 2019.

4.16. Students' Welfare in College of Horticulture

4.16.1. National Service Scheme

- Blood Donation cum Group Identification Camp was organized on 30th March, 2019 in collaboration with Jorhat Medical College hospital and Red Cross Society, Jorhat branch.
- NSS volunteers of College of Horticulture participated in the Launch of Prime Ministers' FIT INDIA Programme on 29th August, 2019 at AAU, Jorhat.
- Awareness programme was organised on 1st December, 2019 on the occasion of World AIDS Day at AAU, Jorhat.
- The NSS Special Camp was organised at Na Ali, Dhekiajuli from 18th-24th November, 2019. Ms. Upasana Sarma was awarded the best volunteer NSS special camp, 2019.

4.17. Students' Welfare in Lakhimpur College of Veterinary Science

4.17.1. National Service Scheme

- Free chicks' distribution was done along with the celebration of National NSS Day on 10th January, 2020.

Figure 4.11. Free chicks' distribution on National NSS Day by LCVSc NSS unit

- Dr. A. Baruah, Prof. in Charge, NSS, LCVSc unit along with Mr. Kanak Koet, Mr. Kuntal K Buragohain and Mr. Krishnangkan Roy participated in North East NSS Festival 2020 Organised by NSS cell of Manipur University.

Figure 4.12. Participants of LCVSc, with their peers in North East NSS Festival 2020

5. Research

Research programmes on agriculture and allied subjects are undertaken in the nine constituent colleges, six Regional Agricultural Research Stations, five Commodity Research stations and 23 Krishi Vigyan Kendras under the university located in different areas of the state of Assam. 378 research projects under the Directorate of Research (Agriculture) and the Directorate of Research (Veterinary) were in operation during 2019-20 sponsored by different agencies and institutes, viz. Indian Council of Agricultural Research (ICAR), Department of Biotechnology (DBT) GoI, World Bank, International Rice Research Institute, Indian Council of Medical Research (ICMR), World Vegetable Centre, International Potato Centre, Department of AYUSH, IRRI-IFAD etc. to promote agricultural research in particular.

Research programmes were formulated to address critical issues in agriculture like doubling farmers' income by 2022, promoting organic agriculture, ensuring fair prices to agricultural produce, availability of quality seed in agriculture, etc., apart from All India Coordinated Research Project mandated areas.

A Research Management System headed by the Vice-Chancellor identifies the research problems based on the information gathered by the scientists from the farmers' fields and interactions with farmers and the line departments of the state department is also a major source of information. The Research Management System ensures project-based funding and periodic monitoring and evaluation of the research programmes and also need-based guidance.

Figure 5.1. Research Management System of Assam Agricultural University

(I) AGRICULTURE
A. FIELD CROPS
I. CEREALS
5.1. Rice
5.1.1. Crop Improvement

- Out of three lines tested in AICRIP network, the line IET 28283 (TTB 944-31-10-1-2-1) in IVT -RSL has been promoted to Advance Varietal Trial for all India testing.
- Three Bacterial Blight resistant genes xa5, xa13 and Xa21 have been introgressed in Ranjit-Sub1 background. The lines TTB-238 and TTB-241 performed at par with Ranjit-Sub1 at multi-locational trials conducted in the six agro climatic zones of Assam.
- Drought QTLs qDTY.1.1, qDTY.2.2 and qDTY.4.1 had been introgressed in short duration Luit and Kolong.
- A mid-duration submergence tolerant variety TTB-U-86 (Sub1 introgressed line) has been recommended by the University for cultivation in Assam.

Figure 5.2. Performance of TTB-U-86

- Produced 112 tons of quality rice seeds.
- Under breeding for late sowing and late planting situation, 62 advanced lines from 9 different crosses between Ranjit and other traditional Sali varieties revealed that 28 lines may have shown photoperiod sensitiveness characteristics. But it needs further reconfirmation.
- Under breeding for yield improvement of DWR, altogether 35 advanced lines from the Ranjit x Kekowa Bao (19 white kernelled and 16 red kernelled) were grown from single panicle to row system in order to get uniform lines.
- Two chakua rice lines viz., TTBDR103-4-4 and TTBDR106-2-4 suitable for preparation of komol chawal, sandah guri, flatten rice, pop rice, and puffed rice with average yield of more than 5t/ha are in the pipeline for recommendation under organic situation of Hills Zone of Assam.

Figure 5.3. Field trials of TTBDR103-4-4 and TTBDR106-2-4.

- Two Sali rice lines, viz., TTBDR 205-2-1 and TTBDR 207-3-2 with average yield of more than 5.5t/ha have been developed and are in pipeline for recommendation under organic situation of Hills Zone of Assam.
- An early Ahu rice variety, Haccha (AAUDR 9304-14-4-1) maturing within 130 days having an average yield of more than 4t/ha is in the pipeline of recommendation.

Figure 5.4. Performance of Haccha in field.

- One promising Sali rice line, CN1758-2-TTB7 with 9.5 per cent yield advantage and around ten days earlier in maturity as compared to Ranjit was proposed for recommendation in the TCM, Kharif, 2020 for normal Sali situation.
- In pot and field experiments, significantly highest yield and uptake of nutrients were recorded in Sali rice germplasms having root CEC > 6 cmol (p+) kg-1followed by 4 – 6 cmol (p+) kg-1 and lowest were observed in < 4 cmol (p+) kg-1.
- In pot experiment, uptake of phosphorus and potassium were found significantly and positively correlated with the CEC of roots of Sali germplasms while in field experiment, uptake of potassium was found significantly and positively correlated with the CEC of roots.

5.1.2. Crop Management

- Among the three crop establishment methods viz., transplanting, aerobic rice and wet direct seeding rice, transplanting was found to be superior in case of medium duration rice variety (Shraboni) when sowing was done in mid July. Rice equivalent yield of rice – green gram (variety SGC16) sequence was the highest (98.04 q/ha) when green gram was grown after manual transplanted rice and was significantly superior to wet DSR and aerobic rice.
- No significant difference between normal transplanting (4.89 t/ha) and direct seeding (wet DSR) (4.37 t/ha) in terms of grain yield of Swarna-Sub-1 was observed when sown earlier in 1st week of June. However, the crop mature about 12 days earlier following DSR technique (118 days) which facilitate early sowing of rabi crop as compared to transplanted crop (130 days). Performance of rabi crops viz., toria, linseed, green gram and autumn rice (cvs Disang & Kapili) following wet DSR (drum seeded) was found to be significantly superior (12.80 q/ha) with a REY of 22.56 q/ha over manual transplanting (REY 20.24 q/ha). Among the crop sequences, rice-green gram sequence recorded significantly the highest REY (105.13 q/ha).
- Based on Grain Yield Efficiency Index (GYEI), IET-27263 (1.32), IET-26418 (1.18) and local check, Numali (1.08) recorded values >1.0 indicating that these cultivars were nutrient efficient and stable yielder even at lower nutrient level (60-20-40:: N-P-K kg/ha).
- The percent increase in grain yield of SSNM based nutrient expert dose was 10.34% over RDF and 35.21% over farmers' fertilizer practice
- The long term soil fertility management in rice based cropping system in its 31st year of study revealed that incorporation of FYM along with NPK fertilizers enhanced further the use efficiency of NPK fertilizers through improvement in soil properties, microbial populations as well as enzymatic activities with INM and use of organic source resulted in improved soil productivity.
- In the screening trial on tolerance to soil acidity in rice, the genotypes,viz. PUP-221, Varadhan, RMS-1, MTP-1, and GPV-1 were found to be promising under native soil acidity condition.
- Among the tested varieties, Sahabhagi Dhan followed by IIRRH-131 responded well to silicon application with reference to above yield attributing parameters
- The entries/ varieties, IET 27908, IET 28425, IET 28429, Ranjit Sub1, Shraboni and Gitesh had been identified as relatively heat tolerant based on dry matter heat susceptible index etc. under elevated temperature.
- Among the tested entries, IET 27588 and IET 27596 were found to be moderately tolerant to low-light. Under low light stress, these entries maintained better grain yield (<40% reduction than normal), better panicle no/m2 (<20% reduction than normal) and better filled grain number per panicle (<30% reduction than normal) at maturity and increase in chlorophyll content
- Pretilachlor (0.75 kg/ha) fb 2, 4-D (1 kg/ha) was found to be better with an average grain yield of 29.40 q/ha and B:C ratio 1.70 for weed management in hill rice.
- The treatment of Microbial Consortia + Rock Phosphate Organic nutrients managements of Sali rice resulted in the highest grain yield.

- Growing of rice variety Aghoni Bora with application of compost @ 1ton/ha + *Azospirillum* + PSB proved to be beneficial for soil health compared to variety, Malbhog.
- In case of INM system in winter paddy, inclusion of Site Specific Nitrogen Management (SSNM) using Leaf Colour Chart (LCC) saved more fertilizer nitrogen while improving the agronomic efficiency of the same.
- Nutrient management in rice-rajmah cropping sequence resulted in the highest yield of rajmah at 75% RDF with Rhizobium & PSB bio-fertilizers.
- In Ahu Rice-Green-gram-Toria cropping sequence the maximum system yield (100.47 q ha-1), benefit cost ratio (2.04) and Rain Water Use Efficiency (RWUE) (6.15 Kg ha-1 mm-1) were recorded in the treatment T3 (75% RDF+3 t/ha Vermi-compost) followed by the treatment with T4 (75% RDF + 1 t/ha vermi-compost) and minimum was recorded in T1.

Figure 5.5. General view of the Permanent manurial trial.

- Irrigation at 15 cm depletion of water from soil surface can be recommended for autumn rice with grain yield (4.53 q/ha), B:C 2.03 and Water Use Efficiency (8.72 kg/ha-mm). For measurement of irrigation depth, equally perforated open plastic pipe as described under New IRRI technique of alternate wetting and drying may be installed in crop field.

Figure 5.6. Irrigation trials in autumn rice.

5.1.3. Crop Protection

- Monitoring of virulence of Xoo (BLB) shows that single gene Xa8, Xa13, Xa21 showed moderately susceptible against Xoo with minimum score 5. While combined effect of Xa4, Xa5, Xa7, Xa13 and Xa21 was able to show resistance to BLB with minimum score 3 or below, i.e.13 pyramid lines of IRBB, viz., 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 62 and 64 showed low score disease; on the other hand, IRBB 60 having 4 gene combinations (Xa4+Xa5+Xa13+Xa21) and IRBB 66 having 5 gene combinations (Xa4 + Xa5 + Xa7 + Xa13 + Xa21) showed highly resistance against BLB

pathogen where score was found to be 1.

- One of the available new molecules of fungicides against seven such tested, Tricyclazole 75% WP@ 0.6g/ L was found to be most effective and at par with Propeconazole 25% EC @ 1.0 ml/L against Sheath Rot of rice.
- Seed treatment with bioagent @ 10g/kg of seeds+ one application with bioagent @ 10g/l + one blanket application of propeconazole @ 1g/l at booting stage was found to be most effective against sheath rot of rice.
- Out of 30 high yielding local varieties tested, Dhansiri, Dipholu, Disang, Kolong, Chilarai were found to be resistant against sheath blight of rice with score 1. For BLB, 14 varieties, viz., Dhansiri, Dipholu, Chilarai, Jalkuwari, Jalashree, Prafulla, Satya Ranjan, Mulagabhoru, Jyoti Prasad, Bisnu Prasad, Kopili, Gitesh were found to be moderately resistant with score 3. Manohar Sali which was previously claimed to be resistant for both diseases was found to be moderately susceptible with score 5.
- The combination of Chlorantraniliprole 0.4G, Cartap hydrochloride 50% SC and Triflumezopyrim 10% SC was the most effective in reducing stem borer, leaf folder, caseworm which was at par with the combination of Neemazal 1% EC, Eucalyptus oil and Cartap hydrochloride 50% SC, producing 4.1 ton/ha grain yield.
- In late planting of Ranjit variety as compared to early and normal plantings, caseworm damage was recorded from 10 DAT till harvest as 47.23 – 98.58%.
- The damage by stem borer, leaf folder, whorl maggot and caseworm were significantly lower in bio intensive pest management (BIPM) practices as compared to farmers' practices (FP).
- Application of *Bacillus subtilis* (2x108 cfu/g, talc formulation) @ 10 kg/ha at sowing was found effective in reducing the soil and root nematode population of Meloidogyne graminicola, and increasing the yield of direct seeded rice.
- Two hot spots for rice root knot nematode, Meloidogyne graminicola and one hot spot for rice root nematode, *Hirschmanniella oryzae* were recorded in Nagaon district of Assam. Other plant parasitic nematodes recorded were *Helicotylenchus dihystera, Tylenchorhynchus annulatus, Hoplolaimus indicus* and *Macroposthonia* spp.
- Rice root knot nematode in direct seeded rice can be effectively managed by combined application of FYM @1 t/ha + agricultural lime @ 10kg/ ha + wood ash @ 1 kg /ha as basal application (half dose as basal and half dose at 45 days after sowing).
- Rice root knot nematode in direct as well as transplanted rice can be effectively managed by soil enrichment with *Bacillus subtilis* (2x108 cfu/g, talc formulation) @ 10 kg/ha at sowing.
- In development of Leaf folder (*Cnaphalocrosis medinalis*) rice variety through mutation breeding, M2 generation were grown to evaluate their characters during 2019-20 and the highest mean value of plant height (146.2 cm) was found on the treatment 200 Gy, Highest Leaf length (58.99 cm) and breadth (1.62 cm) was observed in the treatment 200Gy, while least leaf folder damage (1.69 %) was observed in the treatment 200 Gy and the highest mean value of estimated grain yield (5.84 q/ha) was observed in the treatment 250 Gy.
- Biosystematics studies involving identification, morphological characterization of insect pests like *Cofana spectra* (Hemiptera: Ciccadellidae), *Melanitis leda* (Lepidoptera: Nymphalidae) and natural enemies like *Xanthopimpla* sp. (Hymenoptera: Ichneumonidae), *Charops bicolor* (Hymenoptera: Ichneumonidae) were carried out.
- Altogether, 138 numbers of spiders from 6 different families (Lycosidae, Oxyopidae, Tetragnathidae, Araneidae, Uloboridae and Salticidae,) were collected from different rice fields. Highest number of spider population (0.8 to1.4 spider/ m2) was recorded in rice fields. The maximum population of spiders (1.3/m2) observed during 2nd week of September to 1st week of November. Lycosidae was the most predominant family followed by Oxyopidae and Tetragnathidae. Relative abundance of Lycosa

sp. was 34.78 per cent followed by *Oxyopes* spp. (26.81%) and *Tetragnatha* spp. (20.28%), respectively. Two numbers of patrasitoids, viz., *Cotesia angustibasis* (larval) and *Trichogramma japonicum* (egg), recovered from leaf folder and stem borer eggs.

5.2. Wheat and Barley

5.2.1. Crop Improvement

- In the Advance Varietal Trial under irrigated and restricted irrigation situation, the highest grain yield was recorded in the entry NE-IR-105 (44.05 q/ha in 128 days) and NE-RI-305 (42.10 q/ha in 137 days), respectively.
- In the National Initial Varietal Trial under irrigated and restricted irrigation situation, the highest grain yield was recorded in the entry N103 (38.33 q/ha in 131 days) and N 209 (36.57 q/ha in 127 days), respectively.
- In the North East Special Trial- out of 43 entries, the entry NEST 19-25 (34.16 q/ha in 108 days) could be identified as early maturing (< 110 days) in timely sown and four entries viz. NEST 19-5, NEST 19-30 (37.92 q/ha in 109 days), NEST 19-32 (34.16 q/ha in 109 days) and NEST 19-40 (33.33 q/ha in 109 days) were found shorter in maturity duration (< 110 days) under late sown condition.

5.2.2. Crop Management

- Wheat crop sown on 25th November, 2019 produced 35.7% higher grain yield (50 q/ha) as compared to crop sown on 25th October, 2019 (36.8 q/ha).
- NPK fertilizers @ 120:90:84 kg/ha produced the maximum grain yield of 49 q/ha which was significantly higher as compared to recommended dose of CBV Zone (60:45:42 kg/ha).

5.3. Small Millet

5.3.1. Crop Improvement

- In Finger Millet the local variety, Gossaigaon Marua Dhan 1 (GGMD 1), was proposed for recommendation.
- In Foxtail Millet, the variety Gossaigaon Local (Yellow seeded) is under MLT in all the agro-climatic zones this Rabi season.

5.4. Maize

5.4.1. Crop Improvement

- The lines, DKC2074 (c) and DKC8205, were found to be the highest yielder in NIVT (early), and NIVT (Medium maturity) trials, respectively. Similarly, DKC7074 (c) and DKC 9190 showed highest performance in AVTI (early) and AVTI (Medium maturity), respectively.
- In OPV Trials, L316 showed highest yield followed by L315. Among QPM entries, APQH1 found as best followed by HQPM5.
- In case of Baby corn, CMVLBC 2(c) and in pop corn LPCH219 were found to be the best.

5.4.2. Crop Management

- In medium maturity genotype, higher nutrient application (150% RDF) gave significantly higher yield over recommended densities and RDF. In contrast to this, no genotype was found significantly higher yield over best check.
- In case of QPM and OPV genotypes, higher nutrient application (150% RDF) showed significantly better performance over recommended densities and RDF.
- In Maize – Greengram - Potato system, 4-years pooled data showed that the maximum yield (193.16 qha-1) was recorded in the treatment R1C1 (Maize – Greengram - Potato with life saving irrigation), with the highest B:C ratio of (2.28) observed in the treatment R1C1 (Maize – Greengram - Potato with life saving irrigation) followed by R1C2 (Maize – Green – manuring - Potato with life saving irrigation); whereas in Rice based Cropping system, highest yield (81.72 qha-1) in R1C3 Ahu Rice – Greengram - Toria with life saving irrigation was observed.
- In maize based triple cropping systems under rainfed upland situations, the highest B:C ratio was recorded (2.17) in two treatment combinations, i.e., maize + blackgram - toria-greengram and maize + blackgram – rajmah - greengram.
- In Maize – Greengram - Rajmah cropping

sequence highest system yield (149.54 qha-1), Benefit cost ratio (2.94) and Rain water Use Efficiency (RWUE) (9.15 Kg ha-1 mm-1) were recorded in the treatment T3 (75% RDF+3 t/ha Vermicompost) followed by the treatment with T4 (75% RDF + 1 t/ha vermicompost) and minimum was recorded in T1 (Control).

Figure 5.7. Catchment-storage-command relationship for enhancing water productivity

II. OILSEEDS

5.5. Rapeseed-Mustard

5.5.1. Crop Improvement

- Seven promising lines from the Mustard varieties of IARI, New Delhi; ZARS, Morena and four promising lines of Yellow Sarson lines from DRMR, Bharatpur, and Rajasthan were identified.
- Two promising Mustard lines were identified for highest no. of siliqua/plant.
- Six promising lines of Rapeseed-Mustard were identified for notable pungency (will be tested).

5.5.2. Crop Management

- Soil application of Hydrogel (2.5-5.0 hg/ha) along with foliar application of Salicylic acid (100-200 ppm) resulted significant increase in seed yield of Toria as compared to no application of these chemicals.
- Toria entry AG-3 significantly out-yielded other toria test entries. Seed yield increased significantly with the increase of fertility level form 100 to 125 and 150% of recommended level.
- Mustard var. 'PM 26' was found to be superior over other recommended varieties of mustard for late sown condition grown after harvest of Sali paddy.
- Productivity maximization of rapeseed through optimum irrigation schedule and spacing as crop intensifying agro-technology is possible. Irrigation scheduling at pre-flowering (20 DAS) and flowering (40 DAS) stages at 4cm depth of irrigation can result higher seed yield (17.54 q/ha) B:C (2.21) and WUE 10.10 Kg/ha-mm. Crop spacing at 25cm x 25cm resulted higher seed yield (18.30 q/ha), and B:C (2.44).

5.5.3. Crop Protection

- For management of Alternaria blight disease in rapeseed (toria), Foliar Spray with Mancozeb @ 0.2% at 45 DAS followed by Propiconazole 25 EC @ 0.05% at 60 DAS resulted in 37.2 % disease reduction over control and the highest seed yield (979.83 kg/ha) with a B.C ratio of 1.71. It was followed by Soil treatment with Biogreen @2.5kg/ha (Incubation 1:50) + Seed treatment with Biogreen @ 5% + Foliar Spray with Biogreen @ 5% at 45 DAS was almost equally effective in reducing disease severity (34.5 % disease reduction over control), enhancing seed yield (920.2 kg/ha) and increasing economic return (B.C ratio of 1.50).
- In relation to meteorological factors, the severity of Alternaria blight disease in rapeseed & mustard appeared from the second fortnight of December. Per cent disease intensity (PDI) in mustard varieties increased progressively till 100 DAS, (25.95 to 29.01), whereas, in yellow sarson and toria, it ranged from 14.96 to 20.00 at 70 DAS. Significant positive correlation was observed between PDI-minimumm temperature

and PDI-rainfall in mustard varieties. However, in yellow sarson and toria, maximum temperature governed the Alternaria blight severity. All the varieties of mustard performed better when sown on 5 November.

- Out of 371 entries of rapeseed-mustard screened against Alternaria leaf blight disease, the entries NDN-19-88, NDN-19-100 and NDN-19-137 showed Moderately Resistant reaction.
- Three rounds spraying of dimethoate 30 EC @ 2ml/lit at 10 days interval significantly reduced the mean population of aphids (5.91 per 10 cm apical twig) in comparison to other treatments with highest yield of 7.60q/ha. However, it was at par with Lecanicillium lecanii (NBAIR Culture) @ 5g/litre and *Beauveria bassiana* (AAU-J culture) in reducing the mustard aphids (10.0 and 11.19 /10 cm twig) with next higher yield of 7.35 q/ha and 7.10 q/ha, respectively.

5.6. Linseed

5.6.1. Crop Improvement

- Under AVT and IVT trials, lines, viz., 190702 & 190710 and 190723 & 190728, showed the best result both in terms of yield and duration under rainfed and irrigated situations, respectively. Similarly, the line 190740 and 190745 were wilt free high yielder, and 190758 were early maturing under utera situation.

5.6.2. Crop Management

- In linseed, soil application of ZnSO4 @ 25kg + Borax @ 1.5 kg/ha gave significantly higher yield whereas in utera linseed application of Urea @ 2% + ZnSO4 @ 0.5% was found better.

5.6.3. Crop Protection

- A total of 27 entries have been found moderately resistant against Alternaria blight in leaf and bud of linseed under natural condition since 2018-19.

III. PULSES

5.7. Green gram

5.7.1. Crop Improvement

- In case of greengram, newly developed high yielding short duration variety 'SGC-25' will be included in the AICRP IVT trial during Kharif, 2021. Similarly, a newly developed blackgram HYV 'SBC 51' will be included in AICRP IVT soon.

5.7.2. Crop protection

- In greengram, a spraying schedule consists of Quinalphos 25EC @ 0.05% followed by Dimethoate 30 EC @ 0.06% at 10 days interval results in reducing the pod bug population by 94.10% and their damage by 89.01% with B:C of 2.76 and seed viability of 93.67 %.
- An IPM module with integration of practices like two lines of sesame as barrier crop, installation of yellow sticky trap (1m x 1m) coated with white grease @15/ha, bird perches @30/ha, spraying with Neembicidine 0.03EC @3ml/l at both vegetative and podding stages manages the major pests in green gram resulting in 26.45% yield increase over farmers' practice with B:C of 1.96.

5.8. Black gram

5.8.1. Crop Management

- Post-emergence herbicides, Propaquizafop 2.5% + Imazethapyr 3.75% ME @ 125 g/ha (2 l/ha commercial formulation) at 15-20 DAS was found almost equally effective as that of hand weeding for weed management in blackgram.

5.9. Lentil

5.9.1. Crop Improvement

- One short duration (95-100 days) HYV of lentil 'SLC-102' has been identified during Rabi, 2019-20.

5.9.2. Crop Management

- Under conservative agriculture practices, direct seeding of lentil @ 45kg/ha with retention of 30 cm high stubbles in Zero-Till Sali rice-lands just after harvest emerged to be the best with grain yield of 875.69 kg/ha and B:C of 3.24 for enhancing productivity of lentil in rice fallows.
- Growing of mustard-lentil (1:2) in replacement series was found to be profitable for the mustard-

lentil intercropping system in the Hills Zones of Assam.

5.9.3. Crop Protection

- A new disease was recorded Stemphylium blight in lentil crop caused by *Stemphylium botryosum* at flowering stage. Infection leads to immature defoliation of leaves, bending of tips downwards, pods remains green and finally dies out. Spores are dark in colour occurring singly at the tip of conidiophores. Conidia are oblong rounded at the ends, broadly ellipsoidal or sub-spherical with usually 3 transverse septa and 1-3 longitudinal septa.
- 40 germplasms of field pea and 30 germplasms of lentil were screened against Meloidogyne incognita. 8 germplasms of field pea and 5 germplasms of lentil were found moderately resistant and rest were found susceptible
- Root knot nematode, Meloidogyne incognita was the major plant parasitic nematodes associated with pulses with a population range of 35-225 J2 per 200 cc of soil. Other plant parasitic nematodes recorded were Helicotylenchus dihystera, Tylenchorhynchus annulatus, Hoplolaimus indicus and Criconematids.

5.10. Pea

5.10.1. Crop Management

- In field pea, the treatment combination of 100% fertilizer dose of 20:46:15 N, P2O5, K2O kg/ha and foliar spray of 0.5% NPK (19:19:19) at pre-flowering & pod initiation stages resulted in the highest grain yield on 1371.11 kg/ha with B:C of 2.28.

5.10.2. Crop Protection

- In field pea, the existing recommended technology of 'Spraying of Tebuconazole 25 EC 0.2% (2 ml /lit of water)'has been refined as 'Spraying of Tebuconazole 25 EC 0.1% (600 -700 ml mixed with 600-700 lit water/ha) 3 times at 10-15 days interval targeting from the appearance of pea rust disease in field pea crop'.

5.11. Lathyrus

5.11.1. Crop Protection

- In lathyrus, aphids can be suppressed by dusting with ash of crop residues + fine sand @ 30kg (25kg ash + 5kg sand)/ha just after appearance of aphids during early morning hours and need-based application at reproductive stage of lathyrus.

5.12. Chickpea

5.12.1. Crop Improvement

- Among a large number of chickpea genotypes tested, the varieties C 19134, C 19112 in AVT 1 (desi, timely sown); C 19190, C 19211, C 19170 in IVT (desi, timely sown); C 19231, C 19227 in AVT 1 (late-sown); C 19248, C 19261, C19243, C 19251 and C 19236 in IVT (late-sown) and C 19464), C 19446 and C 19451 in IVT (Mechanical Harvesting) were found to be promising.
- Under the project on Genetic Improvement of Chickpea Using Gene Technology for Insect Pests by DBT-AAU, the following activities were conducted:
- Reconstruction of chloroplast targeted and 2Bt gene construct for transformation of chickpea
- Generation of single and pyramided Bt-chickpea lines
- Performing detailed molecular characterization and compositional analysis of existing transgenic chickpea lines
- Introgression of breeding using existing lines at collaborative public institutions (PAU and UASD) is in progress

5.12.2. Crop Management

- 'Sow chickpea as relay crop 15 days after 50% flowering of Sali rice' was developed as a technology for relay cropping of chickpea.
- Post emergent application of Topramezone 20.6 g a.i/ha at 21 DAS& at 14 DAS and Topramezone @ 25.7 g ai/ha at 21 DAS were at parfor weed management in chickpea.
- Among the different chickpea based cropping systems, chickpea + linseed and chickpea + toria were found promising.
- Growing of mustard-chickpea (1:4) in

replacement series was found to be profitable for mustard-chickpea inter-cropping system in the Hills Zones of Assam.

5.12.3. Crop Protection

- Out of 240 entries, AVT (Desi) entries P13011, P13023, P13027; IVT entries P13038, P13043, P13062, P13067; IVT (LS) entries P13075, P13091, P13102; IVT (RF) entry P13126; AVT(Kabuli) entries P13150, P13158; IVT (Kabuli) P13168, P13173; IVT (MH) entries P13187, P13190; IPPSN entries P13314(K), P13340, P1335 (K) were found to be moderately resistant (11-20%) against collar rot of chickpea.

5.13. Rajmah

- In Rajmah based intercropping system with Rabi crops under rainfed upland condition, the highest B:C ratio of 2.71was recorded in rajmah + lentil with 1:1 ratio. In 2:1 ratio, highest B:C ratio of 2.63 was observed in rajmah + linseed.

IV. FIBRE CROPS

5.14. Jute and Allied Fibers

5.14.1. Crop Improvement

- Out of 6 varieties of AVT II Olitorius jute, JROBA-3 was the top yielder of fibre with 45.07 q/ha, followed by JROBA-4 (41.56 q/ha), JRO-204 (41.30 q/ha) and JROP-2 (36.19 q/ha).
- Out of 11IET Capsularis varieties, the highest fibre yield was recorded in var. JRCP-6 (40.44 q/ha) followed by JRCP-7 (38.78 q/ha) and NCJ 17-5 (37.78 q/ha).

5.14.2. Crop Management

- Soil amelioration and INM with 150 % NPK fertilizer dose + lime + OM on Soil Test-Targeted Yield basis under acid soil condition gave highest fibre yield (23.70 q/ha) as compared to normal fertilization (17.83q/ha) in jute . Whereas, in succeeding rice crop (var TTB 404) Soil Test-Targeted Yield basis 150% NPK + lime / dolomite application on 25% LR+ organic manure (equivalent to 5 t/ha of FYM) gave the highest grain yield of 31.88q/ha
- Flat bed sowing and application of Quizalofop ethyl 10 EC 38 g + Ethoxysulfuron @135 g/ha at 15 DAE gave the highest seed yield (6.92 q/ha) as compared to flat bed transplanting without weeding (5.50 q/ha).

5.14.3. Crop Protection

- Survey of jute crop revealed that infestation of BHC, has become a regular & serious problem and that of semilooper is decreasing in the recent years, root rot & stem rot being the major diseases
- For insect and disease control, seed treatment with carbendazim 50 WP @ 2g/kg + spraying of (spiromesifen 240 SC @ 0.7 ml/kg at 35 DAS + tebuconazole @ 0.15 % at 45 + lamda cyhalothrin @ 0.6 ml/l at 55 DAS was found efficient.

V. SUGARCROPS

5.15. Sugarcane

5.15.1. Crop Improvement

- One variety, CoBln 16501, with cane yield of 92.40 t/ha in IVT (Early), two varieties, viz., CoP 14437(89.34 t/ha) and CoSe 14451(87.80 t/ha) in AVT (Early) and varieties CoP 14337 (79.70 t/ha) and CoSe 14451(75.03 t/ha) in AVT (Early) ratoon were found promising.
- The variety CoBln 16502 (93.80 t/ha) in IVT (Midlate), CoP 15440 (86.00 t/ha) and CoSe 15453 (82.73 t/ha) in AVT (Midlate_I plant) and out of the 8 varieties tested 3 varieties namely CoSe 14455(95.37t/ha), CoLk 14209 (91.20 t/ha) and CoP 14438 (90.73 t/ha) in (Midlate_II plant) were found promising .
- 6 clones were selected on the basis of quality and cane yield out of 45 high yielding clones and two clones, namely, CoBln 19501(49/13) and CoBln 19502(27/13) were sent for IVT evaluation at North Central and North Eastern zone for evaluation under AICRP-Sugarcane under National Hybridization and Fluff programme
- Breeder seeds of 8 varieties, viz., Lohit, Borak, Kolong, Dishang, Dhansiri, Nambor and Kapilipar were produced in 2 ha of land.

5.15.2. Crop Management

- Under organic cultivation growing of dhaincha as green manuring crop along with addition of FYM @ 5 t/ha, compost @ 5 t/ha, bio-fertilizer and rock phosphate @ 350 kg/ha resulted the highest cane yield of 41.68 t/ha.. Organic cultivation resulted significantly lower cane yield than that under fertilizer application (54.86 t/ha). However, sucrose content of cane juice under organic and fertilized cultivation was statistically at par.
- Cane yield increased significantly with the application of 150% recommended dose of N, P and K fertilizer in two splits of N and K fertilizer (70.57 t/ha), as compared to that under recommended dose of fertilizer application (48.7 t/ha). Cane juice quality parameters, however, remained at par under different doses of fertilizer and its application method.

Figure 5.8. Sustainability in organic cultivation

Figure 5.9. Response of graded dose of NPK fertilizer, 150% recommended dose in 2 splits

B. HORTICULTURAL CROPS

I. FRUIT CROPS

5.16. Citrus

5.16.1. Crop Improvement

- A total of 157 Citrus germplasms have been collected and conserved in a germplasm block and are being evaluated. The most promising elite selection of Khasi mandarin, CRS-4 has been included in the All India Coordinated Trial on Varietal Improvement of Mandarin.

5.16.2. Crop Management

- Vegetative methods of mass multiplication of the elite cultivars of Assam lemon were standardized.
- For rejuvenation of Khasi Mandarin orchard, soil application of 25 kg FYM + 5 kg neem cake + multiple microbial culture (*T. harzanium, Pseudomonas flourescence* and Azotobacter / Azospirillum) to each plant along with50% recommended dose of fertilizer (+ $FeSO_4$, $MnSO_4$, $ZnSO_4$ and Borax) as soil application and 50% recommended dose of fertilizer (+ $FeSO_4$, $MnSO_4$, $ZnSO_4$ and Borax) as foliar application was found to be effective.
- Application of 75% of Recommended Dose of Fertiliser + VAM (500 g/plant) + PSB (100 g/plant) + Azospirillum (100 g/plant) + T. harzianum (100 g/plant) in two splits were found to be effective as Integrated Nutrient Management (INM) in Khasi mandarin.
- Application of 50% more than the recommended dose of Phosphorus (RDP) + Tetracycline Hydrochloride 600ppm + $ZnSO_4$ of 200g was found to be the best practice of Integrated Management of Citrus Greening Disease with 42.94% disease control and yield of 49.97 Kg/ plant.
- Potassium Phosphonate @ 3g/l foliar spray was found effective in reducing the trunk lesion recovery (50.70%) and increase in fruit yield (51.4kg/tree) with highest B:C ratio (2.28) for management of Phytophthora root rot of Khasi Mandarin.

5.16.3. Crop Protection

- The survey of Citrus orchards for pests, diseases and citrus germplasm were conducted in other North-Eastern states like Tripura and Manipur. Three districts of Manipur, viz., Tamenglong, Bishnupur and Noney were surveyed. In Tripura, two districts, viz., Sipahijala and Gomati were found to have Khasi mandarin orchards but the production is gradually declining.
- A total of three new emerging Insect pests viz. Citrus Green Bug, *Rhyncocoris humeralis* (Thunberg), (Hemiptera: Pentatomidae), Brown Marmorated Stink Bug, *Halyomorpha halys* (Stal), (Hemiptera: Pentatomidae) and Green Stink bug, *Nezara viridul*a, (Hemiptera: Pentatomidae) were identified and can be considered as major pests in Citrus.
- Foliar application of neem formulation 10000 ppm @ 5ml/l followed by spinosad (0.015%) or thiamethoxam (0.008%) at 7 days interval during the new flushing period effectively manage citrus leaf miner up to 14 days after spraying.
- The highest level of repellency against fruit sucking moths was observed in the treatment of Petroleum spray oil @ 2% (fruit drop 15.60 %) compared to untreated control. This was followed by the treatment of Jatropa oil (2%). The B:C ratio in the Petroleum spray oil was 2.85.
- Propargite 57 EC (0.057%) was found to be significantly effective in reducing mite population in citrus fruit cropswith the B:C ratio of 2.70.

5.17. Banana

5.17.1. Crop Protection

- One hundred and fifty eight soil and root samples were collected from around the rhizosphere of different fruit crops (banana, citrus, guava, papaya) to ascertain the population of plant parasitic nematodes associated with these crops. Two hot spots each were recorded for root knot nematode, Meloidogyne incognita in banana and papaya.

5.18. Papaya

5.18.1. Crop Improvement

- Eight different types of papaya collected from different parts of Karbi Anglong district were studied for their performance along with a standard variety in two crop cycle, each of 3 years. The variety P-4 recorded the highest number of fruits per plant (53.50) followed by variety P-6 (49.50) while the highest yield per plant (31.10kg) was obtained in P-6 followed by P-4 (29.55 kg).

Figure 5.10. Performance of Papaya varieties (P-4 in the left, P-6 in the right)

II. VEGETABLE CROPS

5.19. Tomato

5.19.1. Crop Improvement

- In the evaluation trial of five OP lines of tomato from WorldVeg (AVTO 1122, AVTO 1314, AVTO 1346, AVTO 1366 and AVTO 1424) with standard check of hybrids (Arka Rakshak and Hybrid 2018) none of the OP lines were found advantageous over the check varieties. The check variety H2018 produced the highest yield per plant and per hectare, i.e., 1.5 kg and 62.9 t, respectively. All the entries were found to get severely infected by late Blight disease.

Figure 5.11. Evaluation trials of OP lines of tomato from WorldVeg.

5.19.2. Crop Protection

- Ten endophytic bacteria were isolated from tomato. Three promising endophytic bacteria with nematicidal potential were *Bacillus altitudinis, Bacillus marisflavi* and *Microbacterium arborescens.*

5.20. Pumpkin

5.20.1. Crop Improvement

- In the evaluation of four Pumpkin OP lines of WorldVeg – AVPU 1391, AVPU 1392, AVPU 1393, AVPU 1394 with four checks (three hybrids Arjuna, Bimal, Bhima and one Local), AVPU1392 was found the best overall. Other 7 entries in respect of yield and other yield attributes registering plant height at flowering (1.92 m); days required for 50% flowering (73.33); number of fruits/plant (8.66); fruit diameter (11.0 cm); average fruit weight (1.42 kg); yield per plant (12.30 kg) and yield per ha (54.97 t).

Figure 5.12. Evaluation trials of OP lines of pumpkin from WorldVeg.

5.21. Potato

5.21.1. Crop management

- In potato, flood method resulted in highest yield than both drip and no irrigation whereas in toria and rajmah both drip and flood method showed at par result among them but significantly superior over no irrigation. The evaporation had been observed as 34.46 % of the total stored and seepage is considered to be negligible (concrete lining), whereas, the dead storage was observed to be around 48%.

5.22. Brocolli

5.22.1. Crop management

- Broccoli crop can be grown under drip fertigation with irrigation scheduling at I EpR and fertilizer level either @ 100-80-60 kg N-P2O5-K2O/ha or 75 -60-45 kg N-P2O5-K2O/ha + FYM (5 t/ha) + Panchagavya (50 lit/ha) for obtaining maximum head yield (88.97 -99.03q/ha) and B:C (3.36- 6.25).

Figure 5.13. Broccoli crop grown under drip fertigation

5.22.2. Crop Protection

- From vegetable rhizosphere 86, and from medicinal and aromatic plants 15 soil and root samples were collected to ascertain the population of plant parasitic nematodes associated with these crops. Nearly 50 per cent soil samples had more than thresh hold population of root knot nematode.

5.23. Cabbage

5.23.1. Crop protection

- Among the different EPF, V1-8 isolate of *L. lecanii* @ 5 ml/litre was the next best treatment in reducing the mean population of aphid (3.15/ plant) and DBM (5.09/plant), with next higher yield of 196.0q/ha after chemical treatment. The rest of EPF of ICAR- NBAIR strains (Bb-5a, Bb-45, Ma-4) in reducing the cabbage aphids and DBM was equally effective with each other and found to be statistically different only from untreated control plots.

5.24. Brinjal

5.24.1. Crop protection

- Six rounds of alternate spray of Profenophos 50 EC @ 2 ml/ltre and lamda cyhalothrin 4.9CS @ 0.4 ml/ltre at 15 days interval starting from 20 DAP could successfully suppress the shoot (9.68%) and fruit (10.77%) infestation of brinjal shoot and fruit borer with maximum yield of 211.6 q/ha. However, BIPM module with ten releases of *Trichogramma chilonis* (MITS)@ 1,00,000 parasitoids/ha followed by four spraying of NSKE 5% (2ml/litre) and *Lecanicillium lecanii* (NBAIR culture) @ 5g/lit at 10 days interval was the next best treatment with 10.94 % shoot and 12.11% fruit infestation and contributed next higher yield of 205 q/ha.

III. SPICE CROPS

5.25. Garlic

5.25.1. Crop Improvement:

- Out of five varieties of garlic, viz., Yamuna safed -1, Yamuna Safed -2, Yamuna safed -5, Sweta and Godavari, the highest weight of cured bulb (22.0g) and highest yield (10.00t/ha) was obtained in Yamuna Safed -5 followed by Godavari (20.5 g and 9.63 t/ ha, respectively).

Figure 5.14. The produce obtained from Yamuna Safed-5 and Godavari.

5.26. Ginger

5.26.1. Crop Management

- Application of 5 ton enriched compost along with microbial consortia showed highest yield of ginger along with good soil health.

5.26.2. Crop Protection

- The intensity of rhizome rot disease of ginger was assessed under different microenvironments and the pathogen involved was identified as *Fusarium oxysporum* using molecular techniques. The partial gene sequence (579 bp) of the identified strain (Ginrarsnl_1) was submitted to NCBI gene bank and assigned Accession No. GenBank:MN05570.1
- Soils of RARS farm is classified to be Typic hapludalf and Typic dystrudept and recommended for oilseed, pulses, wheat and maize in office farm and rice along with pulses for old office farm with few soil and water

management practices.

- A survey based on land use land cover map revealed better soil condition under forest and bamboo plantations compared to other land use systems around Karbi Anglong.

5.27. Black pepper

5.27.1. Crop Improvement

- All total of 26 varieties have been collected from IISR, Calicut, PRS, Panniyur, AICRP (Sirsi), APPL (Teok) including Local Collection and are being maintained.
- The Black pepper varieties, Panniyur–5 and Subhakara, can be recommended for the farmers of Assam as the mixed crop in the areca nut garden, based on the percent dry berry recovery (35.6% and 35.3%), green berry yield per plant (7.22 and 6.93 kg/plant) and dry berry yield per plant (2.53 and 2.45 kg/plant), respectively, with a B:C ratio 4.57 and 4.40.

Figure 5.15. Black pepper plantation (top) and the fruits of the two recommended varieties (Subhakara and Panniyur-5).

- Five pepper varieties, viz., IISR Thevam, IISR Shakti, IISR Malabar Excel, Sreekara and Panniyur-1, were selected for the trial. The highest vine length and vine girth were recorded in Panniyur-1 whereas lowest vine length and vine girth was observed in IISR Shakthi. The highest number of lateral (31.0 at 1 m column) was recorded in Sreekara, while Panniyur-1 recorded significantly higher number of spikes (112.0 in 1m column height), spike length (14.4 cm), number of berries per spike (67.8) and yield (1.45 kg/vine) compared to other varieties/ hybrid.

5.28. Turmeric

5.28.1. Crop Improvement

- Six turmeric varieties, namely, Megha Turmeric–1, Rajendra Sonia, Lakadong, Udalguri Collection, Chirang Turmeric, Dhola were collected and presently maintained for production of quality planting materials.

Figure 5.16. Fingers and plantations of the turmeric variety, Dhola

Figure 5.17. Fingers and plantations of the turmeric variety, Chirang

Figure 5.18. Fingers and plantations of the turmeric variety, Rajendra Sonia

5.28.2. Crop Management

- The first week of May was suitable for raising of bush pepper cuttings in variety 1 with 82.0% in Panniyur-and 84.3% success in Karimunda.
- The potting media containing Neem cake + Silt + Cow dung + Vermicompost in 1:2:2:2 proportion was found suitable for growing bush pepper varieties, Panniyur-1 and Karimunda, successfully in pots of 10 kg size to get maximum green berry yield per plant with a B:C ratio 1.79 and 1.77, respectively, under the agro-climatic conditions of Assam.

IV. FLOWER CROPS

5.29. Orchid

5.29.1. Crop Improvement

- The germplasm collected for characterization, evaluation and maintenance of tropical orchids include *Aerides rosea, Aerides crassifolia and Coelogyne flaccid* and few species and hybrids of 16 genera including intergeneric hybrids, viz.,

Arundina, Cymbidium, Epidendrum, Phaius and Spathoglotis (under terrestrial group) and Aerieds, Aranda, Arenthera, Bulbophyllum, Dendrobium, Mokara, Oncidium, Phalenopsis, Rhynchostylis, *Vanda teres* (under epiphytes). All the germplasm have been collected from different forest habitats of Assam.

Figure 5.19. Distinct flowers of various orchid germplasms.

5.30. Tuberose

5.30.1. Crop Improvement

- The collection and maintenance of germplasm has gone up to 15 including the double type of tuberose genotype Phule Rajat collected from National Agricultural Research Project, Ganesgkhind, Pune during 2019-20.
- The single type of tuberose, Arka Prajwal registered maximum plant height (86.32 cm), flowering duration (18.50 days), rachis length (30.83 cm), floret numbers (45.60), diameter of florets (4.27 cm), weight of individual florets (1.05 g), weight of florets per spike (44.01 g) and florets yield (19.14 q/ha). However, Kahikuchi Local exhibited superiority in respect of minimum days to spike emergence (57.23 days), days to first flowering (73.06 days), maximum number of spikes per clump (3.15) and spike length (83.58cm).

Figure 5.20. Flowers of tuberose (Arka Prajwal in the left, Ganesgkhind in the middle and Bidhan Rajani-19 in the right).

- With regard to spike yield, the maximum (4.74 lakh/ha) was recorded in GK-TC-4 and the least (2.13 lakh/ha) in Sikkim Selection.
- In the double type of tuberose, Bidhan Rajani-19 registered the maximum number of florets per spike (48.25), diameter of florets (3.62 cm), maximum rachis length (55.25 cm), length of florets (5.50 cm), weight of individual floret

(2.40 g), weight of florets per spike (116.96 g) and florets yield (21.83 q/ha). On the other hand, Local Double recorded least days to spike emergence (74.50 days) and days required for first flowering (92.50 days). However, Suvasini registered the maximum days of flowering duration (32.75 days) which was closely followed by Bidhan Rajani-19 (31.25 days) and Bidhan Rajani-24 (30.50 days).

- Pyraclostrobin 20% (1 g/l) or Tebuconazole 2% DS WP (1 g/l) or Difenconazole (0.05%) were found effective which recorded significantly lowest disease incidence of 14.58,16.04 and 18.74 per cent with maximum per cent disease control of 76.24,74.33 and 70.01%., respectively.

5.30.2. Crop Management

- The local double tuberose recorded least time for spike emergence (67.60 days) and opening of the first floret (85.60 days) after planting, against the maximum of 101.6 days and 109.40 days by Bidhan Rajani H-19 and Bidhan Rajani H-24 respectively. However, in respect of yield parameter, Suvasini recorded the maximum weight of 100 florets (239.78 g), flower spikes per clump (1.83), spike yield (1.838 Lakh/ha) and loose flower yield (2.030 t/ha/year).

Figure 5.21. Tinting of tuberose spikes with orange red, apple green and lemon yellow dye

- Regarding standardization of shelf life enhancement in loose tuberose, unopened florets treated with boric acid 2% retained maximum freshness index (61.55 %) and extension of shelf life up to 59.03 hrs under ambient conditions. However, the florets treated with Na benzoate10 ppm registered the maximum flower opening index (55.50%), fragrance index (3) and shelf life (57.33 hrs) of loose flowers which were at par with boric acid 2%. On the contrary, ascorbic acid 50 ppm revealed the maximum percentage of colour retention index (84.89%), fragrance index (3) and shelf life extension (56.78 hrs).

5.31. Marigold

- Trifloxystrobin (1 g/l), tebuconazole (0.5 ml/l) and difenconazole (0.5 ml/l) were found effective for managing the leaf and blight of marigold which recorded significantly lowest disease incidence of 10.00, 11.33 and 12.00 per cent with maximum per cent disease control of 77.27, 74.25 and 72.72, respectively.

V. ORNAMENTAL CROP

5.32. Other native ornamentals

5.32.1. Crop Improvement

- In case of survey, collection and evaluation of native ornamentals for commercial cultivation, nine native ornamentals, viz., *Curculigo orchidoides* (Orchid palm grass), *Caladium* spp. (Ranga and Phutuki Kachu), *Mussaenda frondos*a (Wild Mussaenda), *Desmodium triflorum* (Three flower beggar weedor), *Toronia fournieri* (Blue wings), Barleria cristata (Blue Bell Barleria), Zephyranthes rosea (Rain lily) and Streblus asper (Sandpaper tree) were collected from adjoining areas of Kahikuchi. The new addition made the total collection up to 30 species.

Figure 5.22. Collection and evaluation of native ornamentals for commercial cultivation

5.33. Coconut

5.33.1. Crop Improvement

- Studies on germplasm of coconut in Assam from 2005 comprised of 10 local accessions with two check varieties viz., Kamrupa and West Coast Tall revealed that early flowering was observed in accession IC No.610353, IC 610355, IC 610359 and Kamrupa which was 67 months from planting.

(A) A bearing palm of AGT X PHOT (B) Location specific cross combination

Figure 5.23. Coconut improvement programme

- The genotype IC No. 610354 recorded the biggest nut size (length: 28.7 cm, girth: 49.7 cm) with nut weight (1476.5 g/nut) and tender coconut water content of 375.6 ml/nut. Kamrupa recorded the highest nut yield of 82.4 nuts/palm/year followed by IC 610357 (76.5 nuts/palm/year). .
- Evaluation of five new coconut hybrids of location specific cross combinations, showed that AGT x PHOT recorded significantly the highest nut yield (61.8 nuts/palm/year) which was closely followed by AGT x MYD (58.7 nuts/palm/year).
- Five new coconut germplasm, viz., IC No. 610363, 610364, 610365, 610366 and 610367 which were collected from two district of Assam viz., Nagaon and Morigaon and planted during 2009 results showed that the highest plant height (2.8 m), trunk girth (163.4 cm), annual leaf production (11.8), were observed in IC No. 610365, whereas the lowest values of these characters were observed in IC No. 610366.

First, flowering was observed in IC No.610363, 610365 and 610367 which was 72 months after planting, while in IC 610364 and IC 610366, it was 78 and 84 months, respectively. As the palms under different accessions have started bearing now, nut yield in the range of 22-29 nuts/palm/year only was observed.

- The experiment on five Tall x Tall hybrid cross combinations with WCT x TPT, Chandra LCT x ADOT, BGR x ADOT, ADOT x ECT, ECT x LCT and Local Check was started during 2013.The highest plant height (575.0 cm), girth (117.8 cm), no. of leaves (22.8), petiole length (114.0 cm) and total leaf length (320.0 cm) were observed LCOT x ADOT whereas, the hybrid ADOT x ECT recorded the lowest values for the above characters. With regard to age of first flowering, minimum number of months (70) was recorded by ECT x LCOT and the maximum days, i.e., months (73) was taken by ADOT x ECT.
- Among the ten coconut varieties/hybrids planted during 2013 showed that the highest height (536.0 cm), girth (118.0 cm), no. of leaves (22.0), total leaf length (357.5 cm), no. of leaflet (106.0) were recorded in Kera Baster, while the lowest values for the above characters were observed in Kalpa Raksha. Among the varieties/ hybrids, hybrid Kalpa Samrudhi recorded early first flowering which was 68 monthsfrom date of planting.
- Evaluation of nutrient management under coconut based cropping systems in coconut showed that the yield/ha for all the intercrops as well as nut yield were recorded maximum in T2 (50% of RDF +50 % N through organic recycling with vermicompost + vermiwash application + in situ green manuring + biofertlizer) followed by T1 and the lowest yields were recorded in T3 (Fully organic). The highest net return (Rs. 467170/ha) and benefit cost ratio (2.12) were also recorded in T2.

5.33.2. Crop Management

- Nutrient management in coconut based cropping systems showed that the yield/ha for all the intercrops as well as nut yield of coconut was maximum with application of 50% of RDF + 50 % N through organic recycling with vermicompost + vermiwash application + in situ green manuring + biofertlizer) with a net return of Rs. 467170/ha and benefit-cost ratio 2.12.

Figure 5.24. Nutrient management in intercropping.

5.33.3. Crop Protection

- The design and development of digital image database with an Android App and web system for the detection of major pests and diseases of coconut by the farmers of Assam has been standardized. The development of the app is in the final stage.

Figure 5.25. User interface of Coconut Disease Detection Android app.

- During the year, Gmelina trees were heavily infested by beetle defoliator (Calopepla leayana). Four numbers of parasitoids of the pest were recorded for the first time in Assam of which two were pupal and two were egg parasitoids. Two parasitoids were identified as *Brachymeria* sp. and *Tetrastichus* sp. and the other two are yet to identify.

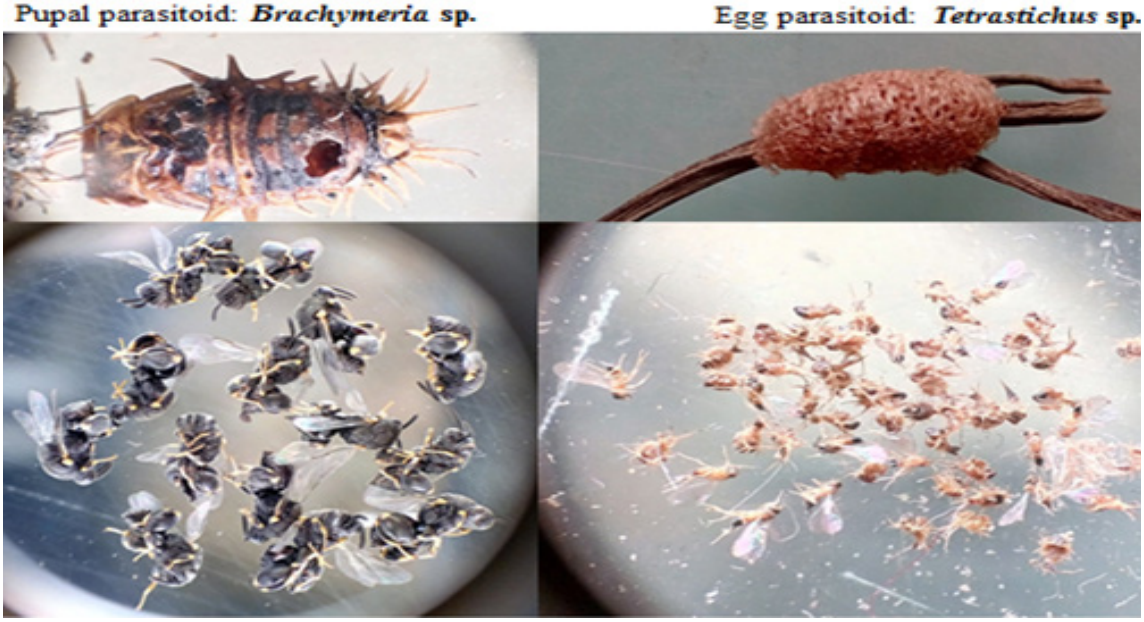


Figure 5.26. Parasitoids of Gmelina defoliator (*Calopepla leayana*)

- Survey on Rugose Spiraling Whitefly (RSW) was conducted in 15 districts namely Kamrup (R), Kamrup (M), Nalbari, Barpeta, Goalpara, Bongaigaon, Chirang, Kokrajhar, Dhubri, Baksa, Darrang, Udalguri, Nagaon, Morigaon and Hojai. In all the districts the infestation of RSW were observed but heavy infestation was recorded in Nalbari, Northern Kamrup (R), Darrang, Bongaigaon districts. A huge numbers of parasitized pupae were recorded during Apr–Jul, 2019 in the districts where heavy infestation was observed.

Figure 5.27. Survey on RSW in Coconut (Clock wise: Diagnosis, Adult whitefly, Eggs, Parasitized nymphs & infested leaf)

VI. OTHER CROPS

5.34. Makhana

- Makhana crop (Gorgon nut; nikori) can be grown under field method in wetland/ Hullah/ low land situation of Assam. Transplanting time 15 March to 15 April and spacing 125 cm x 120cm are optimum with respects to seed yield (22.35-25.27q/ha), B:C (2.69- 3.05) and water productivity (0.804 – 0.870kg/m3).

Figure 5.28. Makhana crops under AICRP on Irrigation Water Management.

5.35. Cocoa

- Among the 16 cocoa clones and hybrid planted during October 2015, the highest plant height (208.6 cm), girth (25.0 cm), number of secondary branches (16.5) per plant, plant spread (E-W and N-S) and area (4.10 m2) were recorded in VTLC-20 followed by VTLC -18 and the lowest values for the above characters were observed in EYT. Cocoa clone VTLC-20 registered maximum no. of pod/tree (38.0), no. of bean/pod (42.0) and dry bean yield/tree/year (2.2 kg) as against the lowest under YET.

VII. AGRO FORESTRY

5.36. Crop Improvement

- Out of ninety-five saplings of *Gmelina arborea* collected from 19 seed sources to evaluate the germplasm for timber, Byrnihat (AAU 15 and AAU 16) and Silchar (AAU 17 and AAU 18) recorded 26.97 m and 23.92 m, and 23.21 m and 25.98 m tree height, respectively, in 18 yrs old plantation. AAU 15, AAU 16, AAU 17 and AAU 18 recorded dbh of 41.76, 41.54, 46.58 and 47.86 cm, respectively. AAU 18 (Silchar), recorded the highest timber volume of 2.05 m3/ tree, the biomass of 1316.52 mg/ha and above ground Carbon stock of 658.26 mg/ha.

Figure 5.29. MPTS allotted to AAU, HRS, Kahikuchi

Figure 5.30. Seed sources of *Gmelina arborea*

- A total of 15 districts have been surveyed and 150 different agroforestry systems of Agri-Horticulture, Agri-Silviculture, Agri-Horti-Silviculture, Aqua-Agri-Horti-Silviculture Aqua-Horticulture, Aqua-Silviculture, Aqua-Horti-Silviculture, Horti-Horticulture, Silvi-Pastoral, Silvi-Silviculture and Homestead have been identified.

Figure 5.31. System: Aqua-Agri-Horti-Silvi-Pastoral

Figure 5.32. System: Horti-Silviculture

5.36.1. Crop Management

- The 15 years old system of *Acacia mangium* based AF system has been intercropped with fodder and the intercrop plot where tree spaced at 5 m x 4 m recorded maximum plant height (15.98 m), dbh (35.32 cm), timber volume (405.60 m3/ha), tree biomass (507.73 Mg/ha) and above-ground carbon stock (253.86 Mg/ha) compared to 5 m x 5 m and 5 m x 6 m spacing.
- The maximum fodder yield of Hybrid Napier (48.97 t/ha) was obtained in sole fodder followed by tree spaced at 5 m x 6 m (43.24 t/ha), 5 m x 5 m (39.20 t/ha) and 5 m x 4 m (37.45 t/ha), respectively.

Figure 5.33. Acacia mangium based silvi-pastoral system

- The relative performances of 4 years old timber tree species and intercrops, viz., arhar, green gram, cowpea and toria, indicated that the maximum tree height (5.04 m) and collar girth (29.99 cm) were observed in sole tree plot and cowpea–toria sequence as intercrop, respectively.

Figure 5.34. Mixed cropping schemes of Gmelina arborea with arahar (in the left) and with toria (in the right)

- Maximum annual increment of tree height (309%), collar girth (292%) and canopy diameter (234%) recorded in green gram–toria sequence as intercrop. The maximum build-up of OM (13.43%), Av. N (7.82%), Av. P2O5 (19.62%) and Av K20 (7.16%) observed in the G*melina Arborea* + green gram – toria treatment.
- In the 17 years old plantation, average of 73 superior trees attained 23.98 m plant height and 38.84 cm dbh. Timber volume and tree biomass

of the standing tree was 391.88 m3/ha and 324.388 mg/ha, respectively. The build-up of organic matter (42.64%), available N (26.43%), available P_2O_5 (27.42 %) and available K_2O (8.62 %) in the soil over initial status has been recorded in 17 years.

- The 15 years old system resulted in tree height of 8.53m in intercrop plot as compared to 8.14m in the sole tree. The dbh (29.90 cm) of jackfruit was superior in intercrop plot in comparison to sole tree plot (28.53 cm). Fruit yield of jackfruit was increased by 2.86% over the previous year. There was an increase of organic matter, available N, available P_2O_5 and available K_2O by 42.55%, 22.96%, 20.36% and 9.91%, respectively, over the initial status of soil in the intercropped plots in 15 years.

Jackfruit + intercrop

Jackfruit based agro-forestry system

Bamboosa tulda based agro-forestry system

Bamboosa balcoa based agro-forestry system

Figure 5.35. Various agro-forestry schemes

- The 11 years old *Bamboosa. balcoa* and *B. tulda* systems have built up of OM, available N, available P_2O_5 and available K_2O over the initial status of soil.

C. OTHERS

5.37. Vertebrate Pest Management

- Identified 15 numbers of non-preferred agricultural crops by Rhesus monkey during a study conducted in 9 districts of Assam. These are mostly colocasia, ginger, turmeric, toria, lady's finger and ashgourd. The other crops are spinach, coriander, lemon, chilli, betelnut. These crops can be grown in the area of human monkey conflict regions.
- The highest repellency index was recorded with *Azadirchta indica* seed kernel (67.61 % in male & 66.04% in female) followed by *R. communis.* The study revealed the potential of botanical herbs especially seed kernel of *A. indica* and

fruit extract of *C. chinense* in repelling away rodents of both sexes (*B. bengalensis*).

- The treatment with removal of weeds/bushes/dry leaves + crown cleaning at monthly intervals + erecting squirrel guard at the height of 8 ft at 45 angle from the ground + trapping with sherman traps @ 50 traps/ha resulted in the highest control success in respect of squirrel infestation as well as the nut damage, i.e. 56.11% & 46.26 %, respectively.
- Among the IRPM modules tested against rodents in rice-vegetables cropping system, the module (cultural practices + spraying of ecodon (1:20) on bunds at tillering stage + zinc phosphide baiting at PI stage + trapping (bamboo traps) at maturity stage + smoking with egg plate at harvest & vegetative stage of vegetables) had significantly reduced the rodent population in terms of LBC (66.44%) in Kharif rice and 50.11% in Rabi vegetables.

5.38. Agricultural Ornithology

- Identified 168 bird species in agricultural landscape of Assam. 141 species of birds belong to 47 families were identified in Majuli – one of the biggest River Island of the world where Oriental White Ibis (T*hreskiornis melanocephalus*), a Near Threatened (NT) bird was recorded for the first time in the island.

5.39. Soil Arthropod Pests

- Two pheromonal compounds (Cis-9 Hexadecenoic acid and Octadec-9 enoic acid) of *Lepidiota mansueta* (a white grub species endemic to Majuli river island of Assam) were synthesized at ATGC Pvt. Ltd., Hyderabad through outsourcing. Compounds in pure form as well as their five different blends were tested in the endemic fields of Majuli during 24th-27th April, 2019. The different treatment combinations and the average number of beetles trapped consecutively for 4 days were recorded. Out of all the treatments tested, only the slow release lure 250 mg of Cis-9- Hexadecenoic acid were able to attract beetles consistently (39, 72.33 & 48 nos. of beetles) as compared to the control (35.20, 38.30& 37.60 nos. of beetles) on day 1, 2 and 3, respectively.
- Two native species of Entomopathogenic nematodes, viz., *Heterorhabditis bacteriophora* and *Steinernema acciari* were tested against the worker caste of termites in laboratory conditions. Both the strains showed promising results when applied @ 300 infective juveniles/ worker termite.
- The method of solvent extraction of mucin from Giant African Snail, *Achatina fulica* has been standardized. Out of the six solvents tested, dichloromethane registered highest (2.79 ml) extraction of mucin which was found to be significantly superior as compared to the rest of the solvents. A patentable technology of mechanical (solvent free) method of extraction of mucin from Giant African Snail has also been tested and standardized.
- Nutritional profiling of five commonly available edible aquatic insect of Assam, viz., *Diplonychus rusticus* (Water bug), *Cybister* sp. (Diving beetle), *Lethocerus indicus* (Giant water bug), *Laccotrephes* sp. (Water scorpion) and *Ranatra* sp. (Water stick) have been analyzed. The highest protein content (57.67%) was registered in *D. rusticus* which was found to be significantly superior over rest of the species. The protein contents recorded in *Ranatra* sp., *Laccotrephes* sp., *Cybister* sp. and *L. indicus* were 56.56, 54.75, 51.42 and 50.03 per cent, respectively.
- Two invention entitled 'Use of Empty Shell of Gaint African Snail (Achatina fulica) as Lighting Lamp (Diya)' and 'Development of a Jatropha Based Ointment as Herbal Remedy for Livestock Against Ectoparasites and Pathogenic Microorganisms and Process for Obtaining the Same' were filed for patent right to Indian Patent Office, Kolkata.
- Four species of edible molluscs of North-East India, viz., *Lamellidens marginalis, Bellamyia bengalensis, Melanoides tuberculata* and *Viviparous* sp.. were identified based on the morphological and molecular characteristics.

Figure 5.36. Testing of pheromonal compounds of *Lepidiota mansueta* in Majuli, Assam

Figure 5.37. Mass campaigning programme against *L. mansueta* in Majuli, Assam

Lamellidens marginalis

Bellamyia bengalensis

Melanoides tuberculata

Viviparus sp

Figure 5.38. Identified edible molluscs of North-East India

5.40. Agricultural Acarology

- During 2019-20, total 25 phytophagus mite under four families and 8 predatory mite species under five families have been recorded from different crop ecosystem. As biocontrol means of mite pests, predatory mite, Neoseiulus longispinosus were found to control 100 percent of *Tetranychus urticae* in several crops when released @20/plant or 10: 1 prey-predator ratio. Mass production technique of the predatory mite, Neoseiulus longispinosus has been developed in *Amaranthus hybridus* as host crop on *Tetranychus urticae* as prey mites. Several plant extracts have been evaluated against *Polypahgotarsonemus latus and Tetranychus urticae*. Among the botanicals *Polygonum hydropiper* leaf extracts was found effective in controlling more than 90 per cent of the mite pests after 7 days of application. From the screening trial of chilli, local collections like

Memjolokia, Krishna, Konjolokia, Khudkon, Bhekuri, Khorikaand Moni were found to be resistant against Polyphagotarsonemus latus.

5.41. Conservation of Lac Insect Genetic Resources

- All total of 19 lac germplasms have been collected since inception and at present 1 lac race of Assam and 4 lac races of West Bengal have been conserved and a total of 18 number of lac host plant species were collected and maintained in the Lac Park, AAU, Jorhat
- Eight host plants i.e. F. semialata, F. strobilifera, I. teysmannii, F. religiosa, Z. mauritiana, L. chinensis, H. rosa-sinensis and C. cajan were studied to observe the association between settlement of crawlers and lac production with morphological and biochemical analysis of host plants.
- Two entomopathogenic fungi, viz., isolated and identified, Iseria fumosorosea and Isaria javanica were evaluated at three doses (103, 105 and 107dilution) against Eublemma amabilis at Lac Laboratory, Department of Entomology, AAU, Jorhat. The result revealed that mortality was recorded three days after treatment but after 10 days, 100 % mortality was recorded at 105and107 dilution in both EPF.
- The local race (AAUK-06) was studied on five plants, viz., F. semialata F. strobilifera, C. Cajan, Indigofera teysmannii and Zizyphus mauritiana during 2019-20. Different productivity-linked parameter studies also showed a positive result in all the four hosts except Indigofera teysmannii but F. semialata was found to be the most superior, followed by C. cajan in, F. strobilifera and Z. mauritiana terms of brood lac, phunki lac and scrapped lac yield.

Method of Taking the Girth of the Stem

Settlement of Crawlers

Figure 5.39. Conservation of Lac insect genetic resources

5.42. Honey Bees and Pollinators

- The performance of bamboo hive of size 3214 CC, 2857 CC and 3000 CC have been evaluated for rearing Tetragonula iridipennis. Brood area development was recorded to be 198.34±0.28 cm2 in 3214 CC, 230.62 ± 0.25 cm2 in 2857 CC and 124.52±0.269 cm2 in 3000 CC respectively. The brood area development was more in the hive of size 2857 CC.
- Impact of elevated temperature and carbon dioxide on Apis cerana F. and yield of sesame was investigated. The mortality of bees was 3.0, 6.57 and 9.46 % in CTGT I, CTGT II AND CTGT III respectively. The yield per treatment was found to be 7.53 ± 0.27, 6.19 ± 0.27and 5.62 ± 0.27 q/ha in field, OTC I, OTC II and OTC III respectively. The higher temperature and CO2 have negative impact on the yield of sesame.
- Carpenter bee, Xylocopa fenestrata is an effective pollinator of cucurbitaceous crops. It has been attempted to domicile in bamboo top (Jati bamboo) having the dimension 45cm length and 2.66 ± 0.3cm girth which contains 7.0 ± 0.9 number of functional cells. The rearing has been standardized in portable wooden frame and released in the polyhouse for pollination of

cucumber under protected cultivation.

- All total 1200 nucleus colonies of *Apis mellifera* have been developed and distributed to the farmers cum bee keepers as per prescribed rate given by the National Bee Board, New Delhi generating revenue of Rs. 3 lakhs.

Figure 5.40. Bamboo Hive for Stingless Bee

Figure 5.41. Carpenter bee rearing technique

Figure 5.42. Nucleus stock of *Apis mellifera* in Assam

5.43. Bio-Fertilizers

- Seven PGPR viz: *Rhizobium* sp, A*zospirillum brasilense, Azotobacter chrococcum, Bacillus subtilis, Serratia liquifaciens, Burkholderia ambifaria and Streptomyces finlayi* were effectively exploited for formulation of consortia in modified N-free bromothymol blue (MNFB). The compatibility tests revealed that the entire selected PGPR were compatible to each other which grew either as dual culture or as triple culture with or without the association of actinobacteria (*Streptomyces finlayi*) in MNFB solid media. The individual PGPR and actinobacteria present in the formulated consortia were retrieved during storage from solid form to understand shelf life of viable population. In the formulated individual consortia, the population of individual PGPR including actinobacteria maintained at >6.00 log cfu g-1 upto a period of 60 days after inoculation (DAI).

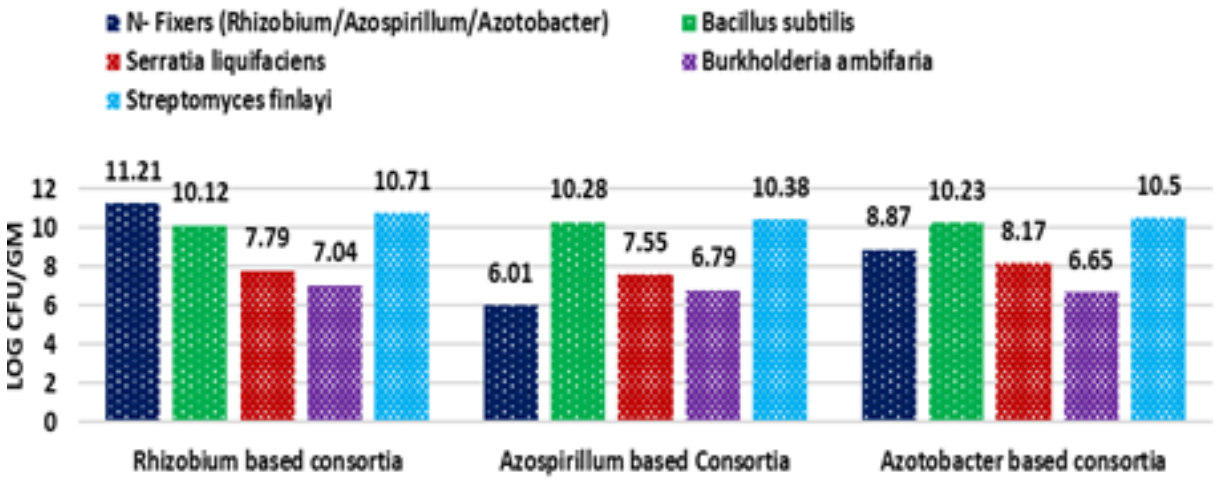


Figure 5.43. Stability of individual population in formulated consortia in solid carrier materials at 6 months in MNFB media

- In DBT project on 'Isolation of Novel Microbial Strains to Develop Efficient Bio-Fertilizers', field trials confirmed 50% enriched compost + 50% RDF showed highest accumulation of soil carbon in both rice and toria field and this application is at par with 100% RDF treatment, based on chemical parameters (N P K accumulation) of soil, crop yield and soil quality parameters. Further, 62 indigenous bacterial cultures were isolated from acid soils of Assam, out of which theincubation study confirms 37 isolates tolerant to acid and Al stress.
- Project on 'Bioprospecting of Soil Microbes from Northeast Region for Acid Tolerance Genes' revealed thatProline and Cupin play important roles in acid tolerance of Bacillus megaterium and Bacillus amyloliquefaciens respectively. Bacillus subtilis B3B9 and Bacillus megaterium G18 promote root growth in Luit variety under Al stress.

5.44. Agrometeorology

- Two field experiments on Sali rice and Kharif green gram crop were conducted during the Kharif, 2019 season. Three varieties of Sali rice, viz., Mahsuri, Swarna Sub-1 and TTB-404 were transplanted under three different microclimatic regimes. Result observed that number of days to attain physiological maturity decreased with delay in transplanting dates and days required to complete the vegetative phase was observed highest in Swarna-Sub-1 (63-68 days) followed by TTB-404 (62-66 days) and Mahsuri (61-63 days). The effective tillers per meter square were maximum in TTB-404 (215) followed by Swarna-Sub-1 (202) and Mahsuri (175). However, number of grains per panicle and test weight was relatively more in Swarna-Sub-1, which ultimately produced significantly higher grain yield in Swarna-Sub-1 relative to other two varieties. The predictive model developed for grain yield of rice revealed that- maximum temperature during vegetative stage, rainfall during panicle emergence to 50% flowering stage and minimum temperature during the maturity stage significantly determines the grain yield of the crop with coefficient of determination (R2) 0.78, 0.88 and 0.77, respectively.
- Additionally, in case of Kharif green gram field experiment, crop sown during the first week of September i.e. MR-I (4th September, 2019), requires less duration to complete the life cycle and with delay in sowing number of days required to maturity increases due to relatively more drop in mean temperature i.e. from 26.9oC to 16.7oC. No water stress was observed during the vegetative stage of the crop. The results on seed yield revealed that sowing on 4th September, 2019 (MR-I) resulted in to significantly higher seed yield (638.00kg/ha)

followed by under MR-II (605.23kg/ha) and MR-III (585.58kg/ha). Among the three varieties, SGC-20 gave significantly higher (621.25kg/ha) seed yield and lowest yield was observed in IPBM-02-3 (600.15kg/ha). Substantial reduction in yield attributing characteristics, viz., number of pods per plant, number of seeds per pod and test weight was observed with delay in sowing and reduction in the seed yield was observed 5% and 8.3% under MR-II and MR-III, respectively, when compared with the MR-I. The phase-wise predictive model developed from the field experiment clearly defines that-during the vegetative stage (sowing to budding) rainfall (R2 = 0.82) contributes significantly in determining the crop yield. Similarly, during reproductive (budding to flowering) and maturity (flowering to physiological maturity) stage minimum temperature (R2 = 0.75) and afternoon relative humidity (R2 = 0.79) was found to play significant role in determining the yield of the crop.

5.45. NICRA-AICRPAM

- During 2019, the ratio score of rainfall forecasts for Thengal gaon and Kachupathar NICRA villages of Golaghat central block was more than 80% during January (90%) and December (98%) and less than 60 per cent during February (50%), April (42%), June (57%) and August (41%) months. The correctness of the forecast (correct + usable) was 100% in two months i.e. January and December and lowest i.e. 0% in August month. Overall block level rainfall forecast was found robust during the monsoon season with 9.46% success rate and very good during winter and post-monsoon season with success rate 98.6% and 85.0%, respectively. Similarly, the ratio score of rainfall forecasts for Nagharia NICRA village of Balipara block of Sonitpur district was very good during January (98%), November (80%) and December (92%) and less than 60 per cent during April (44%), June (50%) and August (22%) months. The correctness of the forecast (correct + usable) was 100% in four months, i.e., January, February, November and December and lowest in August (5%) month. Overall block level rainfall forecast was found very good during the winter season with success rate 100% and good during post-monsoon season with success rate 88.6% and satisfactory during pre-monsoon season with 53.3% success rate. Overall temperature forecast was satisfactory in all the months and season over all the three NICRA villages. Additionally, block level rainfall forecast was satisfactory during pre-monsoon, post-monsoon and winter season over all the three NICRA villages. However, more scope is there for improvement in block level monsoon rainfall forecast (no additional success story on usability of micro-level Agromet-advisory services was reported during this period)

5.46. Gramin Krishi Mausam Sewa (GKMS)

- The month-wise error structure of rainfall showed that the percentage of correct forecasts during February, 2020 was 100 per cent. The correctness of the forecast (correct + usable) was above 90 per cent during November, December, January and February (2019-20) indicating that the rainfall forecasts were more accurate during Rabi season. The RMSE values were also low (below 5) during these period. In the months of April, May, June, July, August and September the probability of success of rainfall forecasts was below 50 per cent. It has been observed that the probability of success for rainfall was above 80% during post-monsoon and winter seasons. The lowest was observed during monsoon season (28.74%). Further, with respect to maximum temperature predictions, winter season recorded the highest probability of success rate (81.97%). The probability of success (correct plus usable forecasts) for minimum temperature was more than 80% in 9 months during 2019-20.

5.47. Forecasting Agricultural Output Using Space, Agro-meteorology and Land-Based Observations (FASAL)

- During the year 2019-20, as per IMD's yield forecast schedule, district wise forecast for Jute

yield was given at the F1 stage on 22nd July, 2019 for 9 districts of Assam using statistical model. On the other hand, district wise yield forecast for Kharif rice was issued for 27 districts of Assam at F1 and F2 stages on 20th September, 2019 and 24th September, 2019, respectively. Forecast at F1 stage of Jute revealed highest R2 value for Barpeta (0.84) and lowest R2 value for Goalpara district (0.56). Yield forecast models developed for Barpeta included 4 predictors while that for Goalpara included 2 predictors which might have resulted in lower R2 value for Goalpara district. In case of Rice yield forecasts, forecast at F1 stage showed higher values of R2 for Baksa (0.96), followed by Kamrup (M) (0.94) and Hailakandi (0.90) districts. In contrast, R2 values were found to be comparatively lower for Jorhat (0.54) and Cachar (0.56). F2 forecast for Kharif rice yield (2019) showed that R2 was higher for Hailakandi, Kamrup (M) and Kamrup (R) with values greater than 0.9. Bongaigaon, Cachar and Dhubri districts showed comparatively lower R2 values, i.e., less than 0.7.

5.48. Social Science

- Six marketing channels have been identified for Profitability of Turmeric Production and its Marketing Efficiency in Karbi Anglong district through which turmeric was marketed to Barpeta and Morigaon districts in Assam and to other states, viz., Maharashtra, Delhi and Kolkata. About 70% of the product is exported to Maharashtra State.
- The Jirsong Agro Producer Company Ltd. (JAPCL) exported 14tons of turmeric to Maharashtra, Delhi and Kolkata. However, instability in turmeric price and lack of processing industry are the major marketing problems faced by the growers.

(II) VETERINARY SCIENCE

During the report period, i.e.,1stApril 2019-31stMarch, 2020,69 externally funded projects were in operation,out of which 13 were new projects implemented in the year 2019-20.Five (5) projects were brought to completion during this period. The Directorate of Research (Vety), AAU, Khanapara also acted as a nodal center for TSP and SC/SP programs.

Some significant achievements of ongoing projects are furnished below:

5.49. ICAR- AICRP on Pig

- A variety of pig (HD-K75) has been developed at the ICAR-AICRP on Pig, Khanapara, AAU, which has been gaining popularity in the North Eastern Region of India in terms of growth, prolificacy and adaptability.
- A total of 334 (159+175) first crop piglets of 18th generation were obtained during the month of October–November, 2019 and same sows were placed in breeding for production of 2ndcrop during December, 2019-January, 2020.
- The average litter size at birth, litter weight at birth, litter size at weaning and litter weight at weaning (first crop) were found as 7.76 ± 0.32, 7.86 ± 0.16 kg , 7.64 ± 0.55 and 76.27 ± 0.85 kg respectively .The average body weight (kg) at birth, at weaning, and at 6 month of age were found 1.02 ± 0.23, 9.97 ± 0.31, 54.41 ± 0.33, respectively.
- The overall pre-weaning, post-weaning and adult mortality percentages were calculated as 3.73 (12), 2.17 (07) and 1.11 (01), respectively, during the year under report.

Figure 5.44. Pregnant Gilt HD-K75, ICAR-AICRP on Pig, CVSc, Khanapara

Figure 5.45. Replacement Stock (HD-K75) of ICAR-AICRP on Pig , CVSc, Khanapara

Figure 5.46. Private Pig Farm supported by ICAR-AICRP on Pig, CVSc, Khanapara

Figure 5.47. Farmers training programme at the ICAR-AICRP on Pig, CVSc, Khanapara

5.50. ICAR-Mega Seed Production (MSP)

- The herd strength under ICAR-Mega Seed Project on Pig was 373 and 393 at the beginning and at the end of the year, respectively, irrespective of genetic groups, age and sex.
- A total of 854 live piglets were produced from 117 farrowings, out of which 551 piglets were produced from 71 farrowings of 50% H and 352 piglets from 46 farrowings of HD-K75 genetic groups.
- The average litter size at birth and litter size at weaning were found as 7.75 ± 1.18 and 7.62 ± 1.01, respectively, in 50%,H and the corresponding values were found as 7.65 ± 2.29 and 7.53 ± 1.59 in HD-K75.
- A total of 844 animals of different categories of pigs were sold. A total of 791weaned piglets of both genetic groups were sold to the 142 farm families of Nalbari, Barpeta, Marigaon, Kamrup (R), Sivasagar, Darrang, Sonitpur, Golaghat including ICAR-NRC on Pig and KVKs of the University.
- The overall pre-weaning, post-weaning, finisher and adult mortality per cent ages were recorded as 1.63 (09), 4.57 (28), 3.44 (01) and 1.33 (01), respectively, in 50% H genetic group. The Pre weaning and Post weaning mortality per cent ages were calculated as 1.24 (05) and 3.52 (14), respectively, in HD-K75 genetic group.

5.51. AICRP on Nutritional and Physiological Approaches for Enhancing Reproductive Performance in Animal

- An extender, BTSLEYG was found to be best for freezing Hampshire boar semen.
- PGF2α was found effective for treatment of silent oestrus, supportive and GnRH in addressing true anoestrus, intrauterine Lugol's iodine fortified with supportive treatment in repeat breeding due to uterine infections, and hCG fortified with supportive treatment improved post treatment conception rate in repeat breeding without uterine infection in crossbred cows.
- GEPS was found to be superior to BTS, LSEEY and FEY extenders for preservation of Hampshire boar semen at 15°C.
- Administration of 40 IU PMSG along with 200 IU hCG was found to be effective for synchronization of oestrus in gilts and sows.

A. Collection of Boar Semen

B. Examination of Animal in Farm

C. Interaction With The Farmers

D. Infertility Camp

Figure 5.48. Glimpses of research in CVSc, Khanapara

5.52. AICRP on Goat Improvement

- During the period of 2019-20, a total of 582 does gave birth to 943 kids with a kidding rate of 1.62%.
- Percentage of single and multiple births for the period under report have been recorded to be 44.50% and 55.50% respectively.
- During this period 569 goats were disposed by 175 numbers of registered beneficiaries with a total income of Rs.17,02,314.00 indicating an income of Rs.2,991.76 per goat.
- A total of 121 new goats have been registered under the project during the report period.
- Twelve Awareness-cum-Training Camps have been organized under the project for augmenting and disseminating the knowledge on goat rearing.
- The average mortality rate of goat in the field units was recorded to be 6.02 % in all the field units.
- Thirty three vaccination camps to immunize 14582 animals against Goat pox, PPR and Enterotoxaemia, 27 deworming camps to deworm 8717 animals and 41 treatment camps to treat 6792 animals were organised during the period for adopted as well as non-adopted animals.
- To avoid inbreeding and to introduce fresh blood into the goat population of field units of the project, a total of 11 new elite bucks have been introduced distributed. Moreover, exchange of other 7 bucks among the field units has also been carried out.

5.53. AICRP ON Post Harvest Engineering & Technology, Khanapara Centre

- The mobile poultry processing cum by-products collection unit has been fabricated and one trial

has been done in the processing unit.

- The process has been standardized for preparation of banana leaf packaging bags.
- The process has been standardized for preparation of hydrolyzed keratin protein and metabolic trail in poultry.
- Development of a Pedal Operated Meat Mincer has provided the following benefits:

» Production of comminuted meat at a faster pace with higher efficiency in comparison to traditional hand mincers.

» Production of safe and wholesome meat and meat products.

» Being low in cost, it benefits the small scale meat entrepreneurs.

Figure 5.49. Pedal Operated Meat Mincer

5.54. DBT Twinning: Biotechnological Interventions to Augment Productive Performance of Pigs on Horticultural Byproduct Based Diet

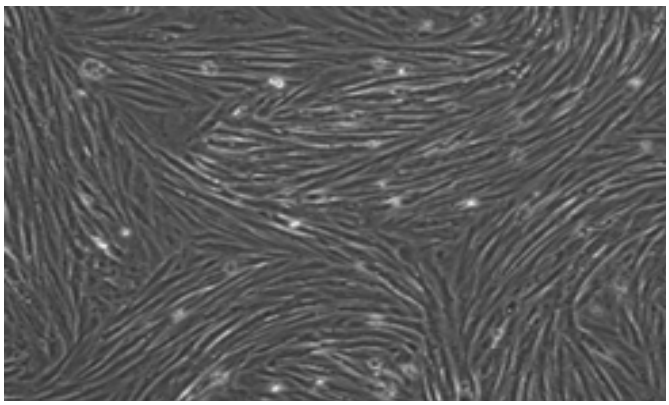
- The nutritional status of growing pigs in two hill and two plain districts of Assam were studied. It was observed that the pigs exhibited negative balance for CP and ME. The negative balance for both protein & energy was attributable to the poor nutritional value of the feed stuff. Farmers fed their pigs with the locally available feed materials and did not feed any balance concentrate feed resulting poor growth.
- The percent deficit of nutrients against the requirements has been calculated out. The CP deficit was in the range from 25.82% to 32.81% and the energy deficit was 20.42% to 28.98%. The DM deficit was relatively smaller which ranged from 17.11% to 18.44%.
- It was observed that feedstuff fed by the farmers did not contain appreciable amount of protein and energy. Hence, the feed consumed by the animals did not fulfill the requirements of protein and energy resulted in poor growth. Therefore, supplementation of compounded feed is required to get better results.

5.55. DBT twining: Isolation, Characterization and Development of Culture Method for Long Term Preservation of Spermatogonial Stem Cells from Doom Pig

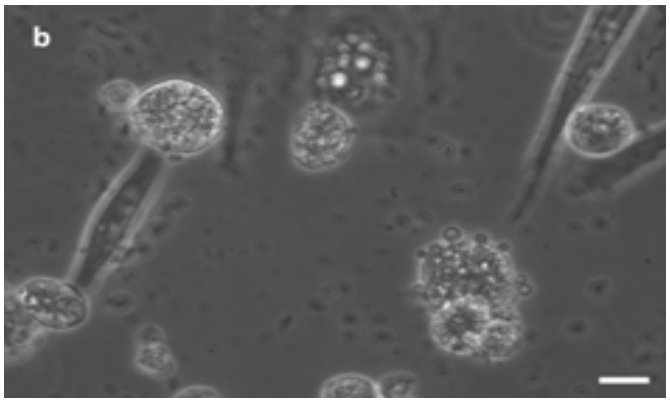
- Protocols for in vitro culture of Spermatogonial stem cells (SSCs) from Doom pig and their characterization through alkaline phosphatase and immunofluorescence staining has been developed and it was observed that the SSC colonies could be maintained with undifferentiated morphology for more than two months.
- Protocols for cryopreservation of porcine SSCs have been developed.
- Protocols for in vitro culture of porcine Spermatogonial stem cells (SSCs) in different culture systems, viz., with feeder layer,

without feeder layer and serum free conditions developed.

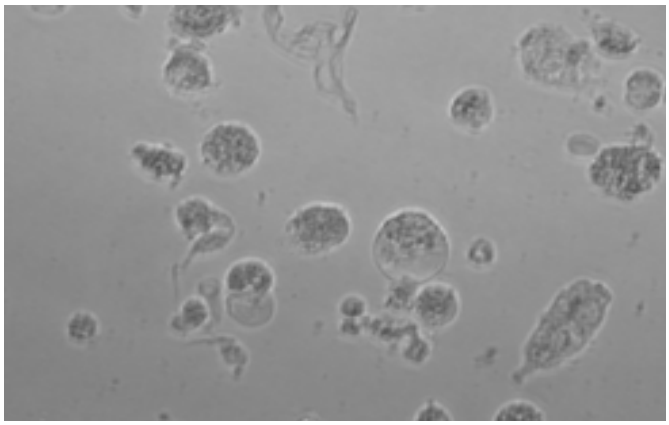
- Comparative expression of pluripotency and other related genes of porcine SSCs inabove culture systems have been studied.
- Apparently no differences were observed among these different culture conditions for in vitro culture of porcine SSCs, though SSC colony number and size were significantly higher in feeder based culture condition than the other two.



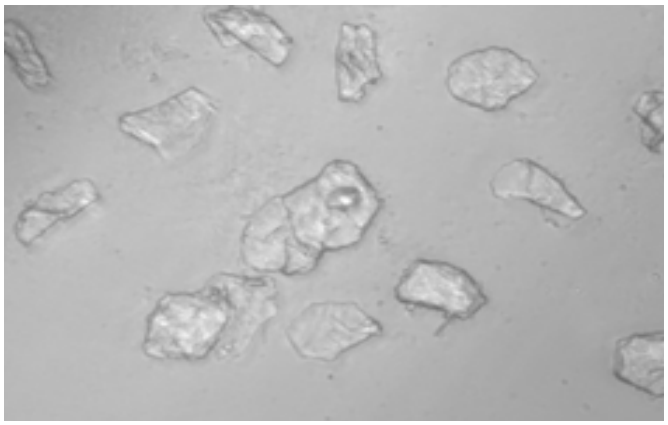
100 % confluent Sertoli cell feeder layer



SSCs on Sertoli cell feeder layer



Culture of SSCs without feeder layer



Culture of SSCs on serum free media

Figure 5.50. Culture Method for Long Term Preservation of Spermatogonial Stem Cells from Doom Pig

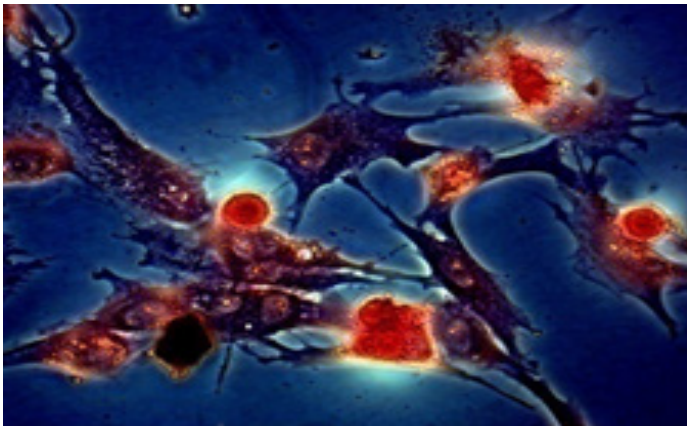


Figure 5.51. Alkaline Phophatase Staining of SSC colony

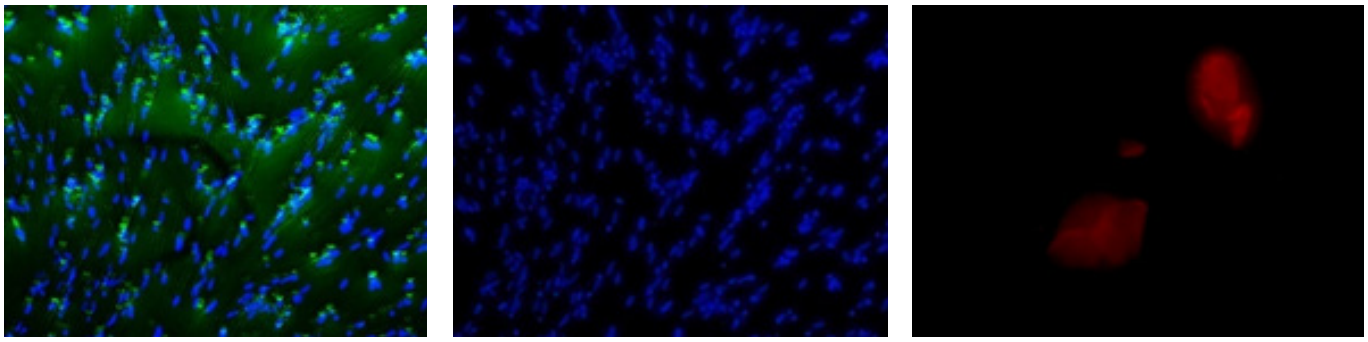


Figure 5.52. Immunoflourescence Staining of Sertoli Cell and SSC Specific Markers

5.56. DBT Twinning project on 'An Integrated Omics Approach to Characterize Circulating Newcastle Disease Virus and Intervention Strategies to Control Newcastle Disease in North East India'

- Isolated lentogenic NDV strains from Duck and Parrot and evaluated their thermostablity profile.
- Isolated 13 mesogenic NDV strains of circulating genotype XIII from Chicken (n=12) and Ostrich (n = 1).
- Deposited 5 NDV isolates to VTCC and acquired accession numbers.
- Submitted 7 numbers of nucleotide sequences to the NCBI GenBank and acquired accession numbers.
- Isolation of a virulent lentogenic NDV strains from Duck and Parrot in addition to mesogenic strains from ostrich and chicken of circulating Genotype XII are significant achievements of the project. These isolates might be good candidates for development of thermostable NDV vaccine.

5.57. Molecular Characterization and Development of Breed Signature for Indigenous Sheep of Northeast India

- PCR amplification of isolated genomic DNA from the blood samples of sheep belonging to different northeastern states, viz,. Assam, Arunachal and Meghalaya with 25 sets of FAO-ISAG recommended microsatellite markers of sheep.
- Sequencing result/capillary gel electrophoresis result/Microsatellite information obtained from microsatellite amplified PCR product been subjected to bioinformatic analysis to evaluate within and between breeds variation and diversity of indigenous sheep of the north east region and generation of phylogenetic and evolutionary relationship among the indigenous sheep populations.

5.58. Outreach Programme On EVM

- The plant extract coded as AAU-EVM-NW-3 could reverse Scopolamine (impair memoryin animals experimentally) induced Cognitive Dysfunction in Elevated Plus Maze model in mice and Barne Maze model in rats.
- Acetyl Cholinesterase (AChE), the marker enzyme for memory, dwindled following AAU-EVM-NW-3 administration in mice which was augmented by scopolamine, (known for impairing memory related functions) indicating improvement of memory by increasing acetylcholine level in the brain.
- Neurotrophic factors like BDNF, hall mark for memory and its receptor, TrKb were up-regulated in treated group which was down-regulated by scopolamine administration.
- Expression of genes like AChE, NfκB p65, Tau, Caspase-3, PP2A, Nrf2 and HO1 genes, which are closely linked with memory, were up-regulated /down-regulated due to administration of scopolamine, were reversed by AAU-EVM-NW-3, showing its positive effect on improving memory.
- AAU-EVM-NW-3 was found to be a good candidate plant which showed satisfactory result in almost all the parameters under study thus confirming its memory enhancing activity in cognitive dysfunction at a dose rate of 200mg/

kg, oral dose.

- Isolation of few active compounds carried out at CSIR-IICT, Hyderabad yielded Entadamide A, Entadamide A, β –D Glucopyranoside, Linoleic acid, Phaseoloidin and Entadamide C, out of which Phaseoloidin showed better activity than other compounds.

5.59. DBT Twinning project 'Exploring Selected Natural Plant Sources of Northeast Parts of India as Potential Therapeutic Agents for Treatment of Cancer'

- Six medicinal plants (*Entada phaseoloides, Potentilla fulgans, Gnetum gnemon, Dillenia indica, Diopyros lancaefolia* and *Zanthoxyll umalatum*) from Northeast India, reportedly used for cancer therapy were selected for studying their cell cytotoxicity and other in vitro anticancer properties.
- Cell viability assay carried out in various cancer and normal cell line. Amongst crude extract of Entada phaseoolides (MEEP), seed pulp was found to be more potent against HT-29 cell line (IC50-5.04µg/ml) while compared with the standard drug Vincristine sulphate (IC50-1.31µm).
- Phaseoloidin (PHA), a pure compound from MEPP, has moderate activity in HepG2 cell line (IC50-48µm), as compared to standard drug Doxorubicin (5 µm).
- Cell viability assay was further confirmed by FDA/PI staining in HepG2 and HT-29 cell line.
- Reactive oxygen species (ROS) analysis with DCF-DA showed that PHA dose dependently enhanced mean fluorescence intensity.
- Mitochondrial membrane potential assay by JC-1 and Rhodamine dye showed, following treatment with MEEP and PHA in HT-29 and hepG2 cell lines respectively, there is subsequent reduction in the mitochondrial red fluorescence signals.
- Following treatment with PHA and MEEP in Normal cells (HEK) IC50 value was found to be <100 and 90µg/ml, respectively, indicating that they are non toxic to normal cells.

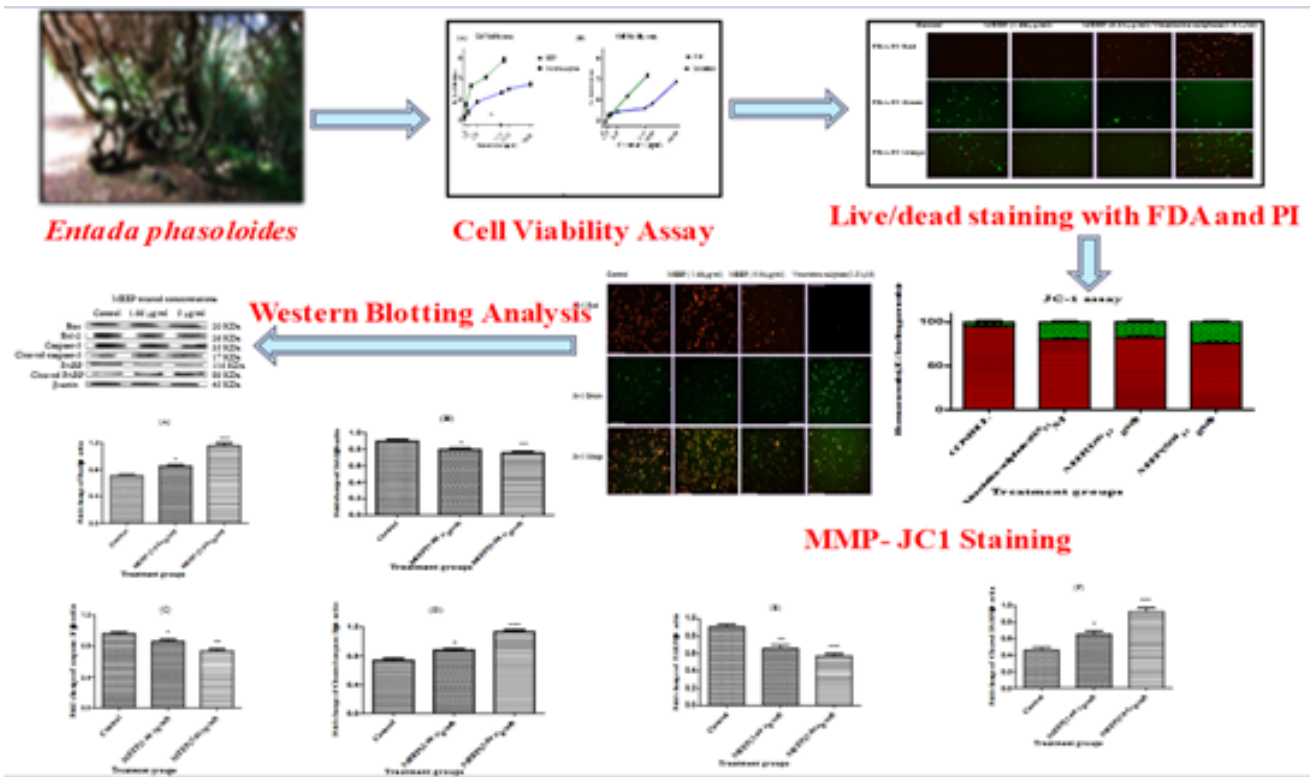


Figure 5.53. Works on Natural Plant Sources of Northeast Parts of India as Potential Therapeutic Agents for Cancer

5.60. DBT Twinning 'An Integrated Approach to Explore and Exploit the Innate and Adaptive Immune Response in Indigenous Duck Breeds of North Eastern and South India'

- The project aims to explore and exploit the innate and adaptive immune response of indigenous duck. Under the report period, 350 blood samples (5ml) from different varieties of duck, namely, Pati, Khaki Campbell and Nageswari were collected from both healthy and duck plague and other disease outbreak. Different biochemical parameters like glucose, total protein, albumin, globulin, blood urea Nitrogen (BUN), Alanine Amino Transferase (ALAT), Aspertate Transaminase (AST), Acid Phosphatase, (ACP) Alkaline Phosphatase (ALP), IL-6, IL-4 and IL-1 were estimated. Significant difference was observed for total glucose, protein, albumin, globulin, ALAT, AST, ALP, IL-6, IL-4 and IL-10 between healthy and diseased birds. The innate immunity genes, TLR2, TLR3 and TLR7, genes were amplified using specific primer and cDNA for different inane immunity genes were prepared.

5.61. DBT sponsored project entitled, 'Development of Nanoparticle or Microparticle Adjuvanted Subunit Oral Vaccine against Poultry Salmonellosis'

- The basic objective of the project was to evaluate the immune response of nanoparticle or microparticle adjuvanted outer membrane vesicle based subunit oral vaccine in poultry against salmonellosis. The oral adjuvants that were tested in this project were poly (anhydride) nanoparticles (Gantrez® nanoparticle), poly-lactide co-glycolide microparticles, and chitosan nanoparticles. The nanoparticle size was in the range of 200-300nm and poly-lactide co-glycolidemicroparticles were in the range of 1-2µm. The poly-lactide co-glycolide microparticles, Gantrez® nanoparticles and chitosan nanoparticles were found to be safe in poultry birds as evident from the serum biochemistry, haematology and histopathological examination. Among the three oral delivery systems, the outer membrane vesicle conjugated with poly-lactide co-glycolide icroparticle had shown to possess the protective potential against the challenge of *Salmonella gallinarum* and *S. typhimurium*. The vaccine formulations that contained poly-lactide co-glycolide microparticle and chitosan nanoparticle were not found to be stable in 30°C, but were found to be stable in 4°C, 22°C and 25°C for 24 hours. However, the vaccine formulation containing poly (anhydride) nanoparticle did not withstand the higher temperature.

5.62. DBT-IIT project 'In-Silico Characterization and Biological Validation of Potential Peptide Vaccines For S*almonella typhi* Using the Outer Membrane Protein PagN as Target'

- Extracellular domains of PagN were resourced from earlier studies conducted at Bioinformatics Infrastructure Facility, Department of Animal Biotechnology, College of Veterinary Science, AAU, Khanapara. Four extracellular domains of residues 37–65, 93–120, 149–174 and 201–230 are denoted as loop-1, loop-2, loop-3 and loop-4, respectively.
- Based on molecular dynamics (MD) simulation and immunogenicity data loop-1 and loop-2 were considered for B-cell epitope prediction, whereas, loop-3 and loop-4 were considered for MHC-I and MHC-II epitope prediction.
- Determination of linear B-cell epitopes for loop-1 and loop-2 using antigen sequence properties of IEDB resources.
- Determination of discontinuous B-cell epitopes for loop-1 and loop-2 using Ellipro of IEDB resources.
- Determination of T-cell epitopes for MHC-I and MHC-II using IEDB-recommended 2.22 prediction method. MHC-I and MHC-II epitopes were selected for loop-3 and loop-4, respectively.
- Final four immunogenic peptides were selected using paired-BLAST against each loop. A consensus peptide region has been selected for final synthesis.

5.63. ICMR Funded 'Prevalence and Drivers of Select Zoonotic Pathogens and Use of Antimicrobials in Livestock Farms in North-East Region: A Mixed Methods Study'

- A total of309 samples were collected from cattle (131), goat, (109), pig (37) and poultry (32) including chicken and duck of mixed crop-livestock farms of Nagaon and Morigaon district of Central Brahmaputra Valley zone during the 1st year of this study. The samples relevant for bacteriological, serological and molecular studies on seven zoonotic pathogens included rectal swab (RS), nasal swab (NS), vaginal swab (VS), cloacal swab (CS), skin scraping, blood and milk.
- The samples were processed for isolation and identification of *Escherichia coli, Klebsiella, Salmonella* and *Campylobacter*. The serum samples were screened for antibody to Brucella by RBPT and ELISA and Leptospira by MAT and ELISA.
- A total 20 *E. coli,* 1 *Salmonella* and 32 *Staphylococcus* spp. could be isolated from the samples collected from cattle, goat, pig and poultry of Nagaon and Morigaon district of Assam.
- All the *E. coli* strains (100 %) exhibited resistance to cloxacillin and amoxyclav, 45.0% to cefotaxime and ceftriaxone, 40.0% to doxycycline, All the strains (100%) showed sensitivity to ampicillin, enrofloxacin and gentamicin. However, none of the E. coli cultures was found to be ESBL producer.
- Only one sample from duck yielded *Salmonella*.
- Out of 32 *Staphylococcus* spp., 5 isolates were identified as S. aureus, 4 isolates as MRSA based on phenotypic test and finally 1 isolate as MRSA based on detection of mecA gene. All the isolates (100%) showed resistance to methicillin and cefoxitin and high degree (80-100 %) of sensitivity to toamoxyclave, tetracycline, gentamicin, neomycin, enrofloxacin, cefotaxime and ceftriaxone. No antibody to Brucella and Leptospira could be detected on screening of the serum samples by serological tests.

5.64. Government of India funded (World Bank funding) 'Scientific Rearing of Goat for Women Empowerment In Dhemaji And Lakhimpur District'

- Under this project 120 beneficiaries from different villages of Lakhimpur district received 2 numbers of female goat each, and among 10 beneficiaries 1 male breedable goat. All the beneficiaries received powder contains *Moringa olifera* extract.
- The mixture containing *M. olifera* extract acts as non-antibiotic growth promoter. Promotion of local germplasm is one of the important scientific aspect of this project along with promotion of reduced use of chemical growth promoter which has several disadvantages. In the field it has evidence that, the non-antibiotic growth promoter has beneficial properties as there is evidence of gain of body weight after using the *M. olifera* powder mixture for the goats.
- In Dhemaji district, the project will initiate from June, 2020.

5.65. DBT-funded project on 'Regulation of Corpus Luteum Function by Locally Produced Angiogenic Growth Factors in Pigs (Susscrofa)'

- An attempt was made to demonstrate the expression pattern of locally produced autocrine/ paracrine angiogenic growth factors viz. VEGF, FGF and IGF system in the porcine corpora lutea during different stages of estrous cycle with an overall aim to document the regulatory role of the angiogenic growth factors in corpus luteum origin, development and function in pigs. Synthesis of recombinant SpCas9 endonuclease was other objective of the present study.
- For this purpose, entire reproductive tract from gilts/sows were collected fromlocal abattoir within 20- 30 minutes of slaughter and were transferred to the laboratory in 1X phosphate buffer saline solution with antibiotic. A total of 30 ovaries (N = 6 CL/ group), each with corpus luteum were collected.
- The corpora lutea were assigned to early luteal,

midluteal, late luteal and regressing stages of estrous cycle. Total RNA was isolated from all thefour stages of the corpus luteum; cDNA was prepared by reverse transcription and qPCR analysis was performed to document the expression pattern of the angiogenic growth factors as mentioned above.

- The findings of the study indicate that all the three angiogenic growth factors are expressed in porcine corpora lutea albeit with stage specific differences. For the purpose of producing recombinant Sp Cas9 endonuclease, Sp Cas9 plasmid, PX330 was obtained from Prof. Feng Zhang, USA and full Sp Cas9 coding sequence was cloned into pRham™ N-His SUMO Kan expression vector. The resulting construct was then transformed into prokaryotic host. Bulk expression of the recombinant Sp Cas9 protein proteins was don and purified by metal affinity chromatography.

III. Community Science

5.66. Extension and Communication Management

- The research findings of the projects under the AICRP-ECM component are:
  * Increased knowledge and use of selected ICT tools were found among farm women under the project 'Promoting Farm Women Knowledge Group (FWKG) for Enhanced use of ICT on Agricultural and Allied activities'.
  * Intervention programmes under the project 'Empowerment of Women in Climate Change' showed positive impact on the awareness of farm women regarding climate change and its causes.
  * Ten IFS models were documented from three different agro-climatic zones of Assam under the programme 'Scoping IFS Models from Gender Perspective with Focus on Enhancing Farm Income'.
- PhD research on 'Improvement of Health Condition of Rural Women of Assam through Intervention Programme on Nutrition and Hygiene' indicated that only 14.44 and 17.04 percent of respondents had high level of knowledge on nutrition and hygiene respectively. The findings also revealed that there was positive and highly significant relationship between the knowledge of respondents and their practice regarding nutrition and hygiene.

5.67. Family Resource Management and Consumer Science

The technologies achievements of AICRP-FRM component during 2019-20 are summarized below:

- Under the project 'Drudgery-Reducing Farm Technologies for Gender Equity' three farm tools were developed, and their ergonomic evaluations were done.
  * **Paddy-Picker for paddy grain storage**: It was found after ergonomic evaluations of Paddy-Picker and interview of the users that use of Paddy-Picker enhanced the comfort of the farm women in loading of paddy grains for storage. Further, it increased the capacity of farm women to load paddy grain for storage in lesser time.

Figure 5.54. Loading of paddy grains for storage by using 'Paddy picker'

Figure 5.55. Lemon-Harvester for harvesting Assam

Figure 5.56. Ginger-Peeling Knife

* **Lemon-Harvester:** A Lemon-Harvester was developed for plucking of Assam lemon. It was found from ergonomic evaluation thatuse of Lemon harvester reduced occupational health hazards, grip fatigue and physiological cost of work of farm women. It increased the harvesting capacity in less time.
* **Ginger-Peeling Knife:** Ergonomic evaluation of Ginger-Peeling Knife revealed that the use of Ginger-Peeling Knife reduced grip fatigue and enhanced the comfort of users. Output efficiency was also increased by the use of Ginger-Peeling Knife.

- Under the AICRP project on 'Ergonomics for Work Improvement and Gender Equity in Agro-Enterprise' the weavings seat of fly shuttle loom was modified and ergonomically designed to minimize the health hazards, increase productivity and work efficiency.
- A resource centre was also developed under the project on 15th November, 2019 in Srimanta Sankardev Parthamik Vidyalaya, Mudoijan for encouraging technology innovation through development of indigenous methods used by farmers.

Figure 5.57. Inaugural Programme of Resource-Centre

- Post graduate research on 'School Backpack Weight and Prevalence of Musculoskeletal Discomfort among Adolescent Students' concluded that the highest musculoskeletal discomfort of the students was in shoulders (94.2 %) followed by upper back (78.3 %) and neck (73.3 %).

5.68. Food Science and Nutrition

The significant achievements made under AICRP-FN component are:

- Prepared a database of 55 region specific foods with low GI, anti-diabetic and functional properties.
- Developed, tested and validated low GI multigrain mix with Glycemic Index of 33.12 for pre-diabetics.
- Developed educational package on "Diet and Diabetes" and "Management of Diabetes" in both English and regional language.
- Developed educational package "Fooducate-D" for management of diabetes.
- Developed, tested and validated High fibre multigrain mix for overweight and obesity.
- Developed educational package on "Management of Overweight" in both English and regional language.
- Developed, tested and validated Nutrient dense

multigrain mix for the underweight.
- Developed educational package on "Management of Underweight" in both English and regional language.

The research findings under externally funded projects of the department of FSN are as follows:
- A total 19079 numbers of population covering 60 villages have been screened for anthropometric parameters and biochemical parameters under the project on 'Consumption Pattern of Food and Food Products/ Items High in Fat, Salt and Sugar among Selected Cities/ Towns and Rural Population of India'.
- Establishment of small food processing units in Ujani Majuli Block and Majuli Block has been undertaken, under the TSP project on 'Promotion of Agriculture Centric Sustainable Livelihood Security for Tribal Farmers of Assam under Schedule Tribe Community (STC)'.
- A total of 104 numbers of schemes under Health and Family Welfare, Education, Livelihood and Skill Development, etc. were compiled under the desk research on 'Compilation of Existing Government and Private Sector Schemes Relevant for the Small Tea Growers of Assam'.
- Under the project on 'Moving Towards a Sustainable Private Sector by Creating Responsible Business Behaviour in Tea Industry in Assam', it was found that the role of small tea growers is only limited to the production of green leaves and transportation of the same to the tea factories.

5.69. Human Development and Family Studies

The salient research findings of AICRP-CD component are as follows:
- Under the completed project entitled 'Reproductive Health Care in Agrarian families' an intervention package on 'Reproductive Health Care for Psychological Well-Being of Married Women' was developed. Intervention programmes were conducted for rural young mothers with the help of the developed package. The impact of intervention was assessed and it was found that the knowledge level of rural mothers (300 respondents) of adopted villages have been elevated significantly ($P<0.05$) in the area of reproductive, maternal and child health after intervention.

Figure 5.58. Intervention Package on 'Reproductive Health Care for Psychological Well-Being of Married Women'

- The findings of another project entitled 'Development of Parenting Index for Rural Families (PIRF)' showed that parents had an average level of temperament and the parent-child relationship was also average. It is thus worth mentioning that parents having average level of temperament and parent-child relationship may require professional help to achieve a highly positive parenting temperament and a good parent child relationship. Based on the findings of the study, a training handbook on 'Effective Parenting for Young Children' has been developed to assist the parents of young children in the areas pertaining to positive parenting.

Figure 5.59. Training handbook on 'Effective Parenting for Young Children'

- The status of the project on 'Early Language Acquisition – An approach to Alphabet Learning in Assamese Language' under the Design Innovation Centre (DIC), IIT, Guwahati is in the process of development of mobile application for learning Assamese alphabets by children and testing efficacy of the same.
- In a PhD research entitled 'An Exploratory Study on Learning Styles of Slow Learners', 12.52 percent children of upper primary level from three selected government schools of Jorhat district were identified as slow learners. Slow learners showed significant improvement (post-test) in academic performance after they were exposed to learning style based instructional materials.

5.70. Textiles and Apparel Design

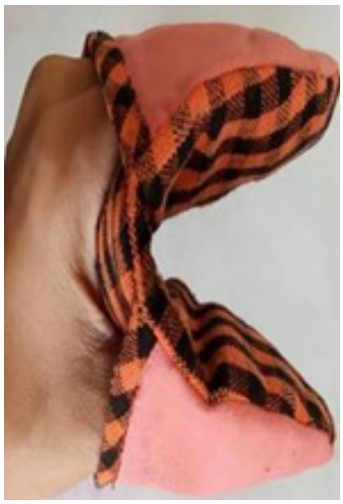
Salient Research findings of AICRP-CT during the year 2019-20 are as follows:

- Under the project 'Comprehensive Use of Under-Utilized Natural Fibres and Plant Sources for Sustainable Livelihood of Farm Families' two types of products were developed:

A. Fibre based:

* Fibres were extracted from new under-utilized plant source i.e. Hibiscus mutabilis (Cotton rose) and the fibre extraction parameters were optimized. The physico-chemical, structural and functional properties of the fibre were evaluated. Non-woven fabrics from Hibiscus mutabilis fibre blended with jute in different ratios were found to have good strength and thermal insulation property. Different utility products from woven fabrics and from non-woven fabrics were developed. Some insulating products like oven gloves (two types) for laboratory and domestic purposes and thermo-tiffin bags were developed.

Glove for domestic use



Glove for laboratory use

Thermo-Tiffin bag

Shopping bag embellished with buttons

File cover woven with natural dyed yarns

Place mat woven with natural dyed yarns

Figure 5.60. Various products of the Dept of TAD, CCSc

* Sanitary napkins were prepared from Hibiscus mutabilis (Cotton rose) fibres by using as core (100%) and mixing with cotton (50:50) and the results were found to be very good. Use of natural under-utilized fibres in making feminine hygiene products will open up entrepreneurial ventures.

100% Cotton rose fibrea

A-line frock

Infant diaper

Figure 5.61. Various women and baby products of the Dept of TAD, CCSc

B. Finish based:

* Green extracts from Kharpat (*Cassia alata* Linn) and Tulsi (*Ocimum basilicum*) were applied on cotton fabric for antimicrobial finishes against *S. aureus* and *P. vulgaris.* The process parameters were optimized for application of green extracts from Kharpaat (*Casia alata* Linn) and Tulsi, (*Osimum basilicum*) for functional finishes on cotton fabric. Infant clothing was developed from these treated fabrics.

Area Rug

Cushion cover

Runner

Place mat

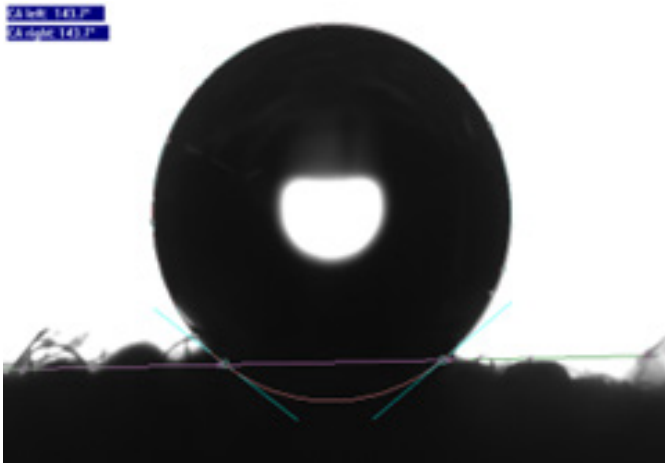
Figure 5.62. Various household products of the Dept of TAD, CCSc

- Under the project 'A Social Pursuit through Popularization and Product Diversification of Ethnic Crafts on Textiles with ICT Application' five woven products namely- area rug, cushion cover, tapestry, runner and place mats were developed. Importance was given to fusion of motifs, placement, colour combination, measurements, product specifications, etc.
- The Tribal Sub-Plan Project (TSP) on 'Diversification of Handloom Products for Entrepreneurial Development' was successfully completed by the department. A total of 120 weavers were trained on jacquard and dobby attachment and its operations, and after the training, 13% weavers were selected as master weavers from each village. The selected weavers prepared diversified products such as table-mats, cushion-covers, potli bags, skirts, dupattas, place-mats, kurtis, tunics and waist coats. The developed products were showcased and sold through an exhibition.
- In a PhD research study on 'Nano Finishes of Eri Silk and Its Union Fabric' nano finishes were applied to Eri silk and its union fabrics by using natural and chemical sources. The structural, physical and aesthetic properties of the control, as well as treated Eri silk and union fabrics, were not affected after the application of nano finishes, but there was a very negligible effect observed in the comfort properties of fabrics.

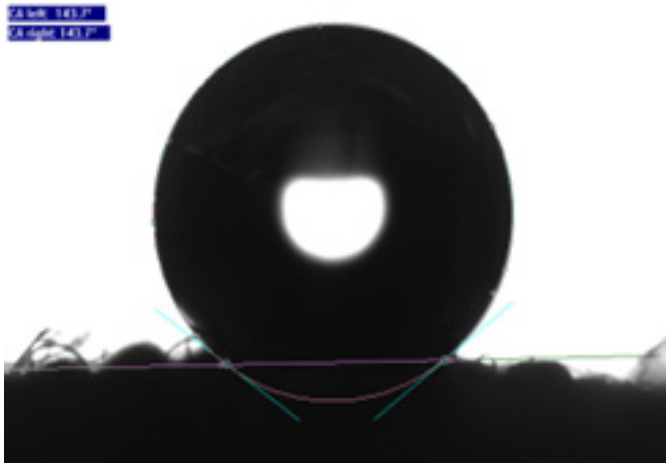
45° inclined flammability test of control Eri fabric

45° inclined flammability test of Eri fabric treated with nano clay

Figure 5.63. Flammability Test of Control Eri and Treated Eri



Angle>143˚indicates hydrophobicity of control Eri silk fabric



Angle>156˚, indicates super hydrophobicity of nano-silica and silicone polymer treated Eri silk fabric

Figure 5.64. Hydrophobicity of Control Eri and Treated Eri

6. Extension Education

The erstwhile Assam Agricultural College was elevated to a full fledged Agricultural University in the year 1969. From then on the institute in the name of Assam Agricultural University has been extending epoch making contribution to the farming community of Assam and its adjoining North-Eastern states. It was a long felt need of the entire region. The University caters the needs of the farming community of the North Eastern region and has been playing a vital role for socio-economic development. The Directorate of Extension Education (DoEE), AAU has been maintaining liasions with the Assam State Department of Agriculture (ASDA) since inception. Also the DoEE has been maintaining linkages with other line departments of the NE states like Fishery, Veterinary & Animal Husbandry and Sericulture. The DoEE provides all necessary scopes for adoption and dissemination of technologies evolved locally at AAU. The Directorate is also shouldering the responsibilities of giving training and technical guidance to the educated unemployed youth and farmers (including farm woman) of the state in the field of improved livestock farming as a means of generating income for their livelihood. Efforts are also being made to sustain these activities through farm advisory services, on farm demonstrations, farmers fairs etc. organized periodically by this Directorate. Apart from this, the Publication and Information wing of the Directorate regularly publishes Annual Reports, Newsletters, Farm Newspaper, Extension Bulletins etc. Besides, the technologies generated in the University are disseminated through electronic and print media.

6.1. Mandates

The mandates of the directorate are:

- Developing linkages between various govt. and non govt. organizations concerned with agricultural and allied extension programmes
- Organizing need based training for extension functionaries, farmers, farm women, rural youth and SHG members
- Advisory services to farmers
- Functioning as a centre for collecting, storing and disseminating information to farmers and extension functionaries
- Conducting demonstration for transfer of technology
- Entrepreneurship development in agriculture and allied areas
- Publication

6.2. Organizational network

The organogram of the Directorate is presented in Figure 6.1.

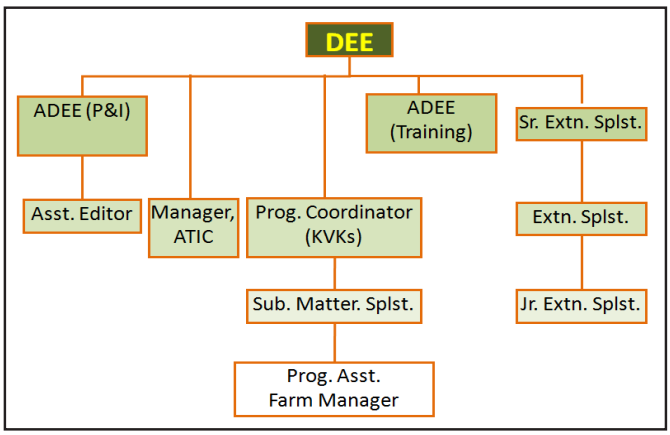


Figure 6.1. The Organizational network of the Directorate of Extension Education

The network of different units/programmes under the Directorate comprises of-

- Krishi Vigyan Kendras (KVKs): There are 23 KVKs, one each in the districts of Baksa, Barpeta, Bongaigaon, Cachar, Chirang, Darrang, Dhemaji, Dhubri, Dibrugarh, Golaghat, Jorhat, Kamrup, Karbi Anglong, Karimganj, Kokrajhar, Lakhimpur, Morigaon, Nagaon, Nalbari, Sivasagar, Sonitpur, Tinsukia and Udalguri
- Agricultural Technology Information Centre (ATIC)
- Agri-clinics and Agri-business Training Cell
- Facilitation Centre for Medicinal Plants
- Publication and Information

6.3. Agricultural Technology Information Centre

6.3.1. Introduction

The role of appropriate information technology and its dissemination to the farmers or other end users are very much vital. The important point is not only to generate the technology, but also to ensure that the required information is delivered rapidly to the farmers with the least dissemination loss.

In the course of agricultural revolution, the availability of improved varieties of cereals, oilseeds, pulses and other crops, breeds of livestock including poultry and fisheries, horticultural plant materials and improved management practices have been largely possible for attaining food self sufficiency despite population explosion. For this purpose the farmers are in search of quality seeds, planting materials and other inputs, diagnostic services, information through printed, audio, video and electronic media and consultancy services.

The establishment of ATIC is intended to provide such facilities of information technology for dissemination to the farmers as a single window delivery system. This service includes both to provide solution of location specific problems and make available all the technological information along with technology inputs and products.

6.3.2. Need

The needs for establishment of such ATIC are:

- Providing diagnostic services for soil testing, plant and livestock health.
- Supplying research products such as seeds and other planting materials, poultry strains, etc. emerging from the institution for testing and adopting by various clientele.
- Disseminating information through published literature and communication materials as well as audio-visuals aids.
- Providing and opportunity to the institution to have resource generation through the sale of their technologies.

6.3.3. Objectives

The objectives for establishment of such a centre as single window system are:

- To provide a single window delivery system for the products and species available from the university to the farmers and other interested groups as a process of innovativeness in technology dissemination.
- To facilitate direct access to the farmers to the resources available at the university in terms of technology, advice, technology products etc. for reducing technology dissemination losses.
- To provide mechanism for feedback from the users to the university.

6.3.4. Facilities

6.3.4.1. Technological products

- Seeds of field crops, vegetable and other horticultural crops.
- Nursery plants of vegetables, fruits and ornamental plants.
- Bio-fertilizer
- IPM-organic and bio-pesticides including NPV
- Small Farm Implements
- Tissue cultured plant materials
- Processed products and by-products of cereals, oilseeds, pulses, vegetables, fruits, mushrooms including spawn, honey, milk, meat & fish etc.
- Poultry strains, livestock breeds, semen, fish seed etc.
- Agricultural equipments and drawing of designs.
- Vermi-culture and vermicompost.
- Vaccine/diagnostic kit.
- Microbial culture for milk and milk products.

6.3.4.2. Services

- Soil testing
- Seed quality testing
- Plants health clinic
- Veterinary/animal clinics for small and large animals
- Testing and calibration of agricultural equipments and implements
- Project profile and consultancy
- On-farm consultancy for farmers/orchardists

6.3.4.3. Information

- Farm literature-leaflets, pamphlets, journals/ magazines, booklets, manuals.
- Audio and Video cassettes of crops and other agri-related enterprises.
- Exhibits including dioramas, transparencies
- Specimen etc.

6.3.5. Functional Components of ATIC

The functional components of ATIC have been indicated in the Figure 6.2.

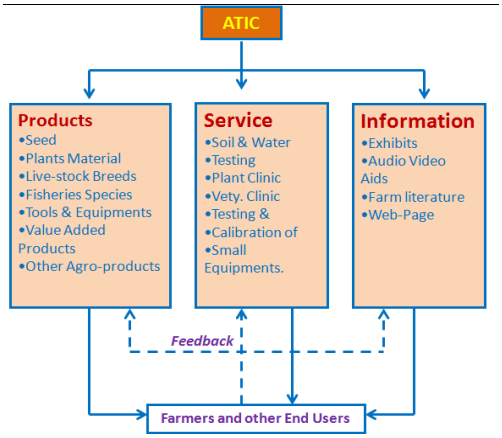


Figure 6.2. The Functional Components of ATIC

6.3.6. No. of farmers visited to ATIC

Name of farmers		Total
Male	Female	
4201	2711	6912

6.3.7. Technological inputs sold

ATIC has sold rice seeds of different varieties, vegetables seeds, planting materials, processed products like tea, black pepper, honey etc. Besides, the fresh vegetables like cabbage, tomato, brinjal, lemon, capsicum, beans, cucumber etc. have been sold in the daily sale counter of ATIC. The products sold through ATIC in different periods are as given below.

Item	Value (Rs.)
Tea (CTC)	2,00,700.00
Green Tea	25,350.00
Black Pepper	22,500.00
Total sale proceed	**2,48,550.00**

6.3.8. Farm Advisory Services

Scientists involved in ATIC activities and other staff of the university provide technical guidance to the farmers through individual, farm and home visit, personal contact and correspondences. Similarly, farmers including farm women regularly visit to us for seeking guidance in agricultural technology, animal production, live stock management, sericulture, home science and other farm problems and they are well attended by scientists/staff of the university. Scientist also respond urgent call on farm problems encountered by Department of Agriculture, Veterinary, Fishery and Sericulture etc. A well knit liaison also exists with different funding agencies such as NABARD, Nationalized Bank, DRDA etc.

6.3.9. Development of Website, "Briddhi"

Constant developmental works in designing of the website is in progress and at the same time updating and inclusion of additional contents are in progress. Meteorological information alongwith the crop advisories have been included due to the present scenario of the weather condition for the benefit of the farming community.

6.3.10. Publication and Information

The Directorate of Extension has published several bulletins, newsletters, farm newspaper, booklets, folders, magazines, laboratory/training manuals etc. during 2019-20, as detailed below. All these publications have been printed at AAU Printing Press, Jorhat.

Publications	Nos.
AAU Newsletter	4
Ghare Pathare	24
Bulletins	32
Practical Manuals	7

6.3.11. Radio talk: During the period from April 1, 2019 to March 31, 2020, altogether 97 programmes were broadcasted through AIR, Jorhat and 24 programmes were broadcasted through AIR, Dibrugarh.

6.3.12. Phone in Programme: Altogether 89 questions on various aspects relating to Agriculture, Veterinary, Horticulture, Animal Husbandry and Fisheries were received from 89 farmers, which were replied by the scientists of the University

6.3.13. Exhibitions

The Directorate participated in the following exhibitions during 2019-20:

Sl. No.	Date	Name
i.	Feb. 26-27, 2020	State level Farmers Fair organized by ICAR-ATARI, Zone VI, Guwahati at HRS, AAU, Kahikuchi
ii.	March 4-8, 2020	Agro Fare at the 7th Mising Youth Festival at Majuli
iii.	March 28-29, 2020	KASS & NASS Annual Conference at Missamari,Tezpur

6.3.14. Training of Trainers (TOT) Workshop held

A Training of Trainers (TOT) Workshop for KVK SMSs was successfully held by ASCI in AAU, Jorhat during Nov. 28-30, 2019. As per the mandate by MSDE, the program was jointly organised by ATARI Guwahati Zone VI, AAU Jorhat and ASCI. Altogether 40 Subject Matter Specialists from 23 KVKs across Assam, Arunachal Pradesh and Sikkim participated in this program, which covered 18 different job roles.

Participants were facilitated in upgrading their knowledge with the processes involved in registration, center accreditation/affiliation and certification. They were also provided training in Domain and Platform Skills which will enhance the impact of the skill development programs to help the farmers to increase their livelihood.

The inaugural session was chaired by Dr. Prasanna Kumar Pathak, Director, Extension Education, AAU Jorhat. Other dignitaries present were ASCI Regional Head, Mr. Nirod Chakravarty, and ATARI Zone VI Principal Scientist, Dr. R. Bardoloi. The concluding session was chaired by ATARI zone VI Director Dr. A. K. Tripathi.

6.3.15. Workshops/Group Meetings/Trainings under Directorate of Extension

6.3.15.1. Educations

The Directorate of Extension Education also organized the following programmes at its Conference room.

6.3.15.2. Training Programmes

Sl. No.	Date organized	Title of the training programme	Organised by	Training For	No. of Participants	No. of KVKs involved
1	July 3-5, 2019	Training programme on Agriculture for Post Graduate Teacher (Science)	AHSEC in collaboration with DoEE, AAU, Jorhat	PG Teachers under AHSEC	25	-
2	July 8-10, 2019	Training programme on Agriculture for Post Graduate Teacher (Science)	AHSEC in collaboration with DoEE, AAU, Jorhat	PG Teachers under AHSEC	26	-
3	19/08/2019	Sensitization Programme on Cluster Demonstration on Organic Farming under PKVY	Jointly by ICAR, ATARI, Zone VI & DoEE, AAU, Jorhat	Head, SMS, PA	46	22
4	23/08/2019	Training Programme on Public Finance Management System for OSAs of KVKs under AAU	DoEE, AAU, Jorhat	OSA	40	23

5	26/08/2019 to 30/08/2019	Short term training on "Preparation and dissemination of Agromet Advisories" at Block Level under Gramin Krishi Mausam Sewa (GKMS) Scheme	DoEE, AAU, Jorhat	SMS (Agromet)	37	16
6	26/11/2019	Exposure visit cum Interface of Heads of KVKs, AAU with scientists of RFRI, Jorhat for setting up of Bamboo nurseries of Assam under NBM	DoEE, AAU, Jorhat	Heads, KVKs	16	9
7	28-30 Nov., 2019	ToT Programme under ASCI	DoEE, AAU, Jorhat	SMS	56	30
8	9-16 Dec., 2019	MTC on GAP and Enhanced Resource Use Efficiency for Doubling Farmers Income	DoEE, AAU, Jorhat	Officials/ SMS	20	7
9	09-10 Jan, 2020	HRD training on recent developments in pest & disease management of crops	DoEE, AAU, Jorhat	SMS (Pl. Prot.)	18	23
10	3-4 February, 2020	HRD training programme on Recent Advances in Horticulture for SMS of KVKs of Assam	DoEE, AAU, Jorhat	SMS (Hort.)	21	23
11	February 25-26, 2020	Review Workshop of SMS/PAs of Social Science	DoEE, AAU, Jorhat	SMS/PA (Social Sc.)	22	23
12	January 21-22, 2020	Review Workshop of Farm Managers of KVKs of Assam	DoEE, AAU, Jorhat	Farm Managers	23	23
13	February 28-29, 2020	Review Workshop of SMS/PAs of KVKs of Assam in the disciplines of Agronomy, PBG & Crop Physiology	DoEE, AAU, Jorhat	SMS/PAs	16	23

6.3.15.3. Review Meeting of KVKs

Sl. No.	Date organized	Title of the programme	Organised by	Particaipants	No. of Participants
1	04/08/2019	Review Meeting of KVKs	DoEE, AAU, Jorhat	Head, KVK	23

6.3.15.4. Workshops/Seminars

Sl. No.	Date organized	Title of the programme	Organised by	Particaipants	No. of Participants
1	22.01.2020	Review meeting of ARYA Project	DoEE, AAU, Jorhat	Scientists/ Officials	12

6.3.15.5. AAU Certificate Courses

Sl. No.	Date organized	Title of the programme	Organised by	Training For	No. of Participants
1	1/11/2019 to 30/4/2020	Tea Production Technology & Management	DoEE, AAU	Rural Youth etc.	25

6.4. Krishi Vigyan Kendras

Assam Agricultural University presently has 23 number of Krishi Vigyan Kendras functioning directly under the Directorate of Extension Education. To achieve the set mandate the KVKs are imparting training to the farmers, farm women, rural youths, extension functionaries, conducting Front Line Demonstration (FLD) and On Farm Trials (OFT). The KVKs also organize Field Day, Kishan Mela, Agri Expo, Exposure Visit, Farmers-Scientists Interaction, Awareness camp, PRA exercise. During 2019-20, 1,415 numbers of scheduled training programme (on/off campus) were conducted by all these KVKs where more than 37,000 trainees participated. Technology dissemination is a major aspect of KVK and it was carried out through a number of FLDs and OFTs during 2019-20.

Table 6.1. Training Particulars during 2019-20

Sl. No.	Name of KVK	No. of Training	Participants		Total
			Male	Female	
1.	Baksa	86	1055	219	1274
2.	Barpeta	60	963	629	1592
3.	Bongaigaon	84	1192	862	2054
4.	Cachar	48	833	370	1203
5.	Chirang	51	872	377	1249
6.	Darrang	50	1015	1075	2090
7.	Dhemaji	51	805	476	1281
8.	Dhubri	71	1235	646	1879

9.	Dibrugarh	68	870	1065	1935
10.	Golaghat	74	1407	1031	2438
11.	Jorhat	45	1206	548	1754
12.	Kamrup	73	1089	828	1917
13.	Karbi Anglong	59	423	467	890
14.	Karimganj	48	899	301	1200
15.	Kokrajhar	72	1211	499	1710
16.	Lakhimpur	62	1134	616	1750
17.	Morigaon	76	1635	643	2278
18.	Nagaon	59	568	766	1334
19.	Nalbari	61	1254	279	1533
20.	Sivasagar	61	690	1055	1745
21.	Sonitpur	23	369	176	545
22.	Tinsukia	57	836	805	1641
23.	Udalguri	76	915	1067	1982
	Total	**1415**	**22476**	**14800**	**37274**

Extension activities conducted by KVKs under AAU during 2019-20 includes advisory services, diagnostic visit, Field day under crop sector/ interaction meeting under demonstrated enterprise, Group discussion with SHG members, Exhibition, Scientist visit to farmers' field, Animal Health camp, Farmers Seminar/Workshop, Celebration of important days, Awareness programme, Lecture delivered as Resource person, Farmers-Scientist interaction, Method demonstration and Awareness on Swachh Bharat Abhiyaan and telephonic conversation with farmers.

Most of the KVKs under AAU during 2019-20 performed the following flagship programmes of Govt. of India:

- Programme on Soil Health Card (Swasth Dharaa Khet Haraa)
- Programme on Pradhan Mantri Fasal Bima Yojana
- Programme on Skill India (Let's make India the Skill Capital of the World)
- Programme on Digital India (Connecting the unconnected with technology)
- Programme on Pradhan Mantri Lab to Land Programme
- Programme on Doubling Farmers Income
- Programme on Programme of TSP
- Programme on Sansad Adarsha Gram Yojana
- Programme on Swatchh Bharat Abhiyan
- Programme on Unnat Bharat Abhiyan

Figure 6.3. Cluster frontline demonstration of rabi oilseeds by KVK Dhubri

Figure 6.4. Field day on scientific cultivation of potato var. Kufri Jyoti by KVK Nagaon

Table 6.2. On-Farm Testings and Front Line Demonstrations during 2019-20

Name of KVK	OFT		FLD	
	Target achieved	No. of farmers covered	Target achieved	No. of farmers covered
Baksa	12	12	14	14
Barpeta	15	64	20	89
Bongaigaon	14	63	50	1019
Cachar	11	32	16	127
Chirang	18	45	24	498
Darrang	19	64	15	135
Dhemaji	13	54	31	957
Dhubri	12	115	12	164
Dibrugarh	13	38	18	426
Golaghat	16	53	25	1093
Jorhat	17	56	18	81
Kamrup	27	118	42	199
Karbi Anglong	20	63	22	449
Karimganj	9	33	9	38
Kokrajhar	15	47	30	1314
Lakhimpur	20	65	22	637
Morigaon	18	42	14	60
Nagaon	12	31	16	97
Nalbari	14	38	19	180
Sivasagar	15	55	25	392
Sonitpur	14	30	10	46
Tinsukia	12	36	21	242
Udalguri	13	103	39	918
Total	**349**	**1257**	**512**	**9175**

Figure 6.5. FLD on Cultivation of Cucumber in shednet house by KVK Nalbari

Figure 6.6. FLD on efficacy of biogreen for management of diseases of tomato by KVK Barpeta

Figure 6.7. FLD on Performance of Quail var. Japanese Quail by KVK Dhemaji

Figure 6.8. FLD on Popularizing the Pumpkin variety Arjuna F1 by KVK Baksa

6.5. College of Agriculture, Jorhat

6.5.1. Trainings

- A farmers' training on management of nematode pests was organized in Baksa district.
- A farmers' training was organized at Jayrampur, Dhemaji district among the TSP farmers and distributed seed materials, pesticides etc.
- In an area of 3 ha, large scale FLD of Automatic potato planter was carried out at Chachoni, Naharkotia under KVK, Dibrugrarh

Figure 6.9. FLD of Potato planter

Figure 6.10. Straw chopper

- OFT of Straw chopper was carried out at Tokowbarie farm under RARS Shillongani, Nagaon.
- In an area of 5ha large scale FLD of Inclined plate planter was carried out at Banhfola, Jorhat for maize planting.
- Automated planting of pea was done under the aegis of SDAO, Jorhat at Upper Deori village, Block Dhekorgorha, Jorhat.
- Technology showcasing of use of machines in paddy cultivation in the state of Assam under APART (Assam Agribusiness and Rural Transformation Project) at Rice Research station Titabor.

Figure 6.11. Demonstration of Self-propelled paddy transplanter

Figure 6.12. Mechanized weeder

- A Technology and Machinery demonstration Mela was held on 28th February in the Department of Agricultural Engineering premises.
- In an area of 1.5 ha, FLD of Straw chopper was exhibited in preparing rice fallow for next crop.
- Two training each of 5 day duration were conducted by the department of THT for 60 small tea growers of Nagaland belonging to Mon and Dimapur districts. The training were funded by Tea Board, India
- The THT department conducted 3 training programmes of 5 day duration each for small tea entrepreneurs of Dhemaji and Dibrugarh districts of Assam during the month of June, 2019. Each training was attended by 25 participants. The training was sponsored by Tea Board, India.
- The faculty members of THT conducted 24 one day field training programmes for small tea growers as a part of 'Capacity building of small tea growers of Assam under TRINITEA programme' sponsored by ABITA and Solidaridad Asia during September, 2019 to January, 2020. A total number of 1585 small tea growers participated in these training programmes
- The THT department organized 5 training programmes each of 5 day duration for 30 small tea growers of Udalguri district, 31 STG of Karbi Anglong district, 30 STG of Dhemaji district, 29 STG from Jorhat & Kokrajhar district and 28 growers from Nagaon district and Tripura during August to November, 2019. These training (5) were conducted for capacity building on 'Scientific Tea Cultivation'.
- The dept of THT did 115 evaluations of Training, FLD and OFT programme of KVKs.
- The dept of THT provided technical support and interaction among farmers 999 farmers and student from the following institutions of Assam & NE State, under Gyan Yatra programme/ educational tour.

* Balika Vidyaloy, Golaghat on 02/05/2019.
* Chandmari H.S. School, Golaghat on 10/05/2019
* SBILD, Jorhat on 25/05/2019
* Smart School Junior, Jorhat on 03/09/2019
* Nehra Juva Kendra, Jorhat on 25/09/2019
* Jatiya Vidyalaya, Kakopathar on 27.09.2019

* Bohat H. S. School, Charaideo on 08/11/2019
* Namchai M.V. School on 25/11/2019
* Hailakandi H.S. School on 15/11/2019
* Bipinlal Vidyaniketan H.S. School, Karimganj on 15/11/2019
* Budhbari Girls H.S. School, Kamargaon on 15/11/2019
* Purbanchal H.S. School, Charaideo on 15/11/2019
* Dhuburi H.S. School on 15/11/2019
* Goalpara H.S. School on 15/11/2019
* Khorikotiya H. S. School on 21/01/2020
* Bandorcalia H.S. School on 21/01/2020
* Charaibahi girls H.S. School on 21/01/2020
* Takela Gaon H.S. School on 21/01/2020
* Bokajan H.S. School on 21/01/2020
* Teok Rajabari H.S. School, Jorhat on 21/01/2020
* Teok H.S. School on 22/01/2020
* Madhupur H.S. School on 22/01/2020
* Nam Kachari H.S. School on 24/01/2020
* Majuli H.S. School on 24/01/2020
* Rongdoi Bahana H.S. School on 24/01/2020
* Nagaon H.S. School on 24/01/2020
* Charigaon Girls H.S. School on 24/01/2020
* Titabor H.S. School on 25/01/2020
* Madhavdev Seminary H.S. School on 25/01/2020
* Nazira H.S. School on 28/02/2020.

6.5.2. Radio talks

- Radio Talk on Role of insects in plant protection delivered by Dr. Mousumi Phukon, Assistant Professor.
- Radio Talk delivered by Dr. D. K. Saikia, Principal Scientist.
- Dr. M. K. Deka delivered a Radio talk on rainy season management of honey bees at AIR, Jorhat on 22.7.2019.
- Dr. Purnima Das delivered a Radio talk on Lac cultivation technology, All India Radio, Dibrugarh, dtd.30.04.2019
- Department of Animal Husbandry and Dairy delivered 6 radio talks in the year.

6.5.3. Establishment of satellite laboratories of DBT-AAU Centre: Five new satellite laboratories were set up in the following places:

- Nagaland University, Medziphema, Nagaland
- Central Agricultural University Iroisemba, Imphal, Manipur
- School of PG studies, CAU, Umiam, Meghalaya
- College of Agriculture Lembucherra, Tripura
- Mizoram University, Mizoram

6.5.4. Establishment of e-learning laboratory: An e-learning laboratory was set up in the DBT-AAU centre cum Dept of Agril Biotechnology building

Figure 6.13. A view of the e-laboratory established in the DBT-AAU building

6.5.5. Sale Proceed

The sale proceed generated from Livestock and Poultry Farm in CA, AAU is as follows:

Sl No.	Production of Item	Value (Rs./Quantity)
1	By Sale of Milk, Pork, Fish etc.	14,89,745.00
2	By Sale of Eggs, Chicken, quail, duck etc.	11,47,118.00
3	Cow Milk	22737 ltr.
4	Buffalo Milk	2062 ltr.
5	Egg Production	35050 nos.

Total Deposit for the whole year 2019-20 of Livestock and Poultry was Rs.26,36,863.00.

6.6. Directorate of Research (Agri) – Salient Extension Activities

6.6.1. Front Line Demonstrations

- A total of 10 FLDs on chickpea varieties 'GNG 2207' and 'JG 14' under AICRP on Chickpea was conducted in Nagaon, Hojai, Marigaon and N. Lakhimpur districts during Rabi, 2019-20 (RARS, Shillongoni).
- A total of 15 FLDs on Rapeseed-Mustard varieties 'NRCHB 101', 'PM 27' 'YSH 401', 'TS 36' and 'TS 38'under AICRP on Rapeseed-Mustard were conducted in Nagaon district (RARS, Shillongoni).
- The new wheat variety HD 3086 produced 43.8% yield increase over Sonalika under the state level demonstration programme. Similarly, application of bio-fertilizer and Zero tillage increased wheat grain yield by 27.6% and 35%, respectively (RARS, Shillongoni).
- A total of 20 FLDs on Linseed varieties under AICRP on Linseed was conducted in Nagaon district (RARS, Shillongoni)..
- A total of 10 FLDs on Mustard under APART, the variety NRCHB 101 was conducted in Nagaon district during Rabi, 2019-20 (RARS, Shillongoni).
- One Custom Hiring Centre (CHC) established under TSP programme of AAU benefitted 50 farmers with a net return of Rs. 35000/- in just six months (RARS, Shillongoni).
- Demonstration on use of CRIJAF SONA, use of plastic cement bags for immersing the jaks at Bamungaon under TSP, Jute (RARS, Shillongoni).
- Demonstration on integrated pest management in jute, rice and toria at Bamungaon under TSP, Jute (RARS, Shillongoni).
- Large Scale Demonstrations on short duration mustard variety 'NRCHB 101' with Honeybee hives and boxes covering 50 ha area were conducted under RKVY RAFTAAR,2019-20(RARS, Shillongoni).
- Five numbers of demonstration programme were conducted on 'Integrated Pest Management of Assam lemon' covering an area 0.75 ha area of Dirakmukh and Thapabari villages of Dholla, Tinsukia under ICAR-NCIPM-NEH project (CRS, Tisukia).
- Large scale demonstration on role of insectivorous birds in suppression of insect pests in cereal and oilseed crops through installation of bird perches made of either bamboo or tree branch in the shape of 'T' @ 50/ha as a component of IPM were conducted in Darrang, Baksa and Udalguri districts under ICAR Tribal Sub Plan (TSP) programme and it succeeded in controlling insect pests (RARS, North Lakhimpur).
- During Boro season of 2018-19, 30 nos. of head to head and 20 nos of minikit demonstrations were conducted along with a crop cafeteria. During the Sali season, 25 nos. of on-farm adaptive, 10 nos. of clusters and 30 nos. of head to head demonstrations along with one crop cafeteria were conducted (RARS, Titabar).
- Large Scale Demonstration on Short duration

mustard variety NRCHB101 covering 25 ha was conducted under RKVY-RAFTAAR,2019-20 (RARS, Gossaigaon)

- FLD on Seed production of Rapeseed and Mustard under DRMR-AAU collaborative project and ICAR Seed Project(RARS, Gossaigaon)
- FLD on Bina Dhan 11 as summer rice and lentil in rabi season under APART Project
- FLD on Maize under AICRP Maize (RARS, Gossaigaon)
- FLD on Finger millets under AICRP on Small Millets (RARS, Gossaigaon)
- Under AICRP (Palms), one Frontline Demonstration on intercropping in coconut was initiated at Singra in Kamrup district (HRS, Kahikuchi).
- Two method demonstrations on Bordeaux mixture preparation were organised for tribal black pepper farmers at Jimpota and Hatigarh villages of Kamrup district (HRS, Kahikuchi).
- An area of 20 bigha was brought under Tomato cultivation with an emphasis of biomanagement of root knot nematode, Meloidogyne incognita in vegetable crops for increasing the income of farmers under TSP programme at Joyrampur (under AICRP-Nematode).
- Farmers field demonstration on management of rice root knot nematode, Meloidogyne graminicola using bioagents at two locations (Golaghat district and Lakhimpur district) with 2 bigha of area each (under AICRP-Nematode).
- Altogether 4 FLDs on Seed Production technology of rapeseed and mustard (Var. NRC-HB-101 and TS-46) covering 5.0 ha and 14 tribal farmers of Assam and Arunachal Pradesh has been conducted (under ICAR Seed Project-NEH Component, AAU centre).
- Moreover, three numbers of Front Line Demonstrations (FLDs) on Quality seed production in toria (Var. TS-36&TS-38), Ahu rice (Var. Dishang and Kolong) and Sali rice (Var. Ranjit Sub-1) in 12.0 hectares of land area with the participation of 33 numbers of tribal practicing farmers of Golaghat, Karbi Anglong, Sibasagar, Jorhat and Majuli district of Assam (under ICAR Seed Project-Main Component, AAU Centre).
- Under AAU-DRMR collaborative project on Augmentation of agricultural productivity in tribal areas of Assam, altogether, 105 numbers of demonstrations on Quality seed production of Short Duration High Yielding Mustard (Variety NRCHB-101) was conducted covering 47 numbers of villages of Majuli, Tinsukia, Dhemaji, Udalguri, Karbi Anglong, Kokrajhar districts of Assam.
- Demonstration on Kharif paddy (Variety Ranjit, Shraboni and Chikon) at Khowang, Rahmoria and Nepaligaon was conducted covering 20.0 ha area and 105 beneficiaries (under Oil India Project).
- Demonstration on organic rice cultivation at Chabua covering 3.0 ha area and 10 farmers with Keteki Joha variety (under Oil India Project).
- Demonstration on Integrated Farming System models at Rahmoria and Khowang with a total of 25 participants since 2017-18 (under Oil India Project).
- Large scale demonstration of biocontrol based IPM package in rice was carried out in farmer's field at Neul Gaon (Panchayat –Thekorgora), Jorhat district on variety 'Ranjit' covering an area of 50 ha. The per cent dead heart and damaged leaf caused by Scirpophaga sp. and Cnaphalocrocis sp. were 3.78 and 3.22 in BIPM package as against 2.82 and 2.86 in farmer's practice after 60 DAT, respectively.

Figure 6.14. Dr M Saikia, Assoc. Director of Research (Agri), AAU, Jorhat addressing the farmers on Farmers' Day, 2019 held on 26.11.2019

Figure 6.15. Sri KD Purokayastha, Hon'ble MLA, North Karimganj along with other dignitaries and farmers inaugurating the Exhibition programme organised on Farmers Day, 2019

6.6.2. Training Organized

- Trainning programme on Cultivation of Arahar crop was organized by NABARD, Nagaon at Deo Pothar Goan in Kaki, Hojai on 6.2.2020 attended by Dr. H. K. Borah and Dr. K. D. Singha (RARS, Shillongoni).
- Trainning programme on Crop seminar for doubling the farmers' income was organized by Indian Potash Limited attended by Dr. K. D. Singha (RARS, Shillongoni).
- Trainning on Crop seminar Rabi Crops including Boro Rice was organized by IFFCO at Jhargaon Morigaon on 06.02.2020 attended by Dr. B. K. Borah and Dr. K. D. Singha(RARS, Shillongoni).
- A total of twelve training programmes were conducted three each on the topic Improved production technology for jute, Use of CRIJAF SONA for jute retting, Integrated pest management in jute and Improved production technology of rice with participation of forty farmers(RARS, Shillongoni).
- A state level teacher training under National Children Science Congress (NCSC) as master resource person organized by Assam Science Technology and Environment Council, Guwahati at Silapathar Sc. College, Silapathar held on 17th & 18th May, 2019(RARS, Shillongoni).
- A North East level training programme on Aquaclinics and Aquapreneurship Development Programme as Resource person w.e.f. 27th August2019 to September 2019, organized by College of Fisheries, AAU, Raha in collaboration with National Institute of Agricultural Extension Management (MANAGE) (RARS, Shillongoni).
- Organized a training programme on Nemutengar utpadon kousalor prasikhan with at Mirika Majuli, Margherita, Tinsukia, on 08.07.2019 with participation of 67 trainees (CRS, Tinsukia).
- Organized two numbers 3-day Training Programme on Production technology and Rejuvenation of Citrus at Citrus Research Station, AAU, Tinsukia from 11th to 13th July and 18th to 20th July, 2019 with participation of 36 and 38 trainees, respectively (CRS, Tinsukia).
- Three numbers of Farmer's training & Input distribution programmes were conducted under ICAR-NCIPM-NEH project besides supplying critical inputs to TSP farmers in greater Dholla area with 256 farmers' participation (CRS, Tinsukia).
- Attend farmers training on Crop management and Value addition organised by KVK, Morigaon on 14.2.2020 at Vill. Jurgaon, Morigaon (SRS, Buralikson)
- Organised one day farmers training on Improved sugarcane cultivation and management on 30.5.2019 for the farmers from Nagaland at SRS, Buralikson.
- Participated in the farmers training on Quality planting material and nursery management on 17.8.2019 at SRS, Buralikson. A total of 51 farmers from different location participated in the training (SRS, Buralikson)

Figure 6.16. Honourable Vice-Chancellor, AAU, Jorhat visited RARS, Gossaigaon and attended Zonal Research Extension Advisory Meeting (ZREAC) for Rabi 2019 on 3rd September 2019

- A one day training on Scientific cultivation of sugarcane and cane juice processing was organised at SRS, Buralikson on 19.11.2019 for farmers from Nagaland (SRS, Buralikson)
- Conducted a total of twelve training programmes covering 370 numbers of participants with 245 male and 125 female under KAAC (Sixth schedule grant in Aids), APART and DRMR-AAU collaborative project (TSP) project (RARS, Diphu).
- Thirty numbers of awareness-cum-trainings on the Role of Birds in Agriculture was organized in 23 districts of Assam on the occasion of World Sparrow Day-2019 in collaboration with KVKs, AAU. Distributed 5000 artificial Bird nest boxes designed by the centre among the farmers, students and house-wives during the programme (RARS, North Lakhimpur).
- Training on Ecofriendly insect pest management in toria and workshop on Production technology and vertebrate management in summer paddy were conducted at RARS, North Lakhimpur.
- During 2019-20, 2 nos. of training on quality seed production,2 nos. of participatory varietal evaluation programmes in crop cafeteria , 1 each for boro and sali season were conducted, a two day training on post harvest management, 1 training on identification of progressive farmers and local dealers were also conducted under APART (RARS, Titabar).

Figure 6.17. Training under AICRP Palm

Figure 6.18. ctivities under APART

Figure 6.19. Farmers fair at RARS, Titabar

Figure 6.20. Activities under Biotech Hub at HRS, Kahiluchi

- Under AICRP (Palms), six training programmes on improved production technology of coconut were organized for practising coconut farmers at Hajo, Boko and Chaygaon areas of Kamrup district. Altogether 240 coconut farmers were covered under the training programmes which enhances the knowledge level of the farmers on the scientific production technology of coconut (HRS, Kahikuchi).
- Under AICRP (Agroforestry), five training programmes on the role of agroforestry in livelihood security and environmental protection were organized (HRS, Kahikuchi).
- A three days training programme on Basic Gardening Tips for Beginners was organised for the personnel of 8th Battalion BSF, Patgaon, Rani, under the aegis of AICRP (Floriculture) (HRS, Kahikuchi).
- The AICRP (Spices) co-opted centre at HRS Kahikuchi organised two training programmes on Production Technology of Major Spices for 70 Scheduled Tribe farmers/Farm women(HRS, Kahikuchi).
- A farmers' training was organized in Baksa district. The training was given to the TSP farmers on management of nematode pests (under AICRP-Nematode).
- A training on Nematode pests of vegetables and their management was organized at Jayrampur, Dhemaji district on 5th March, 2020 (under AICRP-Nematode)
- With a participation of altogether 184 tribal farmers of Assam and Arunachal Pradesh, 4 numbers of farmers training on Scientific seed production technology of rapeseed and mustard) was undertaken (under ICAR Seed Project-NEH Component, AAU centre).
- Two numbers of off campus farmers training on Quality seed production and post harvest management of oilseed crops at Sahala Chapori, Golaghat and Sesamukh, Sibsagar with the participation of 56 numbers of practicing farmers during 2019-20 (under ICAR Seed Project-Main Component, AAU Centre).
- IMD, New Delhi and ICAR ATARI ZONE VI & VII in collaboration with AMFU-Jorhat conducted a short-term training on Preparation and dissemination of Agromet Advisory Bulletin at block level at Assam Agricultural University, Jorhat from 26th to 31st August, 2019 with a total participation of of 14 SMS (Agromet) and 16 AMO from NE India (under Gramin Krishi Mausam sewa (GKMS) scheme).
- Training on apiculture including honey bee and other pollinators have been carried out which were organized by different agencies. All total nine trainings were conducted involving 430 beneficiaries during 2019-20.
- Altogether, 12 numbers of method demonstrations cum field trainings were organised in respect of rodent pest management.

Figure 6.21. Farm implement distribution under ICAR seed Project

Figure 6.22. Awareness Camp on Climate Change at Mudoijan village under Kaliapani Block, Jorhat, Assam on 29th May, 2019

6.6.3. Farmer-Scientist Interaction Meet

- Organized two numbers of Farmer-Scientist Interaction Meet one at Naa-Dihing Dirakmukh, Tinsukia on 15.02.2020 and the other one at Hahkhati-Thapabari on 19.02.2020 under ICAR-NCIPM-TSP project (CRS, Tinsukia).
- Two Scientist –Farmers interaction programmes were conducted with total 62 participants being 39 male and 23 female under KAAC (Sixth schedule grant in Aids) project (RARS, Diphu).
- Two Farmers-Scientists Interaction programmes were organized at RARS, North Lakhimpur campus and Kajalgaon, Chirang on 07/12/2019 and 25/02/2020, respectively.
- Farmer-Scientist interaction programmes were organized by RARS, North Lakhimpur in collaboration with AIR, Dibrugarh (21/10/2019) and Mising Autonomous Council, Dhemaji (09/02/2020) where many farmers participated actively.

Figure 6.23. Hands on Training to the Agromet Observers

Figure 6.24. Installation of Ordinary Raingauge at KVK, Jorhat, Assam

6.6.4. Exhibitions/ Farmers Fairs Organized

- Organised Sericultural Exposure Exhibition at Bapuji Mandir, Dergaon under RSWEP'2019 programme on 27.4.2019 (SRS, Buralikson).
- Organised Farmers Fair, exhibition and field visit at SRS, Buralikson on 19.11.2019 with participation of about 2000 farmers (SRS, Buralikson).
- Farmers Fair at SRS, Buralikson on 19.11.2019.
- Two numbers of Farmers Fairs were organized at North Lakhimpur and Kajalgaon, Chirang (RARS, North Lakhimpur).
- Farmer's Day celebrated on 7th November 2019 and attended by more than 2000 farmers. The Hon'ble Vice Chancellor, AAU, Dr. Ashok Bhattacharyya inaugurated the function (RARS, Titabar).
- Farmers' Day cum Exhibition, 2019 was organized on 26th November, 2019 (RARS, Karimganj).

- Under the initiative of the AICRP (Spices) co-opted centre, a four-day exhibition was organized at HRS, AAU Kahikuchi, in collaboration with Indian Institute of Spices Research (IISR), Kozhikode, from 4–7 November 2019, which was inaugurated by the Hon'ble Minister of Agriculture, Government of Assam.

6.6.5. Field Day Organized

- A total of 11 Field days were organized under KAAC (Sixth schedule grant in Aids), APART and DRMR-AAU collaborative project (TSP) project (RARS, Diphu).
- Field Day on Blackgram and Greengram was organized by AICRP on MULLaRP at Jhargaon, Morigaon on 27.11.2019 (RARS, Shillongoni).
- Field Day on Whole Package Technology in Spring Season, 2019 was organized by AICRP on MULLaRP on mungbean and Urdbean was organized at Bessapatti, Morigaon on 27.11.2019 (RARS, Shillongoni).
- Field Day organized at Mulankota, Raha by APART Oilseeds, RARS, Shillongani on 05.03.2020 (RARS, Shillongoni).
- Field Day on FLD Mustard at Raidongia on 07.03.2020 under RKVY, RARS, Shillongani (RARS, Shillongoni).
- A field on Quality seed production rapeseed (Var. TS-38) was also organized at Sahola Chapori, Golaghat with 28 numbers of farmers participation during 2019-20 (under ICAR Seed Project-Main Component, AAU Centre).
- Two numbers of field days on at Borchapori (Sarihajan) of Karbi Anglong and Jamukoni of Dhemaji district was organized with the participation of 65 numbers of farmers along with two numbers of off campus training and Sariahjaan, Karbi Anglong (33 Nos. of farmers) and Dandupur, Udalguri (25 Nos. of farmers) of Assam during 2019-20 (under DRMR project).

6.6.6. Other Extension Activities

- Mass campaigning programme for the adult management of *L. mansueta* by following the concept of Social Engineering/ Farmers Participatory Approach was continued in Majuli river island of Assam during 4-28th April, 2019. The programme was conducted by involving 400 farmers from 40 different Lepidiota Management Groups (LMG) along with the district administration, state Department of Agriculture, NGOs etc. This mass campaigning programme received overwhelming response and was exceedingly successful leading to massive collection and killing of about 1.74 lakhs of beetles (Approx. 11.33 lakhs of beetles have already been killed during 2010-19).
- Personal consultancy on cane juice processing and gur marketing was provided to Sri Tantu Sarma, Farmer, Vill. Lukumai, P.O. Baruabamungaon, 785618 on 28.6.2019 (SRS, Buralikson).
- Advisory on sugarcane borer management and gur recovery delivered to Sri Pramod Handique, Vill. Naharani, P.O. Sarupathar on 21.8.2019 (SRS, Buralikson).
- Appraisal on activities of SRS Buralikson to the visiting student group from the Department of Plant Breeding, AAU, Jorhat on 30.9.2019 (SRS, Buralikson).
- Participated with different exhibits in the Farmers Fair at Golaghat organised by ATMA on 6-7 January, 2020 (SRS, Buralikson).
- Advisory service to Sri Satya Ranjan Bora from Lanka, P.O. Lanka, Dist. Hojai on value addition in Sugarcane and entrepreneurship development on 5.2.2020 (SRS, Buralikson)
- Participated in the Farmers Fair at Titabor organised by RARS, Titabor on 7.11.2019 with all exhibits and products (SRS, Buralikson).
- Zonal Farmers' Meet was organized by RARS, North Lakhimpur in association with all KVKs of NBPZ Assam, B.N. College of Agriculture, Biswanath Chariali; Lakhimpur College of Veterinary Science, Joyhing; Department of Agriculture, Lakhimpur and Dhemaji at RARS, North Lakhimpur on 7th December, 2019. More than 800 farmers of six districts viz. Udalguri, Darrang, Sonitpur, Biswanath, Lakhimpur and Dhemaji participated in the meet.
- Dr. S. Hussain, Dr. M. R. Choudhury, and Mrs. B. Phukan, RARS, Karimganj delivered lectures in the training programme entitled Training on Promotion of alternative livelihood for

diversification organized by CARITAS INDIA at RARS, Karimganj on 13th, 15th, 26th, 27th& 28th June, 2019 (RARS, Karimganj).

- Participated as Chairperson in Seminar on Doubling Farmers' Income-Technological Intervention on 6th January, 2020 in Kishan Mela, 2020 organized by DAO, Hailakandi (ATMA) (RARS, Karimganj).
- Participated as Resource Person and delivered talk on Various Initiatives on Sustainable Development of Agriculture on 7th January, 2020 in Kishan Mela, 2020 organized by DAO, Hailakandi (ATMA) (RARS, Karimganj).
- Participated in Exhibition at Kishan Mela-2020 organized by Department of Agriculture, Hailakandi (ATMA), Govt. of Assam on 6th &7th January, 2020 (RARS, Karimganj).
- Participated in Exhibition at Krishi Mela-2020 organized by Department of Agriculture, Karimganj (CSS, ATMA), Govt. of Assam w.e.f 28th to 29th January, 2020 (RARS, Karimganj).
- Dr. M.R. Choudhury, Dr. R.R. Taye, and Dr. P. K. Kaman, RARS, Karimganj acted as Resource Persons at the Farmers-Scientist interaction Programme, Krishi Mela-2020 organized by Department of Agriculture, Karimganj (CSS, ATMA), Govt. of Assam on 29th January,2020 (RARS, Karimganj).
- Dr. M.R. Choudhurydelivered a lecture on Organic Farming on 11.02.2020 at FTS, Mahakal organized by CSS-ATMA(RARS, Karimganj).
- Dissemination of flood tolerant Ranjit sub-1, Bahadur Sub-1 and Swarna Sub-1 through various demonstrations (Head to Head, Cluster, Minikit etc.) under APART project (RARS, Gossaigaon)
- Weekly sending of Advisory bulletin and SMS to farmers under GKMS scheme (RARS, Gossaigaon)
- During 2019–20, the Scientists of the station acted as resource persons in various training programmes organized by different organizations such as State Department of Agriculture, GoA, SAMETI, MANAGE, KVK, Government colleges, Gauhati University and NGOs (HRS, Kahikuchi).
- Scientists of the station acted as course director and resource persons in the 4-week long Summer Internship Programme on Nursery Management with special reference to Plant Propagation Techniques in partial fulfillment of B.Sc. programme in Agriculture and Food Business of Amity University of Organic Agriculture, Uttar Pradesh, w.e.f 24.05.19–20.06.19 (HRS, Kahikuchi).
- Scientists of the station acted as judges in Mushroom Competition organized by Directorate of Agriculture, GoA, during January 2020 and gardening competition organized by Guwahati Refinery during February 2020 (HRS, Kahikuchi).
- Under AICRP (Palms), planting materials of Assam lemon (200 Nos.), Turmeric (100 Kg) and Coconut (200 Nos.) were distributed among the farmers at Hajo area of Kamrup district during September 2019 under the programme SCSP of AICRP on Palms (HRS, Kahikuchi).
- Under AICRP on Agroforestry, 4600 seedlings of different timber tree and fruit tree species were distributed to 25 tribal farmers of Baksa district under the Tribal Sub Plan (TSP) component (HRS, Kahikuchi).
- Two diagnostic team visits were carried out in Hanapara and Jharapota villages of Kamrup district under AICRP (Spices) co-opted centre to provide on-farm technical advice to farmers for addressing their black pepper management problems (HRS, Kahikuchi).
- Five diagnostic visits to address whitefly infestation in coconut were carried out in Borka, Baruajani, Dudlang, Madhukuchi and Bihdia villages of Kamrup districts during 2019-20 (HRS, Kahikuchi).
- Scientists Participated in five Radio talk programmes aired by AIR, Guwahati, Assam (HRS, Kahikuchi).
- Participated in 7 Nos. of Television programmes telecast by Doordarshan Kendra, Guwahati, Assam on the thematic areas of commercial floriculture, commercial horticulture, plant protection in horticultural crop, organic crop protection, plant protection in field crops and

horticulture (HRS, Kahikuchi).

- A total of 10 news items were published in different regional and vernacular newspapers about the activities under APART, RHWEP and AICRP (Spices) (HRS, Kahikuchi).
- Farmers Awareness Programme on Popularization of Meghdoot App on 05.03.2020 organized at Mulankota, Roha by GKMS, RARS, Shillongani (RARS, Shillongoni).
- Farmers Awareness Programme on Popularization of Meghdoot App at Raidongia on 07.03.2020 organized by GKMS, RARS, Shillongani (RARS, Shillongoni).
- Live telecast of Agricultural Crop Seminar on Amar Pathar Amar Katha organised by Doordarshan at Govt. Livestock Farm, Barhampur, Nagaon on 23.11.2019 attended by Dr. H. K. Borah and Dr. K. D. Singha (RARS, Shillongoni).
- State level 27th NCSC as Evaluator of Projects held at Navodaya Vidyalaya, Rangajan, Tinsukia, Assam during 1-4 November 2019 (RARS, Shillongoni).
- Resource person for TSP sponsored by AINP & JAF, CRIJAF organized by RARS, Shillongani, held 23.01.20 (RARS, Shillongoni).
- Guest speaker on a 5 days training cum workshop on seed related activities, organized by ASSCA, Guwahati, and delivered lecture on Advances in IDM in Pulses and oilseeds in relation to seed production, Strategies for attaining self-sufficiency in seed production of pulses and oilseeds in Assam, Opportunities and challenges in seed certification and quality control of seeds on 25.9.19 at KVK, AAU, Kamrup (RARS, Shillongoni).
- Guest speaker on the topic Management practices in pulses and oilseeds for government officials at KVK, AAU, Kamrup on 25.9.19 (RARS, Shillongoni).
- Guest speaker on CAFT in organic farming, on Legume component under cropping system for sustainable soil health at Dept of Soil Science, AAU, Jorhat on 04.03.2020 (RARS, Shillongoni).
- Resource person for ICAR sponsored 10 days short course under Capacity Building Programme on Field use of bioformulation for management of rapeseed and mustard at Dept of Plant Pathology, AAU, Jorhat on 13.11.2019 (RARS, Shillongoni).
- Resource person for training programme on CFLD on Rabi oilseed (Toria) at Lesaribori and Kalsipara village organized by KVK Morigaon, in collaboration with ARIAS Society & Govt of Assam on 22.1.2020 and 25.1.2020 (RARS, Shillongoni).
- Resource person on IPM in summer vegetables in farmer's training organised by KVK, Nalbari at Balitara, Nalbari on 01.02.2020 (RARS, Shillongoni).
- Resource person in the Training and Workshop on seed related activities organized by ASSCA, Guwahati, and delivered lecture on Advances in IDM in oilseeds in relation to seed production on 24.10.19 at RARS, AAU, Shillongani, Nagaon (RARS, Shillongoni).
- Resource person for State level training programme under NFSM (CC)-Jute on the topic IDM in Jute, Certified Jute seed production technology, Advances in Jute production technology and INM in Jute at IRM Beharbari, Guwahati organized by Directorate of Agriculture, Khanapara, on 22.2.2020, 23.02.2020, 28.02.2020, 01.03.2020, 08.03.2020, 09.03.2020, 10.03.2020, 15.3.2020 and16.03.2020 (RARS, Shillongoni).
- Guest speaker for Training cum workshop on seed related activities at Ramdia, Kamrup district, organized by ASSCA, Guwahati on 17.3.2020 (RARS, Shillongoni).
- Participated in monitoring of AICRP on Linseed at Madhya Pradesh and Odissa from 03.03.2020 to 10.03.2020 as team leader (RARS, Shillongoni).
- During the year 2019-20, 3 Nos. of manual knapsack sprayers, 10 Nos. of battery operated knapsack sprayers and 12 Nos. of wheel hoes were distributed among 66 numbers of farmers of Assam (under ICAR Seed Project-NEH Component, AAU centre).
- A total 10 numbers of sprayers were also

distributed amongst 10 numbers of beneficiaries under the AAU-DRMR collaborative project (under DRMR project).

- More than 250 numbers of local bamboo traps (maat chitap) were distributed among farmers to popularize them for the control of rodent pest along with 250 numbers of mechanical traps, 200 numbers of small farm implements as well as 500 meters of green nets were distributed for the management of vertebrate pests.
- Farm impalements were distributed to 45 farmers of Jayrampur and Borbam Kachari gaon Dhemaji under TSP programme
- Dr. Bipul Deka delivered 3 TV talks and 5 radio talks during 2019-20 and Dr. R K Thakuria delivered 3 radio talks during 2019-20 (AICRP-IWM).

6.6.7. Seed and Planting Material Production

- During 2019-20, a commercial Nursery for fruits and vegetables under protected cultivation covering about 2 bigha land with 10 farmers was inaugurated at Nepaligaon, Dibrugarh under Oil India Project impleneted by AAU, Jorhat.
- AAU could able to generate 581.05 quintals of breeder, 1388.26 quintals of foundation and 346.89 quintals of certified seeds during Kharif, 2019 along with 88.05 quintals of breeder, 28.00 quintals of foundation and 366.50 quintals of certified seeds during Rabi, 2019-20 of new and promising varieties of rice (Ranjit sub1, Bahadur sub1, Swarna sub1, Shraboni, Gitesh, Numoli, Keteki Joha, Aghoni Bora, Joymoti, Kanaklata, Dishang, Luit, Padumoni, Padmanath, etc.), lentil (HUL 57), green gram (SGC-16, IPM-02-3, IPM-02-14), black gram (PU-31, IPU02-43, SBC47), jute (Tarun and Khyati), rapeseed and mustard (M-27, TS36, TS38, TS 46, TS 67), sesame (Bohuabheti, ShT-1, Nagaon, local), linseed (T-397), niger (GA-10, GNS-09), Lentil (KLS-218), Lathyrus (Ratan), etc. through AAU research cum instructional farm (production unit) under ICAR-Seed Project, AAU, Centre. Moreover, AAU could able to generate 111.6 quintals of foundation and 5781.44 quintals of certified seeds in farmer's field under participatory mode of seed production during 2019-20. Moreover, a total of 2.1565 lakhs of planting materials were also generated covering various horticultural crops during 2019-20 (under ICAR Seed Project-Main Component, AAU Centre).

6.6.8. Activities Under Sponsored Programmes

6.6.8.1. APART Programme

- During the Sali season of 2019, 25 nos. of On Farm Adaptive Demonstrations (OFAD), 147 nos. of Cluster Demonstrations (CD), 35 nos. of Head to Head (H2H) demonstrations, 7 nos. of Leaning Centre Demonstrations (LCD), 1 nos of wet DSR demonstration were conducted with stress tolerant rice varieties viz. Ranjit-sub-1, Bahadur sub-1 and Swarna-sub-1 covering 102 ha area in Lakhimpur district benefiting 218 farmers. 8 nos of Field Days (FD) were also organized during the period (RARS, North Lakhimpur).
- During the Boro season, 10 nos of LCD and 2 nos of wet DSR were conducted in with rice variety, BINA Dhan-11 (RARS, North Lakhimpur).
- During the Rabi season (2019-20), 5 nos each of OFTs were conducted in cabbage and black gram. Similarly 5 os each of FLDs were conducted in pea and mustard crop(RARS, North Lakhimpur).
- 3 Nos of FDs were also conducted in pea and mustard crop demonstrating the performance of the crops in local situations (RARS, North Lakhimpur).
- Training programmes on Quality Seed Production (QSP), Rice Knowledge Bank and Strengthening Post Harvest Management were organized at RARS, North Lakhimpur under the APART project (RARS, North Lakhimpur).
- A total of 285 multi-component demonstrations of winter rice (Sali paddy) were undertaken in Goalpara district during 2019-20, covering an area of 169.5 ha, with the active involvement of 491 beneficiary farmers. The average demo yields recorded were 5.7 t/ha against Ranjit Sub-1, 5.0 t/ha against Bahadur Sub-1 and 5.9 t/ha against Swarna Sub-1. The yield levels were encouraging and at par with the yield levels indicated in the package of practices (HRS,

Kahikuchi)..

- Altogether 70 multi–component demonstrations of summer rice (Boro paddy) variety Bina Dhan-11 were conducted during 2019-20 in Goalpara district, covering an area of 53.10 ha with the active involvement of 125 beneficiary farmers. The average demo yield achieved was 4.10 t/ha (HRS, Kahikuchi).
- Six training programmes were organized in the broad areas of paddy value chain machinery, quality paddy seed production, post-harvest machinery, stress-tolerant rice varieties, covering 228 farmers and 25 field level extension functionaries (HRS, Kahikuchi).
- Three field days were organized at Dhanubhanga, Dudhnoi and Salmari in Goalpara district, which saw the participation of 160 farmers (HRS, Kahikuchi).
- Three demonstration programmes on the rice value chain and post-harvest machinery were successfully organized at Agia, Govindapur and Balijana, covering 108 farmers (HRS, Kahikuchi).
- A total of 78 Demonstrations on rice under APART and 30 numbers of demonstration on mustard under DRMR-AAU collaborative project (TSP) project were conducted (RARS, Diphu).

6.6.8.2. RKVY-RAFTAAR Programme

- Large-scale demonstration of short duration mustard variety NRCHB-101 was conducted at Xandohkhuwa village, Lakhimpur district in 20 ha areas. Inputs like free quality seeds, bee hive, fertilizer etc. were provided along with other technical inputs. A Field Day was organized at the demonstration site on 06/03/2020 where forty farmers participated. The crop cutting yielded 14-15 q/ha and farmers were convinced with the better seed yield, bigger seed size with higher oil recovery as compared to the local varieties (RARS, North Lakhimpur).
- A large scale demonstration of Short duration mustard variety (NRCHB101) in 500 ha area through KVKs and RARS of AAU in 16 districts of Assam with involvement of about 635 number of farmers was implemented by Directorate of Research (Agri), AAU, Jorhat. As a part of it, an area of 25 hectares was taken up in Ujani Majuli under Directorate of Research (Agri.), AAU, Jorhat. Along with critical inputs honey boxes with bee hives were provided in the demonstration programme. One farmers training was also done at Majuil under this programmme. The farmers are happy with performance of the variety with average seed yield above 1400 kg/ha (Under RKVY).

6.6.8.3. DRMR-AAU Collaborative programme

- Demonstrations on the performance of improved short duration mustard, variety NRCHB-101were conducted in 10 ha area among the tribal farmers of Naharbari, Gogamukh. The crop was observed to be very satisfactory and the crop cutting yielded 12-14 q/ha (RARS, North Lakhimpur).

6.6.8.4. Biotech Kisan Hub

- Conducted 4 demonstrations and 10 training programmes in the area of horticulture and fish culture covering 15 districts in Assam and Nagaland. A total of 334 beneficiaries were covered out of which 84 were women farmers and 254 belonged to STSC category under Biotech KISAN Hub (HRS, Kahikuchi).
- Considering the dearth of disease-free quality planting material of commercially important Malbhog variety of banana, the technology of macro- propagation and multiplication of Malbhog banana was demonstrated to the selected banana growers of LBVZ of Assam. Following training, the selected banana grower trainees were provided with macro- propagules of Malbhog banana for horizontal expansion and an area of 78.81 acres was covered under Biotech KISAN Hub (HRS, Kahikuchi)..
- The technology of on-farm value management in turmeric was demonstrated for the first time in Karbi Anglong district of Assam involving the farmers belonging to Jirsong Agro Producers Company Ltd. The demonstration components covered GAP based technology for production of high curcumin Megha Turmeric variety and low-cost mechanized options for washing, steam cooking and solar conduction drying

under Biotech KISAN Hub (HRS, Kahikuchi).

- In Assam, 70% of the trainees adopted the technology of Integrated Fish-Pig-Horticulture while the farmers of Nagaland exhibited better response to Integrated Fish-Pig farming. The change in income due to adoption was significantly higher in both the cases under Biotech KISAN Hub (HRS, Kahikuchi).

6.6.8.5. Rural Horticultural Work Experience Programme (RHWEP)

- Under RHWEP-2019, an agricultural exhibition was organised at Kulhati on May 8, 2019 (HRS, Kahikuchi).
- Five method demonstrations were organized at Kulhati, Khudradodhi, Bordodhi, Abhoypur and Gerua villages during April-May' 2019, under RHWEP (HRS, Kahikuchi).
- Special NSS Camp was organized by RHWEP students and Horticultural Research Station, AAU at different RHWEP villages from 8–14 March 2020 (HRS, Kahikuchi).

6.7. Directorate of Extension Education (Veterinary)

The Directorate of Extension Education at Khanapara campus of Assam Agricultural University, since its inception in the year 1978, has been contributing to the socio-economic development of the state through its various extension programmes viz. training, demonstration, exhibition, animal health care, vaccination camp, various transfer of technology programmes including frontline demonstration, farm advisory service and awareness programmes etc. The directorate offers continuous knowledge and skill development/up-gradation trainings to a considerable numbers of farmers, farm women, educated unemployed youths, and members of self help groups, progressive farmers and entrepreneurs with the latest scientific knowledge on various animal husbandry practices. Moreover, emphasis is being given to impart refresher trainings to technical personnel and field veterinary officers of Animal Husbandry and Veterinary Department of Assam and other NE states to disseminate latest scientific knowhow on improved manage mental practices for increasing livestock and poultry production.

6.7.1. Mandate

To impart training, carryout demonstration and participatory farming for a technology led growth in livestock and poultry production.

6.7.2. Mission

Knowledge and skill rejuvenation of extension functionaries and capacity and competitiveness building of the stakeholders engaged in livestock and poultry farming.

6.7.3. Vision

To produce technologically and informatively improved farmers and technology disseminators for facilitating livestock and poultry production growth curve.

6.7.4. Objectives

The major objectives of the Directorate are as follows:

- To disseminate the latest information on Animal Husbandry Practices based on various research findings to farming community and to solve the problems of the farmers.
- To conduct training and demonstration on scientific management of livestock and poultry production for the benefit of the extension workers, progressive farmers, educated unemployed youth and rural mass.
- To establish linkage between extension and research workers with the field functionaries.
- To co-ordinate various activities of the university with other developmental departments for increasing livestock and poultry production in the state.
- To create awareness in the farming community about the benefit of the modern methods of livestock and poultry farming for increased productivity through various extension bulletin, leaflets and booklets, packages of practices etc.

6.7.5. Extension activities

Training and skill development are considered to be vital and very important in livestock development. For the upliftment of rural economy and to provide avenue for self employment to the unemployed educated youths, farmers and farm women through scientific livestock and poultry farming various

short term training programmes were continuously organized by the directorate.

Table 6.3. Collaborative Training Programmes

Sl. No.	Name	Period	Duration	Status of Participants	No. of Participant	Collaboration with
1.	Scientific Rearing of Goat	7th to 8th May, 2019	2 days	Extension Personnel	30	ICAR-AICRP & MSP on Pig, AAU, Khanapara
2.	Skill Upliftment on Scientific Management of Livestock and Poultry Including Goatery	13th to 18th May, 2019	6 days	Rural Youth from Assam, Arunachal Pradesh, Meghalaya, Mizoram & Nagaland	30	World Vision India, Guwahati, Assam
3.	Skill Upliftment cum Exposure on Dairy & Piggery Husbandry	11th to 13th June, 2019	3 days	Rural Youth	30	Farmer Producer Company
4.	Scientific Rearing of Goat	24th to 28th June, 2019	5 days	Mising Youth	30	Mising Autonomous Council, Gogamukh, Dhemaji
5.	Skill Development Training on Pig Production	01st to 2nd July, 2019	2 days	Self employed	30	ICAR-AICRP & MSP on Pig, AAU, Khanapara
6.	Scientific Rearing of Goat	15th to 19th July, 2019	5 days	Mising Youth	30	Mising Autonomous Council, Gogamukh, Dhemaji
7.	Clinical Training to the Paravets of Sikkim	20th July to 2nd Sept, 2019	45 days	Paravets of Sikkim	16	Deptt. of Animal Husbandry & Vety, Sikkim
8.	Entrepreneurship Development in Livestock & Poultry Sector Potential Enterprises and Extension Approach	30th July to 03rd	5 days	Veterinary Officers	30	Extension Education Institute (NE Region), AAU, Jorhat

9.	Scientific Rearing of Pig	15th to 19th October, 2019	5 days	Mising Youth	30	ICAR-AICRP & MSP on Pig, AAU, Khanapara
	Skill Upliftment on Scientific Management of Livestock and Poultry Including Goatery	13th to 18th May, 2019	6 days	Rural Youth from Assam, Arunachal Pradesh, Meghalaya, Mizoram & Nagaland	30	World Vision India, Guwahati, Assam
	Mising Autonomous Council, Gogamukh, Dhemaji	11th to 13th June, 2019	3 days	Rural Youth	30	Farmer Producer Company
10.	Scientific Rearing of Pig	21st to 25th October, 2019	5 days	Mising Youth	30	Mising Autonomous Council, Gogamukh, Dhemaji
	-do-	01st to 2nd July, 2019	2 days	Self employed	30	ICAR-AICRP & MSP on Pig, AAU, Khanapara
11.	Skill Development Training Programme on Pig Production	19th to 20th February, 2020	2 days	Rural Youth/ Self Employed	30	ICAR-AICRP & MSP on Pig, AAU, Khanapara
12.	Scientific Management Training on Piggery/ Goatery/Poultry	24th to 28th February, 2020	5 days	Rural youth and self employed	10	Centre for Micro finance and Livelihood, Guwahati
13.	Scientific Management Training on Piggery/ Goatery/ Poultry	03rd to 07th March, 2020	5 days	Rural youth and self employed	10	-do-

6.7.6. Exposure Visits

- Total exposure visit during 2019-2020: 19 nos.
- Total no. of participants: 420 nos.

Table 6.4. Various exposure visits hosted by Directorate of Extension Education (Veterinary)

Sl No.	Visit to	Date	Status of Participants	No. of Participants
1	AICRP on Pig, AAU, Khanapara	07.05.2019	Extension Personnel	30
		13.05.2019	Rural Youth	30
		12.06.2019	Rural Youth	30
		21.10.2019	Mising Youth	30
		01.07.2019	Self Employed	30
		19.02.2019	Self Employed & Rural Youth	30
		25.02.2020	Rural youth &self employed	10
		05.03.2020	Rural youth &self employed	10
2	Poultry Farm, AAU, Khanapara	15.05.2019	Rural Youth	30
		24.02.2020	Rural youth &self employed	10
		06.03.2020	Rural youth &self employed	10
3	Goat Research Station, Byrnihat	17.05.2019	Rural Youth	30
		27.06.2019	Mising Youth	30
		12.07.2019	Mising Youth	30
		27.02.2020	Rural youth &self employed	10
4	Sahiwal cattle farm, AAU, Khanapara	12.06.2019	Rural Youth	30
5	Spread NE Farm, Sonapur	Spread NE Farm, Sonapur	Rural Youth	30
6	Debo Choudhury Farm, Bijoynagar	Debo Choudhury Farm, Bijoynagar	Mising Youth	30
7	Debojit Barman Farm, Nalbari	Debojit Barman Farm, Nalbari	Rural youth &self employed	10

6.7.7. Training Programmes

Interactive training programme on Piggery, Poultry, Duckery, Goatery management and fish rearing were conducted at different parts of Morigaon, Kamrup and Nalbari district among the schedule caste beneficiaries for improving their livelihood and creating awareness about different improved animal husbandry and fisheries practices & use of better fingerlings and livestock.

Table 6.5. Trainings imparted by DEE (Veterinary) in 2019-2020

Sl no.	Name of the training	Date	No. of trainee
1	Field training on Adopting recent advances in coldwater aquaculture practices under SCSP	10th June,2019	50
2	Field training on Goat rearing	14th June,2019	68
3	Field training on fisheries for skill up gradation	29th June,2019	56
4	Field training on fisheries for skill up gradation	11th July,2019	45
5	Field training on scientific rearing of pig	26th August,2019	50
6	Field training on poultry	26th August,2019	50
7	Field training on scientific rearing of pig	10th September,2019	38

Figure 6.25. Training programme under DEE (Vety)

Figure 6.26. Input Distribution programme under DEE (Vety)

6.7.8. Input Distribution Programme

6.7.8.1. Piggery: Animals of Improved Breeds Hampshire Cross were introduced and distributed among 140 nos. of farmers of Maloibari, Kamrup district and Uttar Dharamtul, Morigaon district.

6.7.8.2. Goatery: Assam Hill Goat breed was distributed for up gradation of farmers' skill with better rearing practices among the farmers of Maloibari. A total of 26 farmers were provided with this breed.

Figure 6.27. Input Distribution programme under DEE (Vety) for fishery

Figure 6.28. Input Distribution programme under DEE (Vety) for poultry

6.7.8.3. Fish and fish feed: To increase the productivity of fish, Hybrid fishes like Jayanti Rohu and Amul Carp were distributed among the farmers of Maloibari, Uttar Dharamtul, Dakshin Dharamtul and LRS, Mandira the SC farmers were given skill up gradation training before the seed distribution. Along with the fish distribution, the farmers were also provided with commercial fish feeds for better productivity. A total of 345 farmers were benefitted by this programme.

6.7.8.4. Poultry: To enhance better meat and egg production, a dual purpose poultry breed like Rainbow Rooster were introduced to the schedule caste farmers of Uttar Dharamtul area. Around 138 nos. of beneficiaries were provided with high quality chicks and feed, the beneficiaries were trained and made them aware of improved poultry rearing practices in the backyard poultry system.

6.7.8.5. Duckery: Duckery breed Khaki Campbell and Chara Chemballi were distributed among 134 nos. of farmers of Dharamtul of Morigaon district, Kakaya of Nalbari district and Maloibari of Kamrup district.

6.7.9. Collaborative Programmes

Table 6.6. Summary of the Collaborative Programmes

Sl No.	Name	Collaboration with	Date & venue
1	Training cum Distribution Programme on Adopting Recent Advances in Coldwater Aquaculture Practices	ICAR-DCFR, Bhimtal	10th June, 2020 Uttar Dharamtul Gram Panchayat, Morigaon
2	Awareness programme for sustainable fisheries of flood affected areas of Assam	ICAR-Central Institute of Fisheries Education, Mumbai	27th to 29th September, 2019. Kamrup & Morigaon
3	Focus Group discussion programme on "Process skills and competency gaps in agricultural extension curriculum"	Michigan State University, USA& IGNOU, New Delhi	11th November, 2019 CVSc, Khanapara
4	Training on Advances in Educational Technology	ICAR-NAARM, Hyderabad	04th to 6th July, 2019 CVSc, Khanapara
5	Consultative workshop on Academia-Industry-Government Linkages for Quality Agricultural Higher Education	ICAR-NAARM, Hyderabad	27th & 28th January, 2020 CVSc, Khanapara

6.7.10. ICAR-Directorate of Coldwater Fisheries Research SCSP Project

A day-long training cum input distribution programme for the development of schedule caste population of Assam by Adopting Recent Advances in Coldwater Aquaculture Practices was jointly organized by the Directorate of Extension Education, Khanapara and ICAR-Directorate of Cold Water Fisheries Research, Bhimtal, Uttarkhand on 10th June, 2019 at Uttar Dharamtul Gram Panchayat, Morigaon. The programme started with a training on the recent advances practices in coldwater aquaculture to improve better livelihood. The programme ended with the distribution of fingerlings and fish feeds. Around 300 nos. of participants actively participated in the event.

6.7.11. Awareness programme for sustainable fisheries of flood affected areas of Assam

An awareness programme for sustainable fisheries of flood affected areas of Assam was organized from 27th to 29th September, 2019. The programme was organized by the Directorate of Extension Education, AAU, Khanapara in collaboration with ICAR-Central Institute of Fisheries Education, Mumbai and Jeevan Suraksha, an NGO based at Dibrugarh. The programme took place at two different district of Assam viz. Kamrup & Morigaon. The inauguration of this program took place on 27th

October, 2019. The Chief Guest of the programme was Hon'ble Vice Chancellor cum Director Dr Gopal Krishna, ICAR, Central Institute of Fishery Education, Mumbai. Deputy Commissioner of Morigaon, Mr Rituraj Bora attended the function as Guest of Honour. The program was attended by Mr Utpal Bora, District Fishery Development Officer of Morigaon district, Dr Srivastava, Principal Scientist cum Nodal Officer of CIFE, Mumbai for North East India, Dr BC Mahapatra, Principal Scientist, CIFE, Kolkata Centre, Dr Megha Kadam Bedekar, Principal Scientist, CIFE, Dr Nalini, Scientific Assistant, CIFE and Anagha Joshi LDA, CIFE. Dr Atul Borgohain, Associate Director of Extension Education, AAU, Khanapara presided over the meeting and Dr Ranjita Bania of Jeevan Suraksha, co-coordinated the programme. About 125 nos. of farmers were provided training and were provided with Jayanti Rahu, advance fingerling and feeds to the farmers of the area.

6.7.12. Focus Group Discussion in Process skills and competency gaps in agricultural extension curriculum

A day long Focus Group discussion programme on Process skills and competency gaps in agricultural extension curriculum was organized by the Directorate of Extension Education, Khanapara on 15.11.2019. The Focus Group Discussion was conducted by Prof Murari Suvedhi of Michigan State University, USA. The objective was to identify "Process Skills and Competency gaps in Agricultural Extension Curriculam" The programme was coordinated by Prof PVK Sasidhar, Director, School of Extension and Developmental Studies, IGNOU, New Delhi as Academic Coordinator for the entire programme in India wherein three SAU and three National Institute in India is covered for the study. Prof PVK Sasidhar elaborated the major gap that makes a barrier for the development of agricultural extension programmes. Prof Murari Suvedi conducted an interactive programme with the participants and a questionnaire session. A total of 32 participants attended the discussion. Officials from Directorate of Extension Education, AAU, Jorhat, Krishi Vigyan Kendras, State Veterinary department, Asstt. Professor of different department of CVSc, Research Associate from EEI, Jorhat and PG/ PhD Students participated in the programme.

Figure 6.29. Views from the Focus Group Discussion in 'Process skills and competency gaps in agricultural extension curriculum'

6.7.13. Training on Advances in Educational Technology

A three day training programme on "Advances in Educational Technology" was organized by DEE (Vety), Khanapara in collaboration with ICAR, NAARM, Hyderabad. The programme was scheduled from 4th to 6th July, 2019. ST/SC faculty members of different Agricultural Universities participated in the training. The training focuses on innovative teaching methods for quality veterinary education, cloud based digital teaching and a practical session on mastering the art of teaching through Micro teaching.

6.7.14. Consultative workshop on Academia-Industry-Government Linkages for Quality Agricultural Higher Education in collaboration with ICAR, NAARM

A two day consultative workshop from 27th to 28th January, 2020 on Academia-Industry-Government Linkages for Quality Agricultural Higher Education was organized by DEE (Vety), Khanapara in collaboration with ICAR, NAARM, Hyderabad. Professors and higher officials from different North Eastern Agricultural Universities, scientist/officials from KVKs, Industry and Government departments actively involved themselves in the programme.

6.8. College of Veterinary Science, Khanapara

6.8.1. Department of Animal Genetics & Breeding

- A few faculties participated in veterinary health camp at Pobitora Wildlife Sanctuary on 11.08.2019 organised.
- A few faculty participated in extension activity camp organised by Indian Association of Women Veterinarians (Assam chapter), Khanapara, Guwahati at LRS, Mandira on 28.01.2020.
- A few faculties participated in village extension camp held at Tetelia, Kamrup, Assam on 09.02.2020.

6.8.2. Department of Animal Reproduction Gynecology and Obstetrics

Awareness cum training programme on Artificial insemination in pig was held in several places and on several dates. They are shown below.

- On 02-05-2019, at Dudhnoi
- On 06-05-2019, at Tamulpur
- On 29-07-2019, at Musalpur
- On 24-12-2019, at Goalpara
- On 15-01-2020, at Baksa
- On 23-02-2020, at Tamulpur
- On 19-03-2020, at Goalpara

Infertility camps were held in several places and on several dates. They are shown below.

- On 23-01-2020, at Sipajhar
- On 04-09-2019, at Mayang
- On 18-06-2019, at Khairabari
- On 27-09-2019, at Nalbari
- On 29-09-2019, at Baihata Chariali
- On 05-12-2019, at Patshala
- On 12-12-2019, at Nityananda
- On 26-01-2020, at Mandakata

6.8.3. Department of Extension Education

6.8.3.1. Month long Participatory Veterinary Extension Activities

Figure 6.30. PRA Activity for students

The month-long Participatory Rural Appraisal (PRA) programme conducted annually by the Department of Extension Education, CVSc, Khanapara, came to an end on 9th February, 2020 with a daylong treatment cum vaccination camp at Bagibari, Chakuripara and 1 No. Oujari villages of Dimoria Development Block, Kamrup (M). A group of 30 teachers from different disciplines of Veterinary Science, 76 UG students and 15 PG students under the leadership of Dr. P. Hazarika, Professor and Head, Deptt. of Extension Education participated in the camp, where a total of 1,265

animals were vaccinated against Foot and Mouth disease, Black Quarter & PPR. More than 170 poultry were vaccinated against Ranikhet & Duck Plague. Moreover, a large number of other livestock and poultry birds was also treated for different ailments.

Figure 6.31. Treatment cum Vaccination Camp

Figure 6.32. Awareness Campaign for Village Extension Camp- Leaflet Distribution

A Farmers-Scientists Interaction Session was also organized in Bagibari High School, in presence of Dr Bibekananda Saikia, Dean, Faculty of Veterinary Science, CVSc, Dr Pabitra Pator, Deputy Director SAHP (H), Deptt of AH & Vety., Govt. of Assam, Dr P Hazarika, Prof & Head and Department of Extension Education, CVSc, Sri Jatish Talukdar, Director, Kalong-Kapili NGO of Bagibari and the local farmers.

6.8.4. Department of Veterinary Parasitology

Figure 6.33. Beneficiaries of the extension programme at Maloibarishowing cages with ducklings

Figure 6.34. Distribution of ducklings, cages and feed to the rural woman at Ahatguri village

6.8.5. Department of Veterinary Pharmacology

- Participated in Flood relief camp in Morigaon dist.
- Participated in Livestock and Poultry show held in Khanapara.
- Conducted Chick distribution programme for SC people of Assam (Tamulpur).

6.8.6. Department of Veterinary Biochemistry

- Laboratory hands on Training was given to the 16 numbers of Para Vets group of Sikkim
- Participated in an international exhibition Organized by Ohio Veterinary Medical

Association, USA from 20th to 23rd February, 2020 by Dr Dhruba Jyoti Kalita.

6.8.7. Department of Veterinary Epidemiology & Preventive Medicine

- Outreach programme on Rabies Awareness at Nortap under the Sonapur Block on the occasion of the World Rabies Day, 28th Sept, 2019, in collaboration with the Directorates of the Health & Family Welfare and Animal Husbandry and Veterinary, and Integrated Disease Surveillance Programme (IDSP), Government of Assam, supported by the AAUTA (VF) and Blue Cross Society, Assam.
- Free Anti-rabies Vaccination of the Companion and Stray Dogs on the occasion of the World Rabies Day, 28th September, 2019, in the Veterinary Clinical Complex, CVSc, supported by Virbac Co. Pvt. Ltd. (Pet Health Division) and Indiam Immunologicals Ltd, Guwahati.
- Attended Flood Relief cum Veterinary Health Camp in Morigaon District, organised by AAUTAVF, CVSc, on 28.07.2019.
- Attended Village Extension Camp at LRS, Mandira, Kamrup, organised by IAWV (Assam Chapter), CVSc. on 28.01.2020.
- Attended Treatment cum Vaccination Camp at Dimoria Block, Kamrup, organised by Dept. of Extension Education, CVSc, on 09.02.2020.

6.8.8. Department of Veterinary Surgery & Radiology

- Deputed to Lucknow, UP to control a pair of stray wild elephants in July, 2019.
- Attended selection committee of Professor, Surgery in CAU, Imphal on 11.8.2019.
- Supervised elephant health camp at Dudhwa Tiger Reserve from 7-10th Sept., 2019.
- Distinguished speaker of the Outreach Program on World Rabies Day, Sept 28 at Nortap, Sonapur Block.
- Visited Chhatbir Zoo, Punjab in connection with medical advice of an elephant 25-27th May, 2019.
- Services rendered in capture and translocation of wild buffaloes from Manas National Park to Barnawapara Wildlife Sanctuary, Chattishgarh, 12-14th Feb, 2020.
- Services rendered in capture and translocation of wild Rhinoceros from Kaziranga National Park to Manas National Park as the Lead veterinarian from 28th February to 1st March, 2020.
- Village extension camp held at Dimoria Development Block on 09-02-2020 by College of Veterinary Science, AAU, Khanapara.

6.9. College of Community Sciences

6.9.1. Extension activities under Dept of Extension and Communication Management

- Training on Economic Empowerment of Farm Women through Bee Keeping and Floriculture – The way of Economic Empowerment of Farm Women sponsored by Entrepreneurship Development Institute of India (EDII), New Delhi was organized by the department in collaboration with SNEHPAD (NGO) on 11th and 12th January, 2020.
- Method demonstration on vermicompost production was organized on 14th February, 2020 at Mudoijan Bharalua Gaon.
- Women's Day was celebrated on 4th and 7th March, 2020 at Mudoijan Bharalua Gaon and Dhekiajuli Sonari Gaon.
- Capacity building training of SHG member on mushroom cultivation for livelihood security was organized on 14th February, 2020 at Mudoijan Bharalua Gaon.
- Awareness camp on climate change was conducted in collaboration with Gramin Krishi Mausam Seva, Department of Agro Meteorology, AAU-Jorhat organized on 29th May and 25th September, 2019 at Mudoijan Bharalua Gaon and Pirakata Bharalua Gaon.
- Capacity building training of SHG members on quail rearing was organized in collaboration with Department of Animal Husbandry, on 27th June, 2019 at Mudoijan Bharalua Gaon.
- Plantation programme was conducted in four operational villages under AICRP - Home Science, Extension component on 2nd July, 2019.

Figure 6.35. Awareness camp on climate change

6.9.2. Extension activities by Dept of Family Resource Management and Consumer Science

- Celebration of World Environment day in collaboration with Concept Junior College, Titabor, on 5th June 2019.
- World Ozone Day was celebrated by the department on 16th Sep 2019.

Figure 6.36. World Environment Day

6.9.3. Extension activities by Dept of Food Science and Nutrition

- In-campus training programme on food preservation was organized from 25-28 June, 2019.
- Celebration of World Diabetes Day on 14th November, 2019 at Dept. of Food Science and Nutrition, College of Community Science, AAU, Jorhat.
- Observation of National Nutrition Week from 1st to 7th September,2019 by organizing poster competition, slogan competition and exhibition on balanced diet.

Figure 6.37. A In-campus training programme on food preservation

Figure 6.38. Exhibition on product developed under TSP project

6.9.4. Extension activities by Human Development and Family Studies

- Awareness camps on Reproductive Health for adolescent girls was organized by AICRP-CD component on the occasion of installation of incinerators at five different schools 21st, 26th and 28th November 2019.

Figure 6.39. Installation of incinerators at a girls' school

- Poshan Maah was celebrated in collaboration with District Social Welfare department on 20th September, 2019.
- Constitutional day was celebrated in collaboration with District Legal Service Authority, Jorhat, on 26th November, 2019.
- World Disability day was celebrated in collaboration with Lion's club, Jorhat at Lion's New Hope special school on 3rd December, 2019.
- Child protection day was celebrated in collaboration with Assam State Commission for protection of Child Rights on 4th March, 2020.
- A rally was organized in Urangial village, Titabor to celebrate Child protection day on 4th March, 2020.

6.9.5. Extension activities by Textiles and Apparel Design

Department of Textiles and Apparel Designing, College of Community Science celebrated the National Handloom Day on 8th August 2019. In this connection, an exhibition was organized on "Handloom Textiles of North East India" and was inaugurated by Dr. A. Bhattacharyya, Hon'ble Vice Chancellor (In-Charge) of Assam Agricultural University, Jorhat.

Figure 6.40. Exhibition on 'Handloom Textiles of North East India'

- A hands-on training of five (5) days duration from 29th July to 2nd August, 2019 on Improved techniques of weaving and product diversification for capacity building was organized in the department and 30 no.s of trainees from different SHGs of adopted villages participated.
- Members from all the five departments of college of Community Science participated in farmer's fair at Titabar Research Station, Titabar, Jorhat on 7th Nov, 2019 and at Golaghat KVK on 19th Nov, 2019.

6.10. Lakhimpur College of Veterinary Sciences

6.10.1. Scientific rearing of goat for women empowerment in Dhemaji and Lakhimpur district

Under the said project, already 120 beneficiaries from Lakhimpur district received 2 numbers of female goat each and among 10 beneficiaries 1 male breedable goat. All the beneficiaries received powder containing Moringa olifera extract as a non-antibiotic growth promoter. The non-antibiotic growth promoter has beneficial properties as there is evidence of gain of body weight after using the Moringa olifera powder mixture to the goats. In Dhemaji district, the project initiated in June, 2020.

6.10.2. Salient Extension activities

- Awareness cum training programme on Role of Birds in Agriculture on 23.03.2019 organised in collaboration with ICAR-AINP on Vertebrate Pest Management (VPM) Project, RARS, North Lakhimpur at LCVSc college.
- 2 days training programme on Scientific goat rearing on 16.03.2019 to 17.03.2019 organised in commemoration with the Golden Jubilee celebration year of the AAU at LCVSc.
- Day long training programme on cientific goat production and Management, on the occasion of the yearlong Golden Jubilee celebration of AAU on 24.04.2019 organised at LCVSc. A total of 50 progressive farmers participated in the training programme from different parts of Dhemaji and Lakhimpur district.

Figure 6.41. Training programme on Scientific goat production and Management

- World Veterinary Day celebrated, the programme included vaccination camp, planting of tree sapling and seminar on 27.04.2019 organised at LCVSc.
- Faculty members of LCVSc along with 1st year students visited KVK and RARS, AAU, Goroimaria, Lakhimpur on 30.04.2019 for educational trip.
- A day long awareness programme on Scientific duck rearing and management on 24.05.2019 organised at LCVSc campus.
- Swine Vaccination cum Animal Treatment Camp on 14.06.2019 organised at Pukhuripuria, Nowboicha, Lakhimpur.
- Training cum awareness programme under the project Women Empowerment through Scientific Rearing of superior goats in Lakhimpur and Dhemaji districts of Assam on 02.07.2019 and 03.07.2019 organised at Sagarpur, Lakhimpur.

Figure 6.42. Training cum awareness programme

Figure 6.43. Post flood animal treatment cum health camp

- Training cum awareness programme under the project Women Empowerment through Scientific Rearing of superior goats in Lakhimpur and Dhemaji districts of Assam on 10.07.2019 and 11.07.2020 organised at Narayanpur, Lakhimpur.
- Post flood animal treatment cum health camp on 25.07.2019 organised in collaboration with AAUTA (VF) and District Veterinary office, Gugamukh, Dhemaji at Kowpatani village, Dhemaji.
- Training cum awareness programme under the project Women Empowerment through Scientific Rearing of superior goats in Lakhimpur and Dhemaji districts of Assam on 10.07.2019 organised at Narayanpur, Lakhimpur.
- Faculty members of LCVSc attended the ZREAC meeting (Rabi), 2019 for North Bank Plain Zone (NBPZ), Assam and acted as resource person (Animal Science) on 07.09.2019 at conference hall of RARS, AAU, N. Lakhimpur.
- Rabies Awareness Camp on 21.09.2019 organised at Sarkar Jatiya Vidyalay, Rangajan, Lakhimpur.
- Rabies Awareness Camp on 24.09.2019 organised at Joyhing Aamguri L.P. School, Lakhimpur.
- Rabies Awareness Camp on 25.09.2019 organised at Shankarpur L.P. School, Lakhimpur.
- Animal treatment cum health check-up camp on 27.07.2019 organised by IGSSS in collaboration with LCVSc and supported by HDFC bank at Morolia, Lakhimpur.
- World Rabies Day (Rabies; a dreaded disease affecting both animals and human being) was organised at LCVSc with various programmes held between 22.09.2019 to 28.09.2019. Street plays, awareness rallies, awareness drives and programmes to the various schools of Lakhimpur and a seminar on rabies was conducted.

Figure 6.44. Street Play on Rabies

Figure 6.45. Awareness rally on "Rabies: Vaccinate to eliminate-zero by 2030"

- Faculty members participated and trained Veterinary Officers of Lakhimpur District regarding goat husbandry for rural upliftment under the project Women empowerment through scientific rearing of superior goat on 04.10.2019 at conference hall of DVO, North Lakhimpur.
- Exhibition Stall in the exhibition organised by PI, under the TSP Project on Sericulture on 23.10.2019 at Basudev Kalyan Trust, Thana Road, Lakhimpur.
- Distribution programme of superior Assam Hill Goat under the project Women Empowerment through Scientific Rearing of superior goats in Lakhimpur and Dhemaji districts of Assam on 02.07.2019 organised by LCVSc at Sagarpur, Lakhimpur.
- One day Farmers' training on Scientific Rearing of Livestock & Poultry on 29.10.2019 organised by LCVSc at Seminar Hall, Deptt. of Extension Education, LCVSc.
- Training on scientific rearing of goat for rural upliftment among women's on 30.10.2019 organised by LCVSc at Haithapather and Loguwabora, Dhemaji district.
- Training on scientific rearing of goat for rural upliftment among women's on 31.10.2019 organised by LCVSc at Kalihamari Pather, Dhemaji district.
- Animal Health Checkup and treatment camp on 15.11.2019 organised by KVK, AAU, N. Lakhimpur in collaboration with LCVSc at Kalarigaon, Lakhimpur.

Figure 6.46. Animal Health Checkup and treatment camp

Figure 6.47. Exhibition Stall in Zonal Level Farmers' Meet

- Resource person of LCVSc in the training of Piggery Farming on 19th and from 22nd to 26th November, 2019 organised by Rural Self Employment Training under United Bank of India, North Lakhimpur branch, North Lakhimpur.
- Resource person of LCVSc in the training of Piggery Farming from 3rd to 5th December, 2019 organised by Rural Self Employment Training under United Bank of India, North Lakhimpur branch, North Lakhimpur.
- Faculty and students of LCVSc in the Exhibition Stall and Farmers Scientist interaction organised by RARS, AAU, North Lakhimpur on 07.12.2020 at Zonal Level Farmers' Meet, RARS, AAU, North Lakhimpur.
- Resource person of LCVSc in the training of Piggery Farming from 8th to 10th December, 2019 organised by Rural Self Employment Training under United Bank of India, North Lakhimpur branch, North Lakhimpur.
- A day long Capacity building on Scientific Livestock Care and Management on 23.12.2019 organised IGSSS in collaboration with LCVSc and supported by Secous Catholique at Ponua, Majgaon Community Hall, Lakhimpur.
- Two days residential training cum awareness programme on "Scientific Rearing of poultry & Livestock from 27.12.2019 to 28.12.2019, and from 30.12.2019 to 31.12.2019 organised in collaboration with IGSSS and supported by HDFC Bank at LCVSc.

- Daylong awareness training programme on Scientific rearing and management of poultry on 07.01.2020 organised by LCVSc at Seminar Hall, LCVSc.
- Exhibition Stall in the exhibition organised by ATMA, Department of Agriculture, Lakhimpur on 10.01.2020 at Basudev Kalyan Trust, Thana Road, Lakhimpur.
- Treatment cum Vaccination Camp on 01.02.2020 organised by LCVSc at Pithaguri village, Pathalipahar, Lakhimpur.
- Animal Health Camp on 02.02.2020 organised by LCVSc at Balijan, Lakhimpur.
- Faculty of LCVSc participated in the Exhibition Stall and farmers scientist interaction in the exhibition organised by Office of the District Agriculture Officer, Dhemaji in collaboration with Mising Autonomous Council, Gugamuk, Dhemaji on 08.02.2020 and 09.02.2020 at DRDA Complex, Dhemaji.

Figure 6.48. Exhibition stall and farmers' scientist interaction

- Free Castration Programme of Pig on 08th and 9th February, 2020 organised by LCVSc at Nowboicha and Joyhing, respectively.
- Day long training cum awareness programme on Commercial Layer Management on 11.02.2020 organised by LCVSc at Seminar Hall, LCVSc.
- A team of expert team of LCVSc visited Jonai area in Dhemaji district for investigation which included clinical examination and post mortem on 14.02.2020.
- One day Infertility management camp on 16.2.2020 organised by LCVSc at Rangajan
- Day long training programme on Scientific Poultry and Pig Rearing on 18.02.2020 organised by LCVSc at LCVSc campus.
- Resource person of LCVSc in the training of Piggery Farming from 22nd to 28th February, 2020 organised by Rural Self Employment Training under United Bank of India, North Lakhimpur branch, North Lakhimpur.
- Day long free vaccination cum treatment camps on 01.03.2020, and on 02.03.2020 organised by IGSSS, Lakhimpur in collaboration with LCVSc at Na-Ali, Panigaon, and in Pamua Machgaon, Nowboicha, repectively.
- A 3 days training programme Scientific management of Livestock and Poultry farming w.e.f. 04.03.2020 to 06.03.2020 organised by LCVSc at Seminar Hall, LCVSc.
- A daylong seminar on the occasion of International Women's Day celebration on the theme Each for Equal on 07.03.2020 organised by LCVSc at College campus, Rally and Street Play at Joyhing market, North Lakhimpur.
- A day long goat distribution programme to the beneficiaries under the project Women Empowerment through Scientific Rearing of superior goats in Lakhimpur and Dhemaji districts of Assam on 18.03.2020 organised by LCVSc at Durpang and Letekujan, Narayanpur, Lakhimpur.
- 3 days long exposure tour for 4th year students of LCVSc along with faculty on 13.03.2020 to 15.03.2020 organised by Deptt. of Extension Education, LCVSc at fringe villages of Pakke Tiger Reserve, Seijosa, Arunachal Pradesh. The activities included Field level exercise on Participatory Rural Appraisal (PRA), Free Vaccination cum treatment camp, interaction with the Forest officials regarding wild life

management and field visit to Pakke Tiger Reserve.

6.11. College of Fisheries

The college is successfully implementing the following three externally funded extension prograrnmes for fish farmers of Assam amounting to a total of Rs. 10.15 crores with an aim to cover 23,150 lakh farmers of the entire state.

- Assam Agribusiness and Rural Transformation Project (APART) (Fishery subcomponent)
- Chief Minister Samagra Gramya Unnayan Yojana.
- Tribal Sub Plan (TSP).

Under APART, 3450 farmers will be trained by CFSc, Raha, within next 5 years. Training of 1200 farmers is already completed. Under Chief Minister Samagra Gramya Unnayan Yojana, out of the targeted 2000 farmers, training of 1500 farmers had been completed.

6.12. College of Sericulture

- Farmers training conducted in the year 2019-20: Three.
- District level farmers exhibition organized in the year 2019-20: Three.

7. Developmental Activities

The Developmental Activities continued in the University during 2019-20 with the support from ICAR and other agencies. Some of the important activities carried out during the year with the support mostly from ICAR are mentioned below.

7.1. College of Agriculture, Jorhat

Several infrastructures were developed in the College of Agriculture, Jorhat, with ICAR grants in the year 2019-20.

Table 7.1. Some developmental activities in CAJ in 2019-20

Department	Details	Amount (Rs)	Remarks
Department of Animal Husbandry and Technology	Renovation and re-construction of cattle shed(Burn no.1)	15,00,000.00	In progress
	Construction of hay house	6,00,000.00	In progress
Department of Nematology	Purchase of one 5kv UPS for undergraduate laboratory	--	--
	Purchase of one BOD Incubator for the department		
	One M1 Portable Cinema (Projector) is purchased		
Department of Agril. Statistics	Providing roofing of the entire building to protect leakage of the roof	--	In Progress
Department of Agril. Engineering	Implement shade for tractor drawn implements.	89,000.00 (ICAR share: 66,750.00, State share: 22,250.00)	--

7.2. Directorate of Research (Agri)

7.2.1. RARS, Diphu

- One Deep Tube well was set up in the old campus.

7.2.2. RARS, Gossaigaon

- Construction of mushroom spawn unit was done under ICAR Tribal Sub Plan.
- Construction of bunds was completed in the eastern part of 1st plot.
- Construction of irrigation canal was done under ICAR, AICRP Maize.

Figure 7.1. Mushroom spawn unit in RARS, Gossaigaon

Figure 7.2. Construction of bunds in eastern part of 1st plot in RARS, Gossaigaon

Figure 7.3. Construction of Irrigation canal under ICAR, AICRP Maize in RARS, Gossaigaon

7.2.3. HRS, Kahikuchi

- An advance centre was started for imparting skill to horticultural workforce with financial assistance from RKVY.
- Tinkering Lab and Communication cell under DBT Biotech KISAN Project was completed.

7.2.4. AICRP-Agrometeorology

- Two numbers of Single Stevenson screen, one rain gauge, one Hot air Oven and one Open Pan Evaporimeter were installed at the department.

7.3. Biswanath College of Agriculture

- Repairing of Poly House repairing was done with a cost of Rs. 51433.00.
- Construction of toilets in different establishments, with a cost of Rs. 448000.00 was also taken up.

7.4. College of Community Science

- Repairing of Multimedia Laboratory and Editing Laboratory was completed.
- 65" LED interactive Panel was procured.

7.5. Lakhimpur College of Veterinary Sciences

The followings were the developmental activities taken up in LCVSc in 2019-20.

Sl. No	Item	Cost (Rs.)
1	Construction of Girl's Hostel-2 (Ground Floor/1st floor)	3,07,63,000.00
2	Construction of Auditorium	1,50,00,000.00
3	Construction of Approach road to pig farm	34,52,600.00
4	Construction of 3 storied building	3,97,50,000.00
5	Construction of boundary wall (East side)	77,37,677.00
6	Construction of boundary wall (Back side of Pig farm)	9,99,000.00
7	Repair and renovation of existing brick boundary wall (Back side of Tapu basti)	12,84,000.00

7.6. College of Horticulture

The following major items were purchased for the college in 2019-20.

- Hand Refractometer (2 nos.)
- Digital Refractometer (1 no.)
- Projector (1 no.)

8. Visit of Dignitaries

A total of 135 dignitaries visited different Colleges, Research Stations, Krishi Vigyan Kendras as well as headquarter of Assam Agricultural University during the year 2019-20 details of which is mentioned below.

8.1. College of Agriculture, Jorhat

- Dr. R.L. Agarwal, Retired Professor, GBPUAT as Adjunct Professor under NAHEP visited the Department of Plant Breeding and Genetics on18th March-13th April2019.
- Dr. Dipak Santra, Professor, University of Nebraska-Lincoln, USA visited the Department of Plant Breeding and Genetics on19th August, 2019.
- Dr.M.K. Bhattacharyya, Professor, Iowa State University, USA visited Department of Plant Breeding and Genetics on 3rd to 29th February, 2020.
- Dr. Akshay Talukdar, Professor, IARI, New Delhi visited Department of Plant Breeding and Genetics on 6th to 7th February, 2020.
- Dr. B. K. Das, Scientist and Head of Mutation Breeding Section, BARC, Trombay, Mumbai visited Department of Plant Breeding and Genetics on 11th to 12th March,2020.
- Dr. M.S. Ladhania, Director, ICAR, CCRI, Nagpur visited Department of Horticulture on 19th March, 2019.

Figure 8.1. Visit of Dr. M.S. Ladhania, Director, ICAR, CCRI, Nagpur with Dr. A.K. Das and Dr. Murkute to the Department of Horticulture

- Dr. A.K. Das, Scientist, ICAR, CCRI, Nagpur visited Department of Horticulture on 19th March, 2019.
- Dr. Murkute, Scientist, ICAR, CCRI, Nagpur visited Department of Horticulture on19th March, 2019.
- Dr. R.S. Teotia, Director, Central Sericultural Research & Training Institute, Central Silk Board, Ministry of Textiles, Govt. of India, Srirampura, Mysore visited Department of Tea Husbandry and Technology on 28th May,2019.
- Dr. K. Satyanarayana, Central Silk Board visited Department of Tea Husbandry and Technology on 26th June, 2019.
- Mr. S. Ghose, Secretary, Sustainability, ITA visited Department of Tea Husbandry and Technology on 29th May, 2019.
- Mr. G. Boriah, Sr. Adviser (Tea), Solidaridad Asia visited Department of Tea Husbandry and Technology on 29th May, 2019.
- Mr. Ranjan Circar, International Programme Coordinator (Tea), Solidaridad Asia visited Department of Tea Husbandry and Technology on 29th May,2019.
- Mr. Uddhav Sarma, Consultants (Tea), Solidaridad Asia visited Department of Tea Husbandry and Technology on 29th May, 2019.
- Mr. M. Das, Secretary, ABITA visited Department of Tea Husbandry and Technology on 29th May, 2019.
- Dr. P.P. Sarma, Indian Tea Association and Solidaridad Asia visited Department of Tea Husbandry and Technology on 29th May, 2019.
- Ms. Cristeena Grover, Vice President, Association of Women in Business enabling women Business Connoisseurs, New Delhi visited Department of Tea Husbandry and Technology on19th November, 2019.
- Ms. Divya Rajput, Innovation & Business Sustainability Evangelist, Funding Adviser, IIM, Lucknow & AAU Incubator visited Department

of Tea Husbandry and Technology on 19th November, 2019.

- Dr. H. Ravindra, University of Agricultural and Horticultural Sciences, Shimoga, Karnataka, visited Department of Plant Pathology on 9th April, 2019.
- Dr. S. Jahagirdar, Professor, University of Agricultural Sciences, Dharwad, Karnataka visited Department of Plant Pathology on 9th April, 2019.
- Dr. Lingoraj Sahoo, Professor, Department of Bioscience and bioengineering, IIT, Guwahati visited Department of Plant Pathology on 21st August, 2019.
- Ian bBarker, Global lead potato programme, International Potato centre, visited Department of Plant Pathology on 5th February, 2020.
- Dr. Kuldeep Singh, FNAAS, Director, ICAR-NBPGR, New Delhi, visited Department of Biotechnology on September 12, 2019.
- Prof. Prabhakar Ranjekar, Eminent Biotechnologist, Retd, Director, IRSHA & Retd. Head, Biochemistry, NCL, Pune, visited DBT-AAU centre on September 13, 2019.
- Dr. P. M. Bulakh, Director, BCUD, Bharati Vidyapeeth University & Ex-Dean, B.J. Medical College, Pune, visited Department of Biotechnology on September 13, 2019.
- Dr. Arvind Kumar, Director, IRRI-SARC, Varanasi, visited Department of Biotechnology on September 14, 2019.
- Dr. T. Madhan Mohan, Senior Consultant Adviser, DBT-NERBPMC, GoI, New Delhi, visited Department of Biotechnology on Jan 24, 2020.
- ADG Education visited Department of Biotechnology on 10th April, 2019.
- Dr. Himanta Biswa Sarma, Hon'ble Finance Minister, Govt. of Assam, visited Department of Biotechnology on June 17, 2019.
- Dr. Erumelai, University of Madras, visited Department of Biotechnology on 31st October 2019.

8.2. Directorate of Research (Agriculture)

- Dr. C.S. Kaur, Pr. Scientist, Plant Breeding and Genetics, AINP on Jute and Allied Fibre, Barrackpore, West Bengal visited RARS Shilongoni on 14th August, 2019.
- Dr. S. Mitra, Project Coordinator, AINP on Jute and Allied Fibres, Barrackpore, West Bengal visited RARS Shilongoni on 16th & 17th September, 2019.
- Dr. Narendra Kumar, Director, Jute Development, Govt. of India, Kolkata visited RARS Shilongoni on 4th December, 2019.
- Dr. P.K. Saha, National Consultant, NFSM, Ministry of Agriculture and Cooperation, Govt. of India, New Delhi, visited RARS Shilongoni on 26th February, 2020.
- Dr. Virender Sardana, Principal Agronomist, Oilseed sectors, PAU, Ludhiana visited RARS Shilongoni on 28thFrebruary, 2020.
- Dr. R.S. Chhokar, Principal Scientist, IIWBR, Karnal, Haryana visited RARS Shilongoni on 5th March, 2020.
- Dr. D.R. Saxena, Principal Scientist, AICRP on Chickpea, PAK College of Agriculture Sehore (M.P) visited RARS Shilongoni on 12th March, 2020.
- Dr. Brij Nandan Singh, Senior Scientist (Agronomy), AICRP on Chickpea, PRSS, SKUAST-J visited RARS Shilongoni on 14th March, 2020.
- Dr. S.N. Puri, Former Vice Chancellor, Central Agricultural University, Imphal (Chairman, QRT, ICAR-NCIPM) visited CRS Tinisukia on 19th February, 2020.
- Dr. T.V.K. Singh, Former Dean, Prof. Jayashankar Telangana State Agricultural University, Telengana, India (Member, QRT, ICAR-NCIPM) visited CRS Tinisukia on 19th February, 2020.
- Dr. S.K. Lodha, (Member, QRT, ICAR-NCIPM) visited CRS Tinisukia on 19th February, 2020.
- Dr. G.T. Gujar, Ex Head, Division of Entomology Indian Agricultural Research Institute, New Delhi (Member, QRT, ICAR-NCIPM) visited CRS Tinisukia on 19th February, 2020.
- Dr. S.N. Sushil, Principal Scientist, Indian Institute of Sugarcane Research, Lucknow, India (Member, QRT, ICAR-NCIPM), visited CRS Tinisukia on 19th February, 2020.

- Dr. H.R. Sardana, Director, ICAR-NCIPM, New Delhi visited CRS Tinisukia on 19th February, 2020.
- Dr. Md. Idris, Principal Scientist, ICAR-NCIPM, New Delhi visited CRS Tinisukia on 19th February, 2020.
- Dr. Anoop Kumar, Scientist, ICAR-NCIPM, New Delhi visited CRS Tinisukia on 19th February, 2020.
- Dr. Siddhartha S. Pathak, Assistant Professors of LCVSc, AAU, Joyhing visited RARS North Lakhimpur on 30th April, 2019.
- Dr. Kandarpa Baruah, Assistant Professors of LCVSc, AAU, Joyhing visited RARS North Lakhimpur on 30th April, 2019.
- Dr. Aditya Baruah, Assistant Professors of LCVSc, AAU, Joyhing visited RARS North Lakhimpur on 30th April, 2019.
- Dr. Biju Borah, Assistant Professors of LCVSc, AAU, Joyhing visited RARS North Lakhimpur on 30th April, 2019.
- Dr. A. Bhattacharyya, Hon'ble Vice Chancellor, AAU visited RARS North Lakhimpur on 7th December, 2019.
- Dr. Ranuj Pegu MLA, Dhemaji visited RARS North Lakhimpur on 7th December, 2019.
- Mr. Uttpal Dutta, MLA, Lakhimpur visited RARS North Lakhimpur on 7th December, 2019.
- SR Betsy, Director, Woman Development Council (WDC) visited RARS North Lakhimpur on 14th February, 2020.
- Ms. Martina, Caritus Germany visited RARS North Lakhimpur on 14th February, 2020.
- Mr. James A., Consultant, Caritus visited RARS North Lakhimpur on 14th February, 2020.
- Biswajit Ekka, TSSS, Tezpur visited RARS North Lakhimpur on 14th February, 2020.
- Bablu Sarkar, Caritas India visited RARS North Lakhimpur on 14th February, 2020.
- Dr. L.C. Dutta, OSD, College of Sericulture, AAU visited RARS North Lakhimpur on 14th February 2020.
- Dr. Sanjoy Kumar, Nodal Officer (Seed), ICAR-IARI, New Delhi visited RARS Titabar on 22nd October, 2019.
- Dr. Lambodar Behera, Principal Scientist, ICAR-NRRI, Cuttack, Odisha visited RARS Titabar on 24th October, 2019.
- Dr. Rajkumar, MSSRF, Chenna visited RARS Titabar on 11th June, 2019.
- Dr. Sekhar Nagathou, Director, NIBIO visited RARS Titabar on 18th November, 2019.
- Dr. Taka Nouri, Japan visited RARS Titabar on 18th November, 2019.
- Dr. Sikka, Ex DDG, ICAR, Consultant Scientists, International Water Management Institute, New Delhi visited RARS Titabar on 13th June, 2019.
- Dr. Faiz, Scientist, IWMI, New Delhi visited RARS Titabar on 13th June, 2019.
- Dr. Ashok Bhattacharyya, Vice Chancellor (Acting) visited RARS Karimganj on 28th August, 2019.
- Dr. Ashok Bhattacharyya, Director of Research (Agri.), AAU, Jorhat visited RARS Karimganj on 28th August, 2019.
- Dr. Prasanna Kumar Pathak, Director of Extension Education, AAU, Jorhat visited RARS Karimganj on 28th August, 2019.
- Dr. Mrinal Saikia, Associate Director of Research (Agri.), AAU visited RARS Karimganj on 26th November, 2019.
- Dr. Atul Borgohain, ADEE, AAU, Khanapara, Guwahati visited RARS Karimganj on 26th November, 2019.
- Dr. N. Kalita, Director of Research (Vety.), AAU, Khanapara, Guwahati visited RARS Karimganj on 10th February, 2020.
- Dr. M.Neog, Associate Director of Extension Education (Training), AAU, Jorhat visited RARS Karimganj on10th February, 2020.
- Monitoring team of Maize to monitor the AICRP (Maize) trials headed by Dr. Robin Gogoi, Principal Scientist (PP), IARI, New Delhi visited RARS, Gossaigaon on 28th September, 2019.

Figure 8.2. Monitoring team of Maize to monitor the AICRP (Maize) trials Headed by Dr. Robin Gogoi, Principal Scientist (PP), IARI, New Delhi on 28th September, 2019, in RARS, Gossaigaon

- Monitoring team of Small Millets to monitor the AICRP (Small Millets) trials by Dr. Jayarame Gowda, Principal Scientist (PB) and Dr. K.B.Palanna, Pathologist, Project Coordinating Unit (Small Millets), GKVK, Bengaluru visited RARS, Gossaigaon on 21st November, 2019.
- Dr. Ashok Bhattacharyya, Hon'ble Vice Chancellor (Acting), AAU visited RARS, Gossaigaon on 2nd September, 2019.
- Dr. Prasanna Kumar Pathak, Director of Extension, AAU visited RARS, Gossaigaon on 29th June, 2019.
- Dr. K.V. Peter, Former VC, Kerala Agricultural University & Chairperson QRT Spices visited HRS, Kahikuchi on 31st August, 2019.
- Mr. L. Obed, Director, CDB, RO, Guwahati visited HRS, Kahikuchi on 25th August, 2019.
- Dr. A. Bhattacharya, Vice Chancellor (Acting), AAU on visited HRS, Kahikuchi 2nd September, 2019.
- Dr. P. Mahanta, Director, Horticulture & Food Processing visited HRS, Kahikuchi on 2nd September, 2019.
- Mr. Jayanta Malla Baruah, Chairperson, Assam Tourism Development Corporation, Govt. of Assam visited HRS, Kahikuchi on 2nd September, 2019.
- Mr. Atul Bora, Minister of Agriculture, Govt. of Assam visited HRS, Kahikuchi on 5th November, 2019.
- Mr. Utpal Dutta, Hon'ble MLA, Lakhimpur Constituency, Assam visited Lakhimpur College of Veterinary Science ,Lakhimpur, Assam on the eve of opening ceremony of Annual College Meet, 2019 on 20th November, 2020.
- Mr. Ranjit Dutta, Minister of Textiles and Sericulture, Govt. of Assam visited Lakhimpur College of Veterinary Science, Lakhimpur, Assam on 9th February,2020.

Figure 8.3. Mr. Ranjit Dutta, Minister of Textiles and Sericulture, Govt. of Assam visited Lakhimpur College of Veterinary Science, Lakhimpur on 9th February, 2020

- Dr. Jeevan B, IAS, Deputy Commissioner, Lakhimpur District, Assam visited Lakhimpur College of Veterinary Science, Lakhimpur, Assam on 9th February, 2020.

8.3. DBT-AAU Centre, Jorhat

- His Excellency Prof. Jagdish Mukhi, Hon'ble Governor of Assam, visited DBT-AAU centre on February 26, 2020.
- Prof. Akshay Talukdar, IARI, Pusa, New Delhi, visited DBT- AAU centre on February 7, 2020.
- Dr. T. J. V. Higgins, Ex Deputy Chief, CSIRO Plant Industry, Canberra, Australia, visited DBT-AAU centre on January 24, 2020.
- Dr. M. Aslam, Adviser, DBT, GoI, New Delhi: Member, visited DBT-AAU centre on January 24, 2020.
- Dr. T. Madhan Mohan, Senior Consultant Adviser, DBT-NERBPMC, GoI, New Delhi, visited DBT-AAU centre on January 24, 2020.
- Dr. N. K. Singh, ICAR-National Professor and Director NIPB, New Delhi, visited DBT-AAU centre on January 24, 2020.
- Dr. Arvind Kumar, Director, IRRI South Asia Centre, Varanasi, visited DBT-AAU centre on January 24, 2020.
- Dr. M. V. Deshpande, Scientist, Director, Greenvention Pvt Ltd., Pune, visited DBT- AU centre on January 24, 2020.
- Dr. Kuldeep Singh, FNAAS, Director, ICAR-NBPGR, New Delhi, visited DBT-AAU centre on September 12, 2019.
- Prof. Prabhakar Ranjekar, Eminent Biotechnologist, Retd, Director, IRSHA &Retd. Head, Biochemistry, NCL, Pune, visited DBT-AAU centre on September 13, 2019.
- Dr. P. M. Bulakh, Director, BCUD, Bharati Vidyapeeth University & Ex-Dean, B.J. Medical College, Pune, visited DBT-AAU centre on September 13, 2019.
- Dr. Arvind Kumar, Director, IRRI-SARC, Varanasi, visited DBT-AAU centre on September 14, 2019.
- Dr. Himanta Biswa Sarma, Hon'ble Finance Minister, Govt. of Assam, visited DBT-AAU centre on June 17, 2019.
- Padmashree Dr. Uddhab Bharali, North Lakhimpur, visited DBT- AAU centre on May 30, 2019.

8.4. College of Veterinary Science, Khanapara

- Dr. S.P. Singh, Scientist, ICAR-CIRG, Makhdoom, Mathura (U.P) visited College of Veterinary Science, Khanapara on 25th June, 2019.
- Dr. M.Rahman, Former Scientist 'G', BRIT/ DAE Govt. of India visited College of Veterinary Science, Khanapara on 3rd October,2019.
- Dr. Shah Ahmed Belal, Assoc. Professor, Sylhet Agril. University. Sylhet, Bangladesh visited College of Veterinary Science, Khanapara on 7th November, 2019.
- Dr. M.S. Tantia, Principal Scientist, In-charge Network project, ICAR-NBAGR, Karnal visited College of Veterinary Science, Khanapara on 9th December, 2019.
- Dr. Karan Veer Singh, Scientist, NBAGR, Karnal, Haryana, visited College of Veterinary Science, Khanapara on 9th December, 2019.
- Dr. R.K. Sanjukta, Scientist, Animal Health Division, ICAR, Barapani visited College of Veterinary Science, Khanapara on 25th July, 2019.
- Dr. Sonja Luz, Director, Conservation, Research and Veterinary, Singapore, visited College of Veterinary Science, Khanapara from 28th to 30th November, 2019.
- Dr. Vijitha Prerera, Chief Vet, Elephant Transit Home, Sri Lanka, visited College of Veterinary Science, Khanapara from 28th to 30th November, 2019.
- Dr. Waleemas Jairak, Zoological Park org, Thailand visited College of Veterinary Science, Khanapara from 28th to 30th November, 2019.
- Dr. Keita Matsuno, Lecturer, Hokkaido University, Japan visited College of Veterinary Science, Khanapara from 28th to 30th November, 2019.
- Dr. Janine Brown, Research Scientist, Smithsonian Institute, US visited College of Veterinary Science, Khanapara from 28th to 30th November, 2019.

8.5. Directorate of Extension Education (Veterinary)

- Dr. Gopal Krishna, Vice-Chancellor cum Director, ICAR, CIFE, Mumbai, visited
- Directorate of Extension Education (Vety.), AAU Khanapara on 27th & 28th Sept, 2019.
- Dr. Dilip Kumar, Former Director & VC of CIFE, Consultant of FAO for South East Asia, Chairman QRT for ICAR-DCFR, visited the Directorate of Extension Education (Vety.), AAU Khanapara on 7th to 9th January, 2020 and 3rd March, 2020.
- Dr. Avijit Sarma, Director, Indian Institute of Entrepreneurship, Guwahati, visited the Directorate of Extension Education (Vety.), AAU, Khanapara on 30th July, 2019.
- Prof. Sanjeeb Kakoti, Faculty Member, IIM, Shillong, visited the Directorate of Extension Education (Vety.), AAU Khanapara on 30th July, 2019.

8.6. College of Fisheries, Raha

- Shri Dipak Kr. Sarma, IAS (Retd.), Chairman (i/c),Assam Public Service Commission visited the College of Fisheries, Raha on 26th Ocober,2019.
- Dr. Dilip Kumar, Retd. Vice-Chancellor, Central Institute of Fisheries, Education, ICAR, Mumbai; visited the College of Fisheries , Raha on 9th January,2020.

Figure 8.4. Dr. Dilip Kumar, Retd. Vice-Chancellor, Central Institute of Fisheries, Education, ICAR, Mumbai, visiting CoF, Raha on 09th January, 2020.

- Dr. S. D. Gipta, Retd. Principal Scientist, ICAR-CIFA, Bhubaneswar visited the College of Fisheries, Raha on 9th January, 2020.
- Dr. J. R. Dhanze, Retd. Dean, College of Fisheries, CAU, Tripura visited the College of Fisheries, Raha on 9th January, 2020.
- Dr. Debajit Sarma, Director (Acting), ICAR-Directorate of Cold water Fisheries Research, ICAR, Bhimtal, Nainital, Uttarakhand visited the College of Fisheries ,Raha on 9th January, 2020.
- Dr. N. N. Pandey, Principal Scientist, CAR-DCFR, Bhimtal, Nainital, Uttarakhand visited the College of Fisheries, Raha on 9th January, 2020.
- Dr. R. S. Haldar, Nodal Officer, NEH, ICAR-DCFR, Bhimtal, Nainital, Uttarakhand visited the College of Fisheries, Raha on 9th January, 2020.
- Dr. Mrityunjay Kumar, Professor, Department of Aquatic Resource Management,Sylhet Agricultural University, Bangladesh visited the College of Fisheries,Raha on 7th February,2020.
- Prof. C. V. Mohan, Principal Scientist, World Fish, Malaysia visited the College of Fisheries, Raha on 10th February, 2020.
- Dr. Benoy Barman, Senior Scientist, World Fish, Bangladesh and South Asia Office, Dhaka,

Bangladesh, visited the College of Fisheries, Raha on 10th February, 2020.

- Dr. Madan Bhattacharya, Professor, Agricultural Biotechnology, Iowa State University, USA visited the College of Fisheries, Raha on 20th February, 2020.

Figure 8.5. Sjt. Parimal Suklabaidya, Honorable Minister of Fisheries, Excise, Environment and Forest, Govt. of Assam in College of Fisheries, Raha, on 26th February, 2020.

- Sjt. Parimal Suklabaidya, Hon'ble Minister of Fisheries, Excise, Environment and Forest, Govt. of Assam visited the College of Fisheries, Raha on 26th February, 2020.

8.7. College of Community Science, Jorhat

- Dr. Sangeeta Datta, M.D (Psychiatry) visited the College of Community Science, Jorhat on 8th August, 2019.
- Ms. Roshni Aparanji Korati, Deputy Commissioner, Jorhat visited the College of Community Science, Jorhat on 8th August, 2019.

8.8. SCS College of Agriculture, Dhubri

- Dr. N.N Sarma, Ex. DR (Agri.), AAU Jorhat visited SCS College of Agriculture, Dhubri on the occasion of SCSCA Foundation Day on 22nd August, 2019.
- Dr. Madan Bhattacharyya, Prof. IOWA State University, USA visited SCS College of Agriculture, Dhubri to deliver lectures on 18th and 19th Feb 2020.
- Mr. Narayan Singh Rao, Consultant visited SCS College of Agriculture, Dhubri.

9. Finance

The University received its financial resources from various sources like State Government, ICAR, GOI and internal source of the University. During 2019-20 financial year, the University received an amount of Rs. 63608.49 lacs from these sources of which around 70 per cent was received under Revenue head and the rest under Capital and Internal Receipt head. State Government contributed the maximum (around 72 per cent) to this fund followed by ICAR and others (Table 9.1).

Table 9.1. Receipt of fund (in Lacs) by Assam Agricultural University during 2019-20.

Receipt	State	ICAR	GOI	Internal Receipt	Total (Rupees in Lacs)
Revenue	44660.14	-	-	-	44660.14
Capital	1598.23	10409.43	3880.69	-	15888.35
Internal Receipt	-	-	-	3060.00	3060.00
Total	46258.37	10409.43	3880.69	3060.00	63608.49

APPENDIX– I

Externally Funded Research Projects in operation in the Faculty of Agriculture and Community Science during 2019-20

Sl. No	Name of the Scheme	Funding Agency	In-Charge
1. Faculty of Agriculture			
A. All India Coordinated Research Project (AICRP)			
1.	AICRP on Forage Crops	ICAR	Dr. Karuna K. Sharma
2.	AICRP on Integrated Farming System Research	ICAR	Dr. Karuna K. Sharma
3.	AICRP on Honeybees & Other Pollinators	ICAR	Dr. Ataur Rahman
4.	AICRP on Biological Control	ICAR	Dr. Dilip Kr. Saikia
5.	AICRP on Agro meteorology	ICAR	Mr. Kuldip Medhi
6.	AICRP on tuber crops	ICAR	Dr. Sheriful Alam
7.	AICRP on Vegetables	ICAR	Dr. Sailen Gogoi
8.	AICRP on Fruits	ICAR	Dr. Bhabesh Deka
9.	AICRP on Nematodes	ICAR	Dr. Debanand Das
10.	AICRP on Post-Harvest Engineering & Technology	ICAR	Dr. Abhijit Borah
11.	AICRP on Rice Improvement	ICAR	Dr. Tamizuddin Ahmed
12.	AICRP on Fruits (CRS and AAU)	ICAR	Dr. Amrit Ch. Barbora and Dr. Nibedita Borgohain
13.	AICRP on Rapeseed and Mustard	ICAR	Dr. P. K. Deychoudhury
14.	AICRP on MULLARP	ICAR	Dr. Hiranya Kr. Bora
15.	AICRP on Wheat	ICAR	Dr. Tulsi Pd. Saikia
16.	AICRP on Linseed	ICAR	Dr. Utpal Kr. Bora
17.	AICRP on Palm	ICAR	Dr. Jogesh Ch. Nath
18.	AICRP on Agro Forestry	ICAR	Dr. Ranjita Bezbaruah
19.	AICRP on Floriculture	ICAR	Dr. Sunil Kr. Borah
20.	AICRP on Spices	ICAR	Dr. Kusum Kr. Deka
21.	AICRP on Maize	ICAR	Mr. Mahadev Uzir Baruah
22.	AICRP on Small Millets	ICAR	Dr. Sunil Kr. Paul
23.	AICRP on Sugarcane	ICAR	Dr. Bijuan Bordoloi
24.	AICRP on Dry land Agriculture	ICAR	Dr. Pallab Kr. Sharma
25.	AICRP on MAP	ICAR	Dr. Bijit Kr. Saud
26.	AICRP on Water Management	ICAR	Dr. Ramani Kanta Thakuria
27.	AICRP on Potato	ICAR	Dr. Pramode Ch. Bhagawati
28.	AICRP on National Seed Project (Crops): Breeder Seed Production and Seed Technology Research	ICAR	Dr. Prakash Borah
29.	AICRP on Soybean	ICAR	Dr. Prasanta Kr. Goswami

30.	AICRP on Micro & Secondary Nutrients and Pollutant Elements in Soils and Plants	ICAR	Dr. Anjali Basumatary
31.	AICRP on Mushroom	ICAR	Dr. Dilip Kr. Sharma
32.	AICRP on Chickpea	ICAR	Dr. Idrish Ali Sheikh
33.	ICAR Seed Project on Agricultural Crops	ICAR	Dr. Mrinal Saikia
34.	AICRP on Soil Test Crop Response (STCR)	ICAR	Dr. Kulendra N. Das
35.	AICRP on Weed Management	ICAR	Dr. Iswar Ch. Barua

B. Network Projects

1.	AINP on Soil Biodiversity-Biofertilizers	ICAR	Dr. Dhruba Jyoti Nath
2.	AINP on Soil Arthropod Pests	ICAR	Dr. Badal Bhattacharyya
3.	AINP on Conservation of lac insect genetic resources	ICAR	Dr. Purnima Das
4.	AINP on Jute and Allied Fibres	ICAR	Dr. Prasanta Bharali
5.	AINP on Vertebrate Pest Management (Rodent Control)	ICAR	Dr. Ratul Kr. Baruah
6.	AINP on Vertebrate Pest Management (Economic Ornithology)	ICAR	Dr. Prahal Saikia
7.	AINP on Precision Farming Development Centres	ICAR	Dr. Pradip Mahanta
8.	AINP on Agricultural Acarology	ICAR	Dr. Sahidur Rahman

C. Ad hoc Research Projects

C1. Ongoing Research Project (Continuing)

1.	Farmers' Innovation-Decision Pattern in relation to Recommended Rice Production Technology - A Study in Upper Brahmaputra Valley Zone of Assam.	AAU	Dr. Utpal Barman
2.	Participatory technology assessment for enhancing farming system productivity and developing entrepreneurship for sustainable rural livelihood.	ICAR	Dr. Prasanna Kr. Pathak
3.	Augmentation of Agriculture through Efficient Resource Utilization Stress Tolerance Rice For Poor farmers in Africa and South Asia (Phase 3) and Eastern India Rainfed Lowland Shuttle Breeding Programme with Participatory Approach.	OIL India, Duliajan	Dr. Mrinal Saikia
4.	Development of gamma ray induced mutant strain of honeybees	BRNS-GOI	Dr. Mukul Kr. Deka

	resistant to insecticides		
5.	Field evaluation of wettable powder formulation of an indigenous strain of *Beauveria bassiana* (Bals.) Vuill. against *Cnaphalocrocis medinalis* (Guenee) and *Nymphula depunctalis* (Guenee).	DST-GOI	Dr. Purnima Das
6.	Development of Leaf Folder (*Cnaphalocrocis medinalis*) resistance rice variety through mutation breeding.	BRNS-GOI	Dr. Purnima Das
7.	Word Bank Financed Assam Agri-Business and Rural Transformation Project (APART), Govt. of Assam.	World Bank	Dr. Kalyan Pathak/ Dr P. Saikia
8.	Development of stem borer (*Scirpophaga incertulas*) resistance jaha rice variety through mutation breeding.	BRNS-GOI	Dr. Anjumoni Devee
9.	Gramin Krishi Mausam Seva (GKMS).	IMD	Dr. R. L. Deka/ Dr U. Barthakur
10.	Forecasting Agricultural output using Space, Agrometeorology and Land-based observations (FASAL).	IMD	Dr. Rajib L. Deka
11.	Estimation of loss in culture fisheries and their management during and after flood in and around Jorhat.	AAU	Mr. Dipanjan Kashyap
12.	Prospect of Marketing of Medicinal Plants in the state of Assam.	AYUSH-NMPB	Dr. Nivedita Deka
13.	Resource Use Planning for Sustainable Agriculture	ICAR	Dr. Nivedita Deka
14.	Establishment and Management of AAU Data Bank.	RKVY	Dr. Nivedita Deka
15.	Understanding mechanisms of tolerance to low light stress in rice.	ICAR	Dr. Bhagawan Bharali
16.	Development of improved moisture stress tolerant variety in Indian Mustard through mutation breeding.	BRNS-GOI	Dr. Ranjan Das
17.	Crop condition assessment under abiotic stress of few selected major crops of NER using remote sensing technique.	ISRO	Dr. Ranjan Das
18.	Study of diversity of Rice in Karbi Anglong district of Assam: Implication for biodiversity conservation under changed climate condition.	GBPNIHESD	Dr. Ranjan Das

19.	Tapping Of Carbon Dioxide In Rice Ecosystem Through *Azolla* Cultivation.	RKVY	Dr. Ranjan Das
20.	Design and performance evaluation of solar tunnel type dryer for on-farm post-harvest processing of high value horticultural products of NE region.	MoHRD	Er. Manas J. Baruoah
21.	Design and development of a hand operated Assam lemon harvester.	MoHRD	Er. Manas J. Baruoah
22.	Genetic improvement of Taro through radiation technology	BRNS-GOI	Dr. Bijit Kr. Saud
23.	Augmentation of Agriculture through efficient resource utilization with participatory approach.	OIL, India	Dr. Mrinal Saikia
24.	Post-harvest loss assessment and SOPs of post-harvest management of some important medicinal plants of Assam.	AYUSH-NMPB	Dr. Pritam Coomar Barua
25.	Mission for Integrated Development of Horticulture (MIDH).	DASD	Mr. Soumitra Goswami
26.	Collection, Conservation and quality evaluation of indigenous fruit crops	RKVY	Dr. Rajendra Pd. Das
27.	Exploring rhizospheric microbiome (PGPR and AM Fungi) for regulating the expression of Zinc transporter genes (ZRT) in rice to augment the Zinc nutrition	DBT-GOI	Dr. Dhruba Jyoti Nath
28.	A GIS-based approach for identifying potential sites of rainwater harvesting in arsenic contaminated areas of Bhogdoi river	ICAR-AICRP on IWM, Bhubaneswar	Dr. Bipul Deka
29.	Identification of genes contributing resistance to *Alternaria brassicae* from a non-host plant and their characterization in *Arabidopsis* for durable crop protection against blight disease in *Brassica rapa*.	DBT-GOI	Dr. Priyadarshini Bhorali Dr. Senthil-Kumar Muthappa
30.	Molecular dissection of defense against Sigatoka infection in Banana; Exploitation of Musa germplasm of North East for development of Sigatoka-resistant hybrid.	DBT-GOI	Dr. Priyadarshini Bhorali
31.	Genetic Improvement of Grain	DBT-GOI	Dr. Sumita Acharjee

	Legumes using Gene Technology to protect against insect pests .		
32.	Establishment of Genetic transformation system for pigeonpea (*Cajanus cajan*) for the deployment of gene technology including insect protection.	Kirkhouse Trust, UK	Dr. Sumita Acharjee
33.	Development of seedless Bhimkol (*Musa balbisiana*, BB genome) through CRISPR/Cas9 and mutation approaches.	DBT-GOI	Dr. Salvinder Singh
34.	Development of Fusarium resistant elite banana cultivars of NE India.	DBT-GOI	Dr. Salvinder Singh
35.	Improved Crop management and Strengthened Seed Supply System for Drought Prone rainfed Lowlands in South Asia	EC- IFAD	Dr. K. Kumni
36.	Biotechnological interventions through RNAi approach for management of Banana Bunchy Top virus (BBTV) in Northeast region of India.	DBT-GOI	Dr. Salvinder Singh
37.	Structural & Functional Genomics study of Deepwater adaptation of local rice landraces of Assam.	DBT-GOI	Dr. Priyabrata Sen
38.	Development of High yielding, non-lodging and biotic varieties of black rice of Manipur and Joha rice of Assam through Biotechnological intervention	DBT-GOI	Dr. Akhil Ranjan Baruah
39.	Socio-economic assessment of role of livestock enterprises in improvement of livelihood and overcome poverty of Karbi, Dimasa and Bodo farmers in Karbi Anglong district of Assam	GoA	Dr. Ramen Kr. Sarmah
40.	NFSM on Commercial crops – Jute	ICAR	Dr. Biswajit Guha
41.	National Centre for Integrated Pest Management in Citrus	NCIPM, ICAR	Dr. Amrit Ch. Barbora & Dr. Sikha Deka
42.	Mission for integrated development for horticulture	Directorate of Arecanut and Spice Dev. MoA,	Mr. Sanjib Sarmah
43.	Cataloguing of phytoplasma diseases of major crops of N.E. Region of India and molecular characterization	DBT-GOI	Dr. Monoj Kr. Kalita
44.	Genetic enhancement of indigenous pigmented rice of NE India using genomic approach with	DST-GOI	Mrs. Sangeeta Das

	particular reference to their Fe, Zn, and antioxidant contents		
45.	Molecular characterization of *Fusarium oxysporum* sp. cubense causing Fusarium wilt of banana and its sustainable management	DBT-GOI	Dr. Ashok Bhattacharyya
46.	Occurrence, of major pests and their management in selected medicinal plants, impact pest damage on the active fraction	NMPB,	Dr. Bina B. Gogoi
47.	Onychomyeosis in Agricultural workers of North East India: Epidemiological study and molecular characterization of the etiological agents	DBT-GOI	Dr. Pranab Dutta
48.	Development and validation of IPM strategy for kinnow mandarin cultivated in NER (Assam) of India	ICAR	Dr. Sikha Deka
49.	Transgenic in crops(NPTC): Sub-project: ICAR –NPTC-308R: Herbicide Resistance in Mustard	ICAR-NPTC	Dr. Ananta Madhab Baruah
50.	Morphometry and Phylogeography of Honey Bees and Stingless Bees in India: Phase – II	DBT-GOI	Dr. Ataur Rahman
51.	Morpho Genetic Barcoding of Aromatic and Glutinous rice varieties of Assam	DBT-GOI	Dr. Sharmila Dutta Deka
52.	Crop Condition Assessment under Abiotic Stress of few selected Major Crops of NER using Remote Sensing Techniques	NESAC	Dr. Ranjan Das
53.	Marker Assisted Genetic Analysis for Synchrony in Greengram (*Vigna radiata*)	DST-GOI	Dr. Shazmira Zaman
54.	Increased availability of ramie for industrial use under the CRP on Natural Fibre, ICAR	ICAR-CIRCOT	Dr. Haribar Ch. Bayan
55.	Land evaluation for organic crop planning in Assam using Remote Sensing and GIS techniques	GOI	Dr. Rajendra M. Kanmakar
56.	Synthesis and field evaluation of pheromones for root grub, *Lepidiota mansueta* under formulation of pheromones for important agricultural pests.	ICAR	Dr. Badal Bhattacharyya
57.	Seed Tape System for vegetable production in small and hilly farms of N.E. India	ICAR	Dr. P. Baruah
58.	Exploration of phytopathogenic microorganism from major crops		Dr. Palash Deb Nath

	of North Eastern states		
59.	Impact of modified microclimates on growth and pest-disease dynamics in ginger	DST-GOI	Dr. Prasanta Neog
60.	Genetic enhancement of rice for low moisture stress tolerance	ICAR	Dr. Tamizuddin Ahmed
61.	Development of Nucleus Stock of Honeybee *Apis mellifera* on participatory Mode	ICAR	Dr. Ataur Rahman
62.	Breeding for higher productivity of indigenous Joha rice of Assam through induced mutations for morpho-agronomic traits	BRNS-GOI	Dr. Debajit Sarma
63.	Introduction of Mutations in summer green gram (*Vigna radiata* L. Wilczek)	BRNS-GOI	Dr. Akashi Sarma
64.	Biodiversity studies of Aromatic Rice in North –East India	DBT-GOI	Dr. Tamizuddin Ahmed
65.	Establishment/strengthening of Bio fertilizer and Bio Control production units for Increasing pulse production in India-2016-17	NFSM	Dr. Lohit Ch. Bora Dr. Ranjan Das
66.	Breeding for higher productivity of indigenes agronomic traits	BRNS-GOI	Dr. Debajit Sarma
67.	Development of shorter duration of the mega variety Ranjit with the help of mutation and breeding and Marker aided selection	BRNS-GOI	Dr. Sanjay Kr. Chetia
68.	Production of healthy planting material of Orange (*Citrus reticulata* (Blanco.) and Assam lemon (*Citrus limon* (Linn.) Burmann.) through budwood certification programme and its distribution to growers in Assam and other North-eastern states	IBSD	Dr. Amrit Ch. Barbora
69.	National Innovations on Climate Resilient Agriculture (NICRA)	ICAR	Dr. Pallab Kr. Sarma
70.	Whole genome and transcriptome study of stress tolerant banana cultivars	DBT-GOI	Dr. Mahendra Kr. Modi
71.	Development of stem borer resistance *Joha* rice variety through mutation breeding	BNRS	Dr. Anjumoni Devee
72.	Stress tolerant rice for the poor farmers of Africa and South East Asia	Bill & Melinda Gates Foundation	Dr. Tamizuddin Ahmed
73.	Genomics- Assisted Introgression and Field evaluation of Rice Variety with Genes/QTLs for yield	DBT-GOI	Dr. Tamizuddin Ahmed

	under Drought, Flood and Salt Stress		
74.	Development of shorter duration of mega variety Ranjit using mutation and MAS	BRNS-GOI	Dr. Tamizuddin Ahmed
75.	Integrative taxonomy of insect pests of rice and their natural enemies of North-East India	DBT-GOI	Dr. Purnima Das
76.	Global rice array	IRRI	Dr. Tamizuddin Ahmed
77.	Development of nanobiopesticides formulations of biocontrol agents with enhanced biocontrol ability and biochemical defence activity of host plants	PCIL-WB	Dr. Pranab Dutta
78.	Development of tea polyphenol-rapeseed protein microencapsulate for delivery of bioactive ingredients in functional foods: *in vitro* and *in vivo* study	DBT-GOI	Dr. Manashi Das Purkayastha
79.	Developing bioactive compound-enriched functional food ingredients from *Dillenia indica* and valorization of its pomace	DBT-GOI	Dr. Manashi Das Purkayastha
80.	Exploring diversity genomic and transcriptome profiling and phytosemiochemicals of banana pest complex in NER region: An ecological and molecular approach	DBT-GOI	Dr. Inee Gogoi
81.	Introgression of phosphorous stress tolerant (PSTOL1) and multiple disease resistance genes into rice through marker assisted selection	DBT-GOI	Dr. Akashi Sarma
82.	Building Climate Resilience of Indian Smallholders through Sustainable Intensification and Agro ecological Farming Systems to strengthen Food and Nutrition Security	NIBIO	Dr. Tamizuddin Ahmed
83.	Development of High yielding, Non lodging and Biotic resistant Varieties of Black Scented Rice of Manipur and Joha Rice of Assam through Biotechnological Intervention	DBT-GOI	Dr. Sanjay Kr. Chetia
84.	Policy imperatives for promoting value chain of ginger and pineapple in Assam	NIAPR	Dr. Ramen Kr. Sarma
85.	Increased availability of ramie fiber for industrial utilization	ICAR	Dr. Haribar Ch. Bayan
86.	Resource Use Planning for	NAIP	Department of Agricultural

	Sustainable Agriculture		Economics and farm management
87.	Establishment and Management of AAU Data Bank	RKVY	Department of Agricultural Economics and Farm Management
88.	Impact assessment study of the TSP project 'Promotion of agriculture centric sustainable livelihood security for tribal farmers of Assam'	ICAR	Dr. R. K. Sarma
89.	Policy imperatives for promoting value chain of ginger and pineapple in Assam	NAIP	Department of Agricultural Economics and Farm Management
90.	Advanced Level Institutional Biotech Hub	DBT-GOI	Dr. Monoj Sarma
91.	Establishment of Field gene bank and Micropropagation unit for Medicinal Plant Genetic Resources of North East India	AYUSH, NPMB	Dr. Monoj Sarma
92.	Molecular Mapping and Construction of linkage map for Yellow Mosaic Virus (YMV) Resistance in Soybean	AYUSH, NPMB	Dr. Monoj Sarma
93.	Stress Tolerance Rice For Poor farmers in Africa and South Asia (Phase 3) and Eastern India Rainfed Lowland Shuttle Breeding Programme	Bill & Melinda Gates Foundation Project	Regional Agricultural Research Station, North Lakhimpur
94.	Varietal improvement programme for yield in delayed sowing and planting situation in flood affected areas	AAU	Regional Agricultural Research Station, North Lakhimpur
95.	Promotion of Agriculture Centric Sustainable Livelihood Security for Tribal Farmers of Assam	STC (Earlier TSP) ICAR-	Regional Agricultural Research Station, North Lakhimpur
96.	Enhancing productivity of rice based cropping system through harvested rain water (in situ & ex situ) under rainfed condition in medium land situation of NBPZ, Assam (Code: BNCA/RWM/VEGE/2018-19/NL)	ICAR, New Delhi	Regional Agricultural Research Station, North Lakhimpur
97.	Downstream processing for utilization of banana waste for natural fibre extraction, fibre based products, biomass briquettes and utility compounds	DBT-GOI	Dr. Pritam Bordoloi
98.	Forecasting Agricultural Output using Space, Agrometeorology and	IMD, MoES	Dr. Rafiul Hussain

	Land based observations (FASAL)		
99.	Genetic improvement of taro through radiation technology	BRNS-GOI	Dr. Bijit Kr. Saud
100.	Downstream processing of Banana waste for natural fibre extraction, fibre based products, Biomass briquettes and utility compounds	DBT-GOI	Dr. Pritam Kr .Borthakur
101.	Improved packaging for long distance transportation of high value horticultural crops	IIT	Dr. Pritam Kr .Borthakur
102.	Post-harvest loss assessment and SOPs of post-harvest management of some important medicinal plants of Assam	NMPB, Ministry of AYUSH	Dr. Pritam Coomar Barua
103.	Understanding mechanisms of tolerance to low light stress in rice	NASF (ICAR)	Dr. Bhagwan Bharali
104.	Management of low temperature and moisture deficit stresses in banana grown in NE India	DBT-GOI	Dr. Prakash Kalita
105.	Development of improved moisture stress tolerant variety in Indian Mustard through mutation breeding	BRNS-GOI	Dr. Ranjan Das
106.	Study of diversity of rice in Karbi Anglong district of Assam: Implementation for biodiversity conservation under changed climate condition	GBPNIHESD	Dr. Ranjan Das
107.	Development of mutant with novel characteristics in gladiolus through irradiation	BRNS-GOI	Dr. Reena P. Borkakati
108.	Induced mutagenesis for development of early maturing plant type in Indian mustard	BRNS-GOI	Dr. Purna Kanta Barua
109.	Genome and Transcriptome sequencing of Aromatic Rice from North Eastern Region (component 3)	DBT-GOI	Dr. Sharmila Dutta Deka
110.	Morphogenetic Barcoding of Aromatic and Glutinous Rice varieties of Assam	DBT-GOI	Dr. Sharmila Dutta Deka
111.	Estimation of loss in culture fisheries during and after flood in and around Jorhat	AAU	Mr. Dipanjan Kashyap
112.	Development of High yielding, Non lodging and Biotic resistant Varieties of Black Scented Rice of Manipur and Joha Rice of Assam through Biotechnological Intervention	DBT-GOI	Dr. Sanjay Kr. Chetia

113.	Introgression of phosphorous stress tolerant (PSTOL1) and multiple disease resistance genes into rice through marker assisted selection	DBT-GOI	Dr. Akanki Sarma
114.	Prospect of Marketing of Medicinal plants in the state of Assam	Ministry of AYUSH	Dr. Nivedita Deka
115.	Production of healthy planting material of Orange (*Citrusreticulata* (Blanco.) and Assam lemon (*Citrusjambhiri* (Lisa.) Burmann.) through budwood certification programme and its distribution to growers in Assam and other North-eastern states	IBSD	Dr. Amrit Ch. Barbora
116.	Bioefficacy and phytotoxicity of luna sensation (Fluopyram 250 + Trifloxystrobin 250 SC) on chilli against powdery mildew (*Leveillulataurica*) and anthracnose (*Colletotrichumcapsici*)	Bayers Crop Science	Dr. Pranab Dutta
117.	Development of next gen nano-biofurmulation of seed treatment of major agricultural crops	RKVY	Dr. Pranab Dutta
118.	Mission for Integrated Development of Horticulture (MIDH)	DASD,	Mr. Sanjib Sharma
119.	Integrated approach to understand agarwood formation and value addition of Agarwood (*Aquilaria malaccensis*)	DBT-GOI	Dr. Madhumita Barooah
120.	Bio-prospecting of some indigenous medicinal plants of NE region of India with special reference to Anti-inflammatory properties	DBT-GOI	Dr. Iswar Ch. Barua
121.	Advanced breeding of caps through enhancement of environmental temperature by using UV stabilized LDPE film	RKVY	Dr. Bibha Chetia Borah
122.	Technology show casing on integrated three tier poultry-pig-fish farming system	RKVY	Dr. Bibha Chetia Borah
123.	Low cost Aquaponics system as a component of integrated livestock fish farming	RF of FRC, AAU	Dr. Bibha Chetia Borah
124.	Development of Automatic fish seed grader cum counter	DIC-IIT, Guwahati	Dr. Bibha Chetia Borah
125.	Induced breeding and seed production of indigenous climbing	RF of FRC, AAU	Mr. Biswajyoti Bordoloi

	perch (*Anabas testudineus*)		
126.	Optimizing resources for identification of potential sorghum forage hybrids using Genomic selection	DBT-GOI	Dr. Ramendra Nath Sarma
127.	Biotechnological Interventions through RNAi Approach for Management of Banana Bunchy Top Virus (BBTV) in Northeast Region of india	DBT-GOI	Dr. Palash Deb Nath
128.	Biotechnological interventions through RNAi approach for management of Banana Bunchy Top virus (BBTV) in Northeast Region of India	DBT-GOI	Dr. Priyabrata Sen
129.	Multifaceted exploration of edible molluscs of North East India	DBT-GOI	Dr. Badal Bhattacharyya
130.	Impact assessment of group approach of extension on management of White Grub (*Lepidiotamansueta*) - A study in Majuli river island, Assam	ICAR	Dr. Badal Bhattacharyya
131.	Exploring Agribusiness Opportunities in indigenous fruits of Assam	ICSSR	Dr. M. Gogoi
132.	Post–Harvest loss assessment and SOPs of post-harvest management of some important medicinal plants of Assam	NMPB	Dr Pritam Coomer Barua
133.	Management of low temperature and soil moisture deficit stress in banana grown in North Eastern India	DBT-GOI	Dr. P. Kalita
134.	Transformative Rice Breeding @ Assam Agricultural University, Jorhat	IRRI	Dr T. Ahmed
135.	DBT- Twinning project on "Multifaceted exploration of edible molluscs of NE India"	DBT	Dr. Badal Bhattacharyya
136.	Sustainable livelihood security of the Tribal communities of Assam through sericulture centric promotional activities	ICAR, New Delhi	Dr. L. C. Dutta
137.	Downstream processing for utilization of Banana Waste for natural fiber extraction fiber based products, biomass briquettes and utility compound	DBT-GOI	Dr. Pritom Kr. Borthakur
138.	Regional-cum-Facilitation Center	AYUSH, GoI	Dr. I. C. Barua

139.	Mobile Based Rice Expert System (Sali Rice) for Assam	DR(Agri)	Dr. R.P. Paswan
140.	Soil Test based Fertilizer Recommendations under Integrated Plant Nutrition System for different Crops in Assam (AICRP on STCR)		Dr. K. N. Das
141.	Cyanobacterial diversity and their bio resource potential in the NE region of India	DBT	Dr. Rajen Baruah
142.	Prospects of Biofertilizer production and entrepreneurship development in N.E. Region of India under IDP-NAHEP	ICAR	Dr. Kishore Kr. Sharma
143.	Isolation of Novel strains to develop efficient Biofertilizers	DBT	Dr. Rajen Baruah
144.	Mainstreaming Agricultural Biodiversity Conservation and Utilisation in Agricultural Sector to Ensure Ecosystem Services and Reduce Vulnerability	UN-Global Environment Facilities(Executed by ICAR and Bioversity International)	Dr. DhrubaJyoti Nath
145.	Identification of the Genetics Associated with Resistant Starch Content in Rice for nutraceutical benefits	DBT-GOI	Ms. Bhanwati Sarmah
146.	Genome and Transcriptome Sequencing of Aromatic rices from North Eastern Region	DBT-GOI	Dr. R. N. Sarma
147.	Induced mutagenesis for early maturing plant type of Indian mustard	BRNS (BARC)	Dr. P. K. Barua
148.	Induction of mutation in summer greengram (*Vigna radiata*)	BRNS (BARC)	Dr. Akanki Sarma
149.	Development of High Zinc rice varieties	IRRI	Dr. Sharmila D. Deka
150.	DUS Test Centre under Protection of Plant Varieties and Farmers' Rights Authority	PPV&FR Authority, New Delhi	Dr. P. Borah
151.	Isolation Of Novel Strains To Develop Efficient Biopesticides	DBT	Dr. L. C. Bora
152.	Screening of banana germplasm from the NE for Fusarium wilt resistance and Molecular characterization in contrasting genotypes	Biotech Consortium India Limited, NER-BPMC, DBT, New Delhi	Dr. Ashok Bhattacharyya
153.	Development of Citrus tristeza virus (CTV) resistant elite mandarin genotypes through RNAi approach to revive citrus industry	DBT-GOI	Dr. Palash Deb Nath

	in Northeast India		
154.	Development of next-generation nano-bio formulation of *Trichoderma* for seed treatment of vegetable crops	RKVY	Dr. Pranab Dutta
155.	Identification of genes contributing resistance to Alternaria brassicae from a nonhost plant and their characterization in Arabidopsis for durable crop protection against blight disease in Brassica rapa.	ICAR	Dr. P. Bhorali
156.	Harnessing the potential of native endophytes against nematode fungal complex in banana in North Eastern Region of India	DBT	Dr. B. Bhagabati
157.	Engineering resistance against *Cucumber mosaic virus* in King chilli / chilli through	DBT	Dr Mamoni Borah
158.	"Understanding molecular mechanism of defense in pigeon pea (*Cajanuscajan*) due to infestation by *Helicoverpaarmigera*" in collaboration with NBRI, Lucknow and TNU, Tamil Nadu.	DBT Twining project	Dr S. Acharjee
159.	Optimization of genome editing method for chickpea with CRISPR/Cas system and edit AHAS1 gene for herbicide tolerance"	DBT	Dr S. Acharjee
160.	Study the virome, RNAome and leaf curl disease manifestation in Bhut jolokia (*C. chinense*) and *C. frutescens* of North East India	DBT Twining project	Dr.Basanta Kumar Borah
161.	Engineering of CRISPR/Cas9-mediated Potato Virus Y (PVY) resistance in Bhut jolokia (Capsicum chinense)	DBT	Dr.Ratna Kalita
162.	Seedless Plant Production and mass scale propagation of *Musa balbisiana* (Bhimkol banana) of NER using in vitro approach.	DBT-GOI	Mr Manab Bikash Gogoi
163.	Molecular dissection of defense against sigatoka infection in Banana; Exploitation of Musa germplasm of North East for development of sigatoka resistant hybrid	DBT-GOI-NER	Dr. Priyadarshini Bharali

164.	Gene prospecting from acid soil microbes: Investigating "Omics" data sets for validation of gene(s) involved with acid soil stress resistance and development of strategy to ameliorate acid and related stress in crop plants	DBT-GOI	Dr. M. Baroouh
165.	Development of cisgenic chickpea (*Cicer arietinum* L.) resistance against pod borer (*Helicoverpa armigera*)	ICAR	Dr. B. K. Sarmah
166.	Bioprospecting of soil microbes from N E region for acid tolerance genes	DBT-GOI	Dr. Madhumita Baroouh
167.	Genetic improvement of chickpea using gene technology for insect pest resistance	DBT-GOI	Dr. Sumita Acharjee
168.	Genetic improvement of rice for abiotic and biotic stress tolerance using molecular breeding, especially drought, submergence and bacterial blight disease	DBT-GOI	Dr. M.K. Modi
169.	Developing a device for measuring ground water depth	MHRD, Dept of higher education under DICIIT,Guwahati	Dr. A. S. N. Zaman
170.	Low cost device (Aspirator) designing for capturing small insects	DIC IITG	Dr. K. Dayamoy Singha
171.	Station trials on Foxtail millets	State Budget	Dr. S.K.Paul
172.	IPM in rice and Horticulture crops in NEH region, India	ICAR-NCIPM	Dr. Mukesh Sehgal
173.	Validation and Promotion of IPM in tribal region, Assam (ICAR-NCIPM -TSP Project)	ICAR-NCIPM	Dr. Mukesh Sehgal
174.	Survey of sugarcane diseases naturally occurring in the area on important sugarcane varieties	ICAR-IISR	Dr. Tulika Medhi (Co. PI)
175.	Biointensive management of Wilt disease of Sugarcane (State Trial)	State	Dr. Tulika Medhi (Co. PI)
176.	Effect of nutrient on incidence of leaf spot in sugarcane (State Trial)	State	Dr. Tulika Medhi (Co. PI)
177.	Effect of different organic practices on the crop growth and soil sustainability (Long term effect on soil properties under organic cultivation)	State	Dr. B. C, Bordoloi

178.	DRMR- AAU collaborative Research Project (TSP)	ICAR	Dr. A. Roy
179.	Rice varieties for delayed sowing and planting situation in flood affected areas of NBPZ under changing climate	AAU	Dr. Dhiren Chowdhury
180.	Deep Water Rice Improvement programme	State Budget	Dr. Dhiren Chowdhury
181.	Station trials on Finger millets	State Budget	Dr. S.K.Paul
182.	Agri alliance Project	IRRI, Philippines	Dr. T. Ahmed
183.	Improved mechanization in post harvest to reduce losses and improve quality	ICAR-IRRI collaborative project	Dr. P. C. Dey
184.	Mainstreaming rice landraces diversity in varietal development through genomic prediction: A model for large-scale utilization of gene bank collections of rice	DBT, GoI	Dr S. K. Chetia
185.	Development of superior haplotype based near isogenic lines (Hapln-NILs)for enhanced genetic gain in rice	DBT, GoI	Dr S. K. Chetia
186.	DBT-NECAB, Program on Genetic improvement of Rice	DBT, GoI	Dr M K Modi, Joint PI – Dr T Ahmed and Dr S K Chetia
187.	Germplasm conservation	AAU	Dr. T. Ahmed
188.	Quality Seed Production	AAU	Dr. T. Ahmed
189.	Effect of date of sowing and spacing on the growth and yield of Fox tail millet	State Budget	Mr. Mahadev Uzir Barumatary
190.	Evaluation of popular Maize hybrids with revalidation of fertilizer dose	State Budget	Nahajyoti Bhuyan
191.	Breeding for short duration boro rice varieties	State Budget	Nahajyoti Bhuyan
192.	Effect of weather parameters on severity of late blight disease of potato	State Budget	Dr. Vinod Upadhyay
193.	Effect of different sowing dates on blast severity in finger millets	State Budget	Dr. Vinod Upadhyay
194.	Effect of weather parameters on progress of blast disease severity in finger millet	State Budget	Dr. Vinod Upadhyay
195.	Distribution of Zinc and Boron in relation to different land use and	State Plan	Dr. Tanuja Nandy

	landforms in kokrajhar district		
196.	Resource cum productivity status and perceived agricultural constraints: A case study of a peri urban village	Project survey work supported by Lions Club of Guwahati without any fund transfer	Dr. Jayanta Kr. Sharma
197.	Assessment of Carbon Sequestration Potential of Small Homestead Gardens & Their Relationship With Sustainable Rural Livelihood Indices in Kamrup District	Project survey work supported by AICRP	Dr. Jayanta Kr. Sharma
198.	Observation trial on ''Effect of living mulch on weed management and yield in Vegetable Cropping System'	Revolving fund, HRS, Kahikuchi	Ranjita Bezbaruah
199.	Design and Development of Digital Image Database with an Android Apps and Web system for the detection of major pests and diseases of coconut of Assam	Coconut Development Board	Dr. Nirmal Mazumder
200.	Survey, Collection and Maintenance of Mango (Seedling) types in Assam	Assam Agricultural University	Dr. R. K. Das
201.	Studies on Influence of rootstock on Assam Lemon	Assam Agricultural University	Dr. R. K. Das
202.	Collection, evaluation and maintenance of local Spine Gourd (*Momordica dioica* Roxb) germplasm	Assam Agricultural University	Dr. J. Devi
203.	Fruits and Vegetable Research Scheme (P)	Assam Agricultural University	Dr. S. Yasmin Das
204.	Collection, maintenance and evaluation of Tomato (*Lycopersicon esculentum* Mill.) germplasm	Assam Agricultural University	Dr. S. Yasmin Das
205.	Resistance breeding for bacterial wilt in Tomato	Assam Agricultural University	Dr. S. Yasmin Das
206.	Collection, maintenance and evaluation of Brinjal (*Solanum melongena* L.) germplasm	Assam Agricultural University	Dr. S. Yasmin Das
207.	Collection, maintenance and evaluation of Assam lemon	Assam Agricultural University	Dr. S. Yasmin Das
208.	Establishment of Biotech KISAN Hub at Assam Agricultural	DBT	Dr. Sarat Saikia, Dr. D. J. Rajkhowa,

	University, Jorhat		Dr. U. K. Kohli, Dr. K. K. Tamuli
209.	National Innovations in Climate Resilient Agriculture (NICRA); AICRPAM component	CRIDA, ICAR	Mr. Kuldip Medhi
210.	Harnessing of potential of endophytes against root knot nematode, Melmidogyne incognita in banana"	DBT	Dr. Bhabesh Bhagawati
211.	"Bioefficacy studies on Vellum Prime (fluopyram 400 SC) on Cucumber applied through Drip Irrigation. (Company Trial)	Bayer Crop Science Ltd.	Dr. Debanand Das
212.	Effect of recommended water management practices on autumn (ahu) , Summer rice, brinjal and tomato on farmers' fields in STW commands	ICAR-AICRP on IWM, Bhubaneswar	Dr. R K Thakuria
213.	Irrigation schedule of early ahu rice on the basis of New IRRI technique of Alternate Wetting and Drying (MLT)	ICAR-AICRP on IWM, Bhubaneswar	Dr. R K Thakuria
214.	Increasing the productivity of rapeseed through the practice of system of rapeseed intensification (SCI-Rapeseed)	ICAR-AICRP on IWM, Bhubaneswar	Dr. R K Thakuria
215.	Exploring diversity genomic and transcriptome profiling and phytosemiochemicals of banana pest complex in NER region: An ecological and molecular approach	DBT (GOI)	Dr. Inee Gogoi
216.	Study the virome RNAome and leaf curl diseases manifestation in Bhut Jolokia (*C. chinense*) and *C. frutescens* of North East India	DBT-GOI	Dr. Basanta Kumar Borah
217.	Whole Genome and Transcriptome study of stress – Tolerant banana Cultivars	DBT-GOI	Dr. Mahendra Kr. Modi
218.	Development of mutant with novl characteristics in Gladiolus through irradiation	DAE-GOI	Dr. Reena B. Phookan
219.	Development, standardization and dissemination of cultivation package of medicinal plant of commercial importance in foot hill region of Eastern Himalaya	AYUSH	Dr. Hemen Chowdhury
220.	Mainstreaming agricultural biodiversity conservation and utilization in agricultural sectors to ensure ecosystem services and	GEF	Dr. Dhruba Jyoti Nath

	reduce vulnerability		
221.	Policy imperatives for promoting value chains Agricultural commodities in India	ICAR-NIAP	Dr. Ramen Kr. Sarmah
222.	Production of Healthy Planting Materials of Orange (*Citrus reticulata* Blanco) & Assam Lemon (*Citrus limon*) (Linn. Burmann) through budwood certification programme and its distribution to growers in Assam and other northeastern states	DBT-GOI	Dr. Amrit Ch. Barbora
223.	Improved crop management and Strengthened seed Supply system for drought prone rain-fed lowlands in South Asia	IRRI-IFAD funded project	Dr. Khagen Kurmi
224.	Management of low temperature and soil moisture deficit stresses in banana grown in North Eastern India	DBT-GOI	Dr. Prakash Kalita
225.	Harnessing the potential of endophytes against root knot nematode, *Meloidogyne incognita* in Banana	DBT-GOI	Dr. Bhabesh Bhagawati
226.	Screening of Banana Germplasm from the N. E. for Fusarium wilt resistance and molecular characterization in contrasting genotypes	DBT-GOI	Dr. Ashok Bhattacharyya
227.	Downstream processing for utilization of banana wastes for natural fibreextaction, fiber based products, biomass briquettes & utility compounds	DBT-GOI	Dr. Pritom Kr. Borthakur
228.	Engineering of CRISPR/Cas 9-mediated potato virus Y (PVY) resistance in Bhut Jolokia (*Capsicum chinense*)	DBT-GOI	Dr. Ratna Kalita
229.	Establishment of Biotechkisan hub at Assam Agril. University, Jorhat	DBT-GOI	Dr. Sarat Saikia
230.	Regional-Cum-Facilitation Centre (RCFC)	AYUSH	Dr. Iswar Ch. Baruah

C2. Ad Hoc Research Project (New)

1.	MLT on Fibre yield maximization in ultratieven jute through nutrient management	State Budget	Mr. Mahadev Uzir Baruamatary
2.	Mobile Based Rice Expert System	DR(Agri), AAU	Dr. R. P. Paswan

	(Sali Rice) for Assam		
3.	Strengthening AAU's Capacity for Research on Organic Farming" (Development of Biofertilizer and Biopesticide Production Unit).	RKVY	Dr. Dhruba Jyoti Nath
4.	RKVY-Remunerative Approaches for Agri and allied Sector Rejuvenation	DAC & FW, GoI	Dr. Danish Tamuly
5.	Upliftment of tribal population of Golaghat district of Assam through bioinput based organic ginger production.	DST	Dr. L. C. Bora
6.	Detection of a mushroom toxin using nanoparticle-based Sensor	DBT	Dr. Robin Chandra Boro
7.	Response of sugarcane to graded doses of NPK fertilizer	State	Dr. B. C, Bordoloi
8.	Study on Zn nutrition in sugarcane crop	State	Dr. B. C, Bordoloi
9.	Soil test crop response studies in sugarcane	State	Dr. B. C, Bordoloi
10.	Field evaluation of chemicals for management of borers in sugarcane	State	Dr. B. C, Bordoloi
11.	Study on varietal response of sugarcane against their pest	State	Dr. B. C, Bordoloi
12.	Evaluation of *T. chilonis* against plassey borer *Chilo tumidicostalis* in Sugarcane	State	Dr. B. C, Bordoloi
13.	Station trial of CR Dhan varieties	State	Nabajyoti Bhuyan
14.	MLT on Hybrid Maize (Rabi), Sali paddy varieties from RARS, Titabar; Direct seeded rice; paddy in organic condition; Sali rice & Scented rice from RARS, Karimganj; Paddy hybrid from DR(Agri.); Ramie from BNCA; Rapeseed from AICRP, WM; Yellow Sarson from Deptt. of PBG; Field Pea, Lentil in zero tillage paddy and wheat from RARS, Nagaon; Mustard Variety Bullet from DR (Agri.)	State	Nabajyoti Bhuyan
15.	Study on growth and development of two dragon fruit genotype under LBVZ	State	Dr. Bikash Hazarika
16.	Effect of enhanced dose of NPK on growth and development of immature propagules of gladiolus	Faculty Research	Dr. S.K. Borah
17.	Integrated approach for sustainable development of turmeric sectors of North Eastern and Bundelkhand	DBT	Dr. Pradip Mahanta

	regions of India by enhancing productivity and profitability using high curcuminoid genotypes, organic and GAP modes of cultivation with efficient post harvest technology		
18.	Effect of varying drip irrigation level and NPK fertigation on rice (autumn)-greengram-broccolli cropping system in Assam	ICAR-AICRP on IWM, Bhubaneswar	Dr. R K Thakuria
19.	Morphometry, soil erodibilty and productivity potential of flood prone Brahmaputra basins of Dhemaji district using remote sensing and GIS	Indian Space Research Organization, Bengaluru	Dr. Bipul Deka
20.	Converting organic waste to commercial humic acid formulation for agri-entrepreneurship development	Ministry of Agriculture, Govt. of India	Dr. Bipul Deka
21.	Suitability classification for construction of rainwater harvesting system through application of RS and GIS for efficient water management in Karbi-Anglong	ASTEC	Kabyasree Chowdhury
22.	Development of mobile app for Rice Pest Management System	AAU (State Fund)	Dr. R. P. Paswan

C3. Ad Hoc Research Projects (Completed)

1	Resource Use Planning for Sustainable Agriculture		Dr. Nivedita Deka
2	Molecular breeding for development cold tolerant *Boro* rice cultivars at the seedling stage suitable for Assam condition	DBT-GOI	Dr. A. R. Baruah
3	Wild mushroom from NE India: evaluation of their nutritional status and medicinal properties.	DST-GOI	Dr. Robin Ch. Boro
4	DBT project Biodiversity Studies of Aromatic Rice of North East India	DBT-GOI	Dr. Mohendra Kr. Modi
5	Genome and transcriptome sequencing of Aromatic Rices of North Eastern Region	DBT-GOI	Dr. Mohendra Kr. Modi
6	Molecular Diagnostics, Transcriptomics and Cisgenic Approaches to Combat Citrus Greening (Huanglongbing) Disease of Citrus.	DBT-GOI	Dr. Salvinder Singh
7	Development of high yielding,	DBT-GOI	Dr. Aiswarya Baruah

	non-lodging and biotic resistant varieties of black scented rice of Manipur and Joha rice of Assam through biotechnological intervention		
8	Development of high yielding, non-lodging and biotic resistant varieties of black scented rice of Manipur and Joha rice of Assam through biotechnological interventions.	DBT-GOI	Prof. B. K. Sarmah
9	Elucidating the role of bacterial endosymbionts in phytopathogenic fungi for toxin production and pathogenesis.	DBT-GOI	Dr. Robin Ch. Boro
10	Study of mitochondrial electron transport chain (ETC) dysfunction that modulates aging and development in *C. elegans* through CEP-1, the worm homolog of mammalian p 53	DBT-GOI	Dr. Aiswarya Baruah
11	Large Scale Demonstration programme on Mustard Variety (NRC-HB101) at Majuli under RKVY_RAFTAAR,2019-20	ICAR	Dr. Sundar Barman
12	Moving towards a sustainable private sector by creating responsible business behavior in tea industry in Assam	NGO: Save the Children	Mr. D. Kashyap
13.	Integrated approach to understand agar wood formation and value addition of Agar wood	DBT-GOI	Dr. Madhumita Barooah
14.	Biodiversity Studies of Aromatic Rice of North East India.	DBT, Govt. Of India	Dr. T.Ahmed
15.	Stress-tolerant rice for poor farmers of Africa and South Asia (STRASA), Phase 3	Bill and Melinda gates foundation (BMGF), IRRI	Dr.T.Ahmed
16.	Eastern India rain fed lowland shuttle breeding programme	IRRI, Philippines	Dr.T. Ahmed
17.	Phenotyping of mapping populations and donors under normal situations towards development of high-zinc rice of Eastern India.	IRRI, Philippines	Dr.T. Ahmed
18.	Large scale demonstration of short duration mustard variety (NRCHB-101) in Lakhimpur district of Assam	RKVY	Dr. P. Saikia
19.	Augmenting Rapeseed-Mustard production of Tribal farmers of NE	DRMR, ICAR, Rajasthan	Dr. P. Saikia

	States for sustainable Livelihood security		
20.	IBSD-AAU Partnership Project on Production of healthy planting material of Orange (*Citrus reticulata* (Blanco.) and Assam lemon (*Citrus lemon* (Linn.) Burmann.) through budwood certification programme and its distribution to growers in Assam and other North-eastern states.	Institute of Bioresources and Sustainable Development (IBSD)	Dr. A.C. Barbora
21.	Development of High Yielding, Non-lodging and Biotic Resistant Varieties of Black Scented Rice of Manipur and Joha Rice of Assam through Biotechnological Intervention.	DBT, Govt. Of India	Dr. S.K Chetia
22.	Development of shorter duration of the Mega Variety *Ranjit* with the help of mutation breeding and MAS.	BRNS, Govt. Of India	Dr. S.K Chetia
23.	Direct seeded rice (DSR)	AICRP	Dr. Nabah T. Rafique
24.	Fertility Capability Classification of RARS farm	State Plan	Dr. Tantuja Nandy
25.	Soil site suitability evaluation for different crops	State Plan	Dr. Tantuja Nandy
26.	Distribution of secondary nutrients in RARS farm	State Plan	
27.	Observational trial on forage crops	State Plan	Dr. Tantuja Nandy
28.	Studies on Scimic compatibility of Assam lemon with different rootstocks	Revolving fund, HRS, Kahikuchi	Mr. Anjan Borah
29.	Influence of Rootstock on Rough Lemon	Revolving fund, HRS, Kahikuchi	Mr. Anjan Borah
30.	Occurrence of major pests and their management in selected medicinal plants, impact of pest damage on the active fractions	National Medicinal and Plant Board, Ministry of AYUSH	Dr. (Ms) Bina B. Gogoi
31.	Bioefficacy of Vellum Prime 400 SC against root knot nematode infecting brinjal. (Company Trial)	Bayer Crop Science Ltd.	Dr. B. N. Choudhury
32.	Development of power operated traditional rice pounding machine	In-House	Dr. A Borah
D.Ad-Hoc Research Project under DBT-GOI AAU Centre			
1	Gene technology for crop management	DBT-GOI	Dr. Bidyut Kr. Sarmah (PI) Dr. Sumita Acharjee (PI)

2	Molecular characterization and gene mining in rice	DBT-GOI	Dr. Mohendra Kr. Modi (PI.)
3	Bioprospecting of soil microbes for acid tolerance gene	DBT-GOI	Dr. Madhumita Barooah (PI.)
4	Biofertilizer programme	DBT-GOI	Dr. Rajen Barooah (PC)
5	Biopesticide programme	DBT-GOI	Dr. Lohit Ch. Bora (PC)
6	Prospecting of agricultural weeds and wastes from Assam as the potential energy sources for lignocellulosic alcohol production	DBT-GOI	Dr. Tankeswar Nath (PI)
7	Transfer of unique antioxidant potential of coloured rice of Assam to elite high yielding rice line by utilizing flavonoid biosynthesis gene based marker assisted breeding'	DBT-GOI	Dr. Bidyut Kr. Sarmah

D1. Ad-Hoc Research Projects under DBT-GOI-AAU Centre (Continuing)

1	Development of high yielding, non-lodging and biotic resistance varieties of Black scented rice of Manipur and Joha rice of Assam through Biotechnological intervention	DBT-GOI	Dr. Bidyut Kr. Sarmah
2	Extra mural Projects running under DBT-AAU Centre, Assam Agricultural University, Jorhat during 2011 to 2017	DBT-GOI	Dr. Bidyut Kumar Sarmah
3	Genetic studies to understand mitochondrial electron transport chain dysfunction using *Caenorhabditis elegans*	DBT-GOI	Dr. Aiswarya Baruah
4	Functional validation of yield related genes in rice	DBT-GOI	Dr. Prasanta Kr. Das
5	Understanding the molecular mechanism of anaerobic germination in hypoxia tolerant rice germplasms of Assam through functional genomics study	DBT-GOI	Dr. Prasanta Kr. Das
6	Screening of the indigenous rice germplasms of Assam for tolerance to anaerobic condition during germination and marker assisted introgression of the trait to elite variety	DBT-GOI	Dr. Prasanta Kr. Das
7	Studies on role of endophytes in variation of acaricidal properties of two acaricide producing plant species NBA 22/FI and NBA18/DI from North Eastern States	DBT-GOI	Dr. Tankeswar Nath

8	Efficacy evaluation of encapsulated fungal formulation for improving crop phosphorus nutrition	DBT-GOI	Dr. Tankeswar Nath
9	Elucidating the role of bacterial endosymbionts in phytopathogenic fungi for toxin production and pathogenesis	DBT-GOI	Dr. Tankeswar Nath
10	Seed less Plant Production and Mass Scale Propagation of *Musa balbisiana* (Bhimkol Banana) of NER using in vitro approach	DBT-GOI	Mr. Manab Bikash Gogoi

2. Faculty of Community Science

A. All India Coordinated Research Projects

1	AICRP on Home Science		
1a	Dynamics & performance of women's group in agricultural and allied sector (Extn Component)	ICAR	Dr. Manoshi Baruah Deka
1b	Dredgery Assessment and Mitigation (FRM Component)	ICAR	Dr. Ruplekha Borah
1c	Functional clothing to combat occupational hazards of farm workers and utilization of plant sources and animal fibers for textile applications (CT component)	ICAR	Dr. Nabaneeta Gogoi
1d	Capacity building of Agrarian families (CD Component)	ICAR	Dr. Mala Handique
1e	Food and nutritional strategies to combat nutritional problems among farm families (FN Component)	MoFPI	Dr. Pranati Das
2	Reproductive Health Care in Agrarian families	ICAR-CIWA	Dr. Mala Handique
3	Comprehensive use of underutilized natural fibres and plant sources for sustainable livelihood of farm families	ICAR	Dr. Nabaneeta Gogoi
4	Project on Capacity building: A	ICAR	Dr. Nabaneeta Gogoi

	social pursuit through popularization and product diversification of ethnic crafts on textiles with ICT application		
5	Drudgery reducing farm technologies for gender equity	ICAR	Dr. Nandita Bhattacharyya
6	Ergonomics for Work Improvement and gender equity in Agro-Enterprise	ICAR	Dr. Nandita Bhattacharyya
7	Reproductive Health Care in Agrarian families	ICAR-CIWA	Dr. Jonmoni Saikia
8	Development of Parenting Index for Rural Families (PIRF)	ICAR-CIWA	Dr. Jonmoni Saikia

A. Ad-hoc Research Projects

B1. Ad-Hoc Research Projects (Continuing)

1	Early language acquisition – An approach to alphabet learning in Assamese language	MHRD-GOI	Dr. Juri Barnah
2	Efficiency Innovation For Pounding of Rice	MHRD-GOI	Dr. Ruplekha Borah
3	Consumption pattern of foods and food products/items high in fat, salt and sugar among selected cities/towns and rural population of India	ICMR	Dr. Pranati Das
4	Promotion of agriculture centric sustainable livelihood security for tribal farmers of Assam Under Scheduled Tribe Community (STC), TSP project	ICAR	Dr. Pranati Das
5	Development and evaluation of dehydrated and irradiated jackfruit (*Artocarpus heterophyllus*) products	BRNS-GOI	Dr. Pranati Das
6	Development of region-specific therapeutic foods for prevention of diabetes	ICAR	Dr. Pranati Das

7	Dietary approach for management of dual burden of malnutrition among farm women	ICAR	Dr. Pranati Das
8	Tribal Sub Plan Project on Home Science	ICAR	Dr. Pranati Das
9	Design approaches for occupational wellness of pluckers engaged in manual tea plucking activity	MHRD-GOI	Dr. Nandita Bhattacharyya
10	Design Innovation Centre DIC, IIT, Guwahati	GoA	Dr. Nandita Bhattacharyya
11	Ergonomic Design approaches for occupational wellness of pluckers engaged in manual tea plucking activity	IIT	Dr. Nandita Bhattacharyya
12	Promoting Farm Women Knowledge Groups (FWKGs) for Enhanced Use of ICT in Agriculture and Allied Sectors	ICAR,CIWA	Mrs. Mayuri Bora
13	Management of Green Waste for Economic Benefit and Women Empowerment	DBT-GOI	Dr. Bijoylaxmi Bhuyan
14	Empowerment of farm women on climate change	ICAR,CIWA	Mrs. Mayuri Bora
15	Scoping IFS Models from Gender Perspective with Focus on Enhancing Farm Income	ICAR,CIWA	Mrs. Mayuri Bora
	Ad Hoc Research Projects (Completed)		
1	Diversification of Handloom Products for entrepreneurial development	ICAR	Dr. Binita B. Kalita
2	Desk Research on Compilation of existing	Save the Children, Bal Rakshya Bharat	Dr Manisha Choudhury

ASSAM AGRICULTURAL UNIVERSITY 179

APPENDIX- II

Externally Funded Research Projects in operation in the Faculty of Veterinary and Faculty of Fishery Science during 2019-20

Sl. No	Name of the Scheme	Funding Agency	In-Charge
I. Faculty of Veterinary Science			
A. All India Coordinated Research Projects (AICRP)			
1	AICRP on Epidemiological Studies on FMD	ICAR	Dr. Krishna Sharma
2	AICRP on Pig	ICAR & State	Dr. Dhireswar Kalita
3	AICRP on Mega Seed Production of Pig under AICRP on PIG	ICAR	Dr. Dhireswar Kalita
4	AICRP on Nutritional and Physiological Approaches for Enhancing Reproductive Performance in Animal.	ICAR	Dr. Kutubuddin Ahmed
5	AICRP on Post Harvest Engineering & Technology(Meat and Meat products).	ICAR	Dr. Mineswar Hazarika
6	AICRP on Poultry Breeding.	ICAR	Dr. Nirmajan Kalita
7	AICRP on Goat Improvement.	ICAR	Dr. Naba Nahardeka
8	AICRP on Disease Monitoring and Surveillance (PD-ADMAS).	ICAR-NIVEDI	Dr. Dutlav Prasad Bora
B. Network/ Outreach Project			
1	ORP on Ethno Veterinary medicine	ICAR	Dr. Chandana Choudhury Barua
2	Outreach programme on Livestock Related Environmental Pollutants, Contaminants & Toxicants (Monitoring of Drug Residues and Environmental Pollutants).	ICAR	Dr. D.C. Ray
3	Outreach programme on Zoonotic diseases.	ICAR	Dr. A. G. Baruah
4	Network Project on Swamp Buffalo	ICAR	Dr. G.C. Das
5	Network Project on Gastro-Intestinal Parasitism'.	ICAR	Dr. Kanta Bhattacharjee
6	DBT Network Project on Brucellosis.	DBT	Dr. Girindra Kumar Saikia
7	Molecular characterization and development of breed signatures for indigenous sheep of northeast India	ICAR	Dr. Arundhati Phookan
C. Ad-hoc Research Projects			
C1. Ad- Hoc Research Projects Continuing			
1	DBT-NER Centre for Advanced Animal Disease Diagnosis and Management Consortium (ADMaC).	DBT, GOI	Dr. N. N. Barman

2	Epidemiological studies on emerging infectious diseases of elephants (*Elaphas maximus)* with special reference to tuberculosis (TB) and elephant endotheliotropic herpes virus (EEHV).	DBT, GOI	Dr. Gauranga Mahato
3	Creation of Online repository of Biotechnology & Biinformatics resources of north east India (BABRONE).	DBT, GOI	Dr. Probodh Borah
4	Sero surveillance of Leptospira infection in animals of North Eastern region of India.	DBT, GOI	Dr. Dutlav Prasad Bora
5	Study on persistence of Japanese encephalitis in reservoir host pig in JE endemic area of Odisha, Manipur and Assam.	DBT, GOI	Dr. Prabodh Bora
6	Development of subviral particle of Infectious Bursal Disease virus as a potential vaccine and diagnostic candidate.(in collaboration with GADVASU), Ludhiana.	DBT, GOI	Dr. Sutopa Das
7	"Molecular Epidemiology of Group A rotavirus (RVA) infections in the North Eastern Region (NER)".	DBT, GOI	Dr. Sutopa Das
8	Seroservillance, isolation and molecular characterization of bluetongue virus in sheep and goats of Tripura and Assam states.	DBT, GOI	Dr. Nagendra Nath Barman
9	Development and evaluation of DIVA based vaccine utilizing an Indian isolate of classical swine fever virus.	DBT, GOI	Dr. Nagendra Nath Barman
10	Veterinary Type Culture.	ICAR	Dr. A.K. Hazarika
11	Exploring selected natural plant sources of North East parts of India as potential therapeutic agents useful for the treatment of cancer	DBT, GOI	Dr. Chandana Choudhury Barua
12	Modulation of lipo polysaccharide-induced depressive behavior by few indigenous plants of North East India and their molecular mechanism.	DRDO-LSRB	Dr. Chandana Choudhury Barua
13	Characterization of Kisspeptin and KiSS1 gene during reproductive cyclicity and pregnancy in Assam local and crossbred cows.	DBT, GOI	Dr. Anubha Baruah
14	Enhancing pig productivity by optimizing bio molecular expression through nutritional intervention in the existing system of pig farming.	DBT, GOI	Dr. Sanjib Bora
15	Conservation of indigenous pig of Assam through handmade cloning	DBT, GOI	Dr. Nikhil Ch. Nath

	technique		
16	Isolation, characterization and development of a culture method for long term preservation of spermatogonial stem cell from doom pig.	DBT, GOI	Dr. Arpana Das
17	Molecular characterization of fecundity genes in Assam Hill Goat.	DBT, GOI	Dr. Farzin Akhtar
18	Capacity building and awareness generation for enhanced productivity of pig through assisted reproductive biotechnology and conservation of biodiversity in North Eastern Region through community participation.	DBT, GOI	Dr. Kutubuddin Ahmed
19	Empowerment of the rural women through capacity building in improved biotechnolngical innovation and application .	DBT-GOI	Dr. Bikash Borthakur
20	Understanding the etiology of infertility associated with prolonged follicle dominance in bovine and its therapeutic management	DBT-GOI	Dr. Manjyoti Bhuyan
21	Farmers friendly innovative mechanical devices for boosting		Dr. N. N. Barman
22	An Integrated Approach to explore and exploit the Innate and Adaptive immune response in Indigenous Duck Breeds of North Eastern and South India	DBT-GOI	Dr. Dhruba Jyoti Kalita
23	Analysis of Gut Metagenome of Duck (*Anas platyrhynchos*) with special reference to Identification of Bacteria having Probiotic Potential	DBT-GOI	Dr. Probodh Borah
24	Molecular Platform for Epidemiology, Disease Mapping and Development of Diagnostics for Economically important Diseases of Ducks	DBT-GOI	Dr. Sulekha Choudhury Phukan
25	Genetic Up Breeding of duck production to strengthen livelihood security in NER of India by converging conventional and molecular techniques	DBT-GOI	Dr. Purabi Kanshik
26	An integrated omics approach to characterize circulating Newcastle disease virus and interventions strategies to control Newcastle disease in North East India	DBT-GOI	Dr. Pankaj Deka
27	Development of DIVA diagnostics and marker vaccine against duck plague virus	DBT-GOI	Dr. Sutapa Das
28	Biotechnological interventions to augment productive performance of	DBT-GOI	Dr. Robin Bhuyan

	pigs on horticultural by product based diet		
29	Regulation of Corpus Luteum Function by Locally Produced Angiogenic Growth Factors in Pigs (*Sus scrofa*)"	DBT Ministry of Science and Technology	Dr. Sanjib Borah
30	Technology Intervention in Household Piggeries for doubling farmers' income by setting up rural transformation Clusters	DBT-GOI	Dr. K. Ahmed
31	Genetic Characterization of Antibiotic Resistant *Clostridium perfringens* and *Clostridium difficile*, and their Public Health Significance	DBT-GOI	Dr. Rajeev Kumar Sharma
32	Development of Iron-Enriched Spent Hen Meat Products for boosting layer Industry and Entrepreneurship	NABARD	Dr. Deben Saperta
33	Molecular Epidemiology of Canine Tuberculosis in Assam, neighboring States and its Containments	DBT-GOI	Dr. Archeenta Gohain Barua
34	Prevalence and drivers of select zoonotic pathogens and use of antimicrobials in livestock farms in North-East region: A mixed methods study	ICMR, New Delhi	Dr. Girindra Kumar Saikia
35	Value Chain On Processing of Novel Duck Meat and Egg Products under Existing Farming Systems of NER for Entrepreneurship Development	DBT-GOI	Dr. Mineswar Hazarika
36	Attempt to Develop Diagnostic and Preventive measure for Suspected Fish Viral Diseases encountered in Assam	DBT-GOI	Dr. N.N. Barman
37	Strategic inclusion of different varieties of dietary nano-iron and zinc particles for better health and production of designer meat	DBT-GOI	Dr. Bibekananda Saikia
38	Indigenous development of a new suture mediated closure of arterial access site to achieve instant haemostasis following catheter angiography	DBT-GOI	Dr. Subramoni Kanagaraj
39	Value Chain On Processing of Novel Duck Meat and Egg Products under Existing Farming Systems of NER for Entrepreneurship Development	DBT-GOI	Dr. Mineswar Hazarika
40	Technology Intervention in Household Piggeries for doubling farmers' income by setting up rural transformation Clusters	DBT-GOI	Dr. K. Ahmed
41	Procurement of progeny tested Bucks for improved semen production.	RKVY	Dr. S. Sinha

42	Outreach Programme on Ethno-veterinary Medicine. (ICAR, GOI, New Delhi)	ICAR, GOI, New Delhi	Dr. Chandana Choudhury Barua
43	Exploring Selected Natural Plant Sources of North east of India as Potential Therapeutic Agents useful for the treatment of cancer	DBT-GOI	Dr. Chandana Choudhury Barua
44	Evaluation of neuroprotective potential of selected Phytoconstituents on Experimental Diabetic Neuropathy: focus on Mitochondrial Function and Mitochondrial Biogenesis.	DBT-GOI	Dr. Chandana Choudhury Barua
45	Outreach programme on on "Monitoring of Drug Residues and Environmental Pollutants	ICAR, NewDelhi	Dr. D.C. Roy
46	Epidemiological studies on emerging infectious diseases of Elephants (*Elaphas maximus*) with special reference to tuberculosis (TB) and elephant endotheliotropic herpes virus (EEHV)	DBT-GOI	Dr. G. Mahato
47	An Integrated Approach to explore and exploit the Innate and Adaptive immune response in Indigenous Duck Breeds of North Eastern and South India	DBT-GOI	Dr. Dhruba Jyoti Kalita
48	Outreach Project on Zoonotic Disease	ICMR, New Delhi	Dr. A. GohainBarua
49	Advanced Animal Disease Diagnosis and Management Consortium (ADMaC)	Department of Biotechnology	Dr N N Barman
50	Prevalence and drivers of select zoonotic pathogens and use of antimicrobials in livestock farms in North-East region: A mixed methods study	ICMR	Dr. G.K Saikia
51	Species identification of wild herbivores based on molecular, microscopic and ultrastructural characterization of hair samples	DBT, New Delhi	Dr (Ms) Mrinmoy Sarma
52	Creation of Bioinformatics Infrastructure Facility (BIF) for the Promotion of Biology Teaching through Bioinformatics (BTBI) Scheme of BTISnet"	DBT, GOI	Dr. Probodh Borah
53	M.V.Sc. Programme in Animal Biotechnology	DBT, GOI	Dr. Probodh Borah
54	Online journal access facility under DBT's eLibrary Consortium (DeLCON)	DBT, GOI	Dr. Probodh Borah

55	State Level Biotech Hub for the State of Assam	DBT, GOI	Dr. Probodh Borah
C2.	**Ad Hoc Research Projects (Completed)**		
1	Molecular characterization and development of breed signatures for indigenous sheep of northeast India	ICAR	Dr. Arundhati Phookan
2	Aflatoxin – tolerant duck production through genetic and epigenetic approaches.	ICAR-NASF, NEW DELHI	Dr. Nikhil Ch. Nath
3	Development of nanoparticle or micro particle adjuvanted subunit oral vaccine against poultry Salmonellosis.	NER-BPMC (DBT, New Delhi)	Dr. Shantanu Tamuly
4	A detailed study on "Seasonal influences on Broiler Production Practices, Economics and its role on self employment in 5 BRGF District of Assam.	SIRD	Dr. B.K. Sarmah
5.	Pig Farming through promotion of farmers Producer Organization, Tamulpur Sub division, Baksa (BTAD) District, Assam'.	ASTEC	Dr. Kamaleswar Kalita
C3.	**Ad Hoc Research Projects (New)**		
1.	Effect of Lead poisoning in Anatomical and Molecular Changes in Certain Visceral Organs of Adult Pati Ducks in Assam		Dr. Snehangsu Sinha
2.	Generation of DNA vaccine with a mutated capsid gene of porcine circovirus type 2 and evaluation of its immuno-potential		Dr. Lukumoni Buragohain
3.	In-silico characterization and biological validation of potential peptide vaccines for Salmonella Typhi using the outer membrane protein PagN as target		Dr. Deep Prakash Saikia
4.	Assessment of male infertility using infrared digital thermography in livestock		Dr. Manna Baruti
5.	Implementation of Electronic resistance on vaginal mucus (EVM) technology to improve reproductive performances of crossbred cows		Dr. Raju Deka
6.	Women Empowerment through Scientific Rearing of Superior Goat in Lakhimpur and Dhemaji District		Dr Sanjib Khargharia

of Assam

2. Faculty of Fishery Science

A. College of Fisheries, Raha

A1. Ad Hoc Research Projects (Continuing)

1	Socio economic upliftment of fish farmers of Kamrup and Morigaon districts through culture and propagation of *Monopterus cuchia*, a farmers participatory approach.	Assam Science Technology & Environmental Council (ASTEC)	Dr. Kamaleswar Kalita
2	National Surveillance Programme for Aquatic Animal Diseases (NSPAAD).	National Bureau of Fish Genetic Resources (NBFGR)	Dr. Binod Kalita
3	Assessment of Environment, Health and Ichthyofaunal Biodiversity of Tirap and Tirap Rivers of Arunachal Pradesh and Promotion of Fish Centric Supplementary Livelihood Options through a Participatory Approach, Govt. of India.	National Mission on Himalayan Studies (NMHS), Ministry of Environment, Forest and Climate Change	Dr. Rajdeep Dutta
4	Sustainable Livelihood promotion through Integrated Farming System (IFS) in Schedule Tribal (ST) dominated areas of Central Brahmaputra Valley, Assam	DBT-GOI	Mr. Bipul Phukan
5	Refinement of Process Protocol for Preparation of Traditional Fermented Fish Products of Northeast India by using Biotechnological Tools and its Process Mechanization	DBT-GOI	Dr. Bipul Kumar Kakati
6	Development Of Sustainable Rural Livelihood Options Through Hygienic Fish Drying Activities By Establishment Of Technology Demonstration Centre	DBT-GOI	Dr. Bipul Kumar Kakati
7.	Scientific Conservation Programme of Indigenous Fish (SCOPIF) – Current Status of Ichthyofaunal Diversity in Brahmaputra and Barak Valley of Assam and Creation of Live Gene Bank		Mr. Bipul Phukan
8.	Development of cell culture attenuated Duck plague virus vaccine		Dr. N.N. Barman
9.	Modernization of existing poultry Farm for collection, preservation, improvement and chick production		Dr. Reema Saikia
10.	Establishment of duck breeding farm for production of day-old duckling		Dr. Mihir Sarma
11.	Development of Market Driven Value Added Fish Products by Establishment		Mr. Inam A. Hussain

	of Mini Fish Processing Plan		
12.	Seed production ,culture and end products development of murrels		Dr. Dipak Kumar Sarma
13.	An exploration on Indigenous Ornamental fishes of Lower Brahmaputra Valley and possibilities of their Propagation under Captive Condition		Ms. Jyotismita Thakuria

B. Fisheries Research Centre, Jorhat

B1. Ad hoc Research Project (continuing)

1	Low cost Aquaponics system as a component of integrated livestock fish farming.	RF of AAU	FRC, Dr. Bibha Chetia Borah
2	Development of Automatic fish seed grader cum counter.	DIC-IIT, Guwahati	Dr. Bibha Chetia Borah
3	Induced breeding and seed production of indigenous climbing perch (*Anabas testudineus*).	RF of AAU	FRC, Dr. Bibha Chetia Borah

B2. Ad hoc Research Project (Completed

1	Refinement of breeding technology of *Clarias magur*.	RF of AAU	FRC, Dr. Bibha Chetia Borah
2	Advanced breeding of carps through enhancement of environmental temperature by using UV stabilized LDPE film.	RKVY	Dr. Bibha Chetia Borah
3	Technology show casing on integrated three tier poultry-pig-fish faring system.	RKVY	Dr. Bibha Chetia Borah

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