NAHEP

CAAST-IFS

BAU UPDATES

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Birsa Agricultural University, Ranchi – 834006, Jharkhand

From the Desk of the CAAST Team Leader…

Agriculture in India, through research and technology development, has enabled the country to increase the production of food grains, horticultural crops, fish, milk and egg production since 1950-51, thus making a visible impact on the nation's food and nutritional security. Subsequently, the problems arising in modern agriculture are decline in agriculture growth rate, decline in factor productivity, static or decline in food production, increasing malnutrition, shrinkage in net cultivable area, increasing environmental pollution, depleting groundwater table, increasing cost of production, low farm income, increasing unemployment, high incidence of poverty and ill health of the farmers. Over and above, the improvement in the livelihood and socio-economic development is also an important issue.

Therefore, for the overall development of agriculture, the technologies must be supplemented to ensure the provision of essential facilities and services to the farmers need for obtaining higher yield. Thus, integration of different agricultural and allied enterprises with crop activity as base would provide the ways to reuse and recycle produce/ waste material of one component as input in the other linked component and to reduce the cost of production of the economic produce of the another component and finally to enhance the net income of the farm as a whole; which will be helpful in mitigating the challenges in terms of better livelihood and socio-economic upliftment. The agricultural experts have to focus on the diversification and integration of enterprises on the shrinking land-based research needs within the bio-physical and socio-economic environment to make farming more profitable, dependable and sustainable, because the crop and cropping system-based farming has increased the productivity but also reduced the diversification of enterprises on the farm resulting in loss of the farm viability, degradation of soil, environment and society.

(O. N. Singh)

Workshop on Pre Launching-cum-Awareness Programme of NAHEP-CAAST on 'Standardization of Integrated Farming System Models for the State of Jharkhand' held on 16th November, 2019

Pre launching – cum – Awareness Programme of CAAST Project **"Standardization of Integrated Farming System Models for the state of Jharkhand"** was held on 16.11.2019 at RAC Auditorium of Birsa Agricultural University, Ranchi. The Chief Guest was Dr. P. K. Ghosh, National Coordinator (CAAST) NAHEP, ICAR, New Delhi. About 450 participants including Faculties, PG students, KVK Scientists, Govt. Officials, NGO personnel, etc. participated in the programme. The Principal Investigator Dr. M. S. Malik briefed about the project "Standardization of Integrated Farming System Models for the state of Jharkhand" allotted to the Birsa Agricultural University, Ranchi. Thereafter a meeting with Vice- Chancellor, Comptroller, PI and Co-PI was held and highlighted about procurement process, delegation of power to the Principal Investigator and also suggested for smooth conduct of the project. Office of the NAHEP-CAAST was inaugurated by the National Coordinator (CAAST) Dr. P. K. Ghosh in the building of Faculty of Forestry. Registrar BAU, Faculty members and PG students were present.

कृषि पर रिसर्च में कास्ट बनेगा मददगार

Development of Indigenous Eco Green Village, Ulihatu- An IFS Approach

NAHEP-CAAST-IFS Programme was started with PRA (Participatory Rural Appraisal) survey from Bhagwan Birsa Munda Janmasthali, Ulihatu (Khunti district in Jharkhand) and published a report on "**Development of Indigenous Eco Green Village, Ulihatu- An Integrated Farming System Approach**", which was released by the Hon'ble Governor of Jharkhand, Smt. Draupadi Murmu on the eve of Birsa Jayanti on 15th November, 2019.

Exposure visit of tribal farmers on IFS organized by NAHEP-CAAST

Three days exposure visit of nearly 85 tribal farmers was organized by NA HEP-CAAST for acquaintance with the various components of Integrated Farming System. The farmers visited the different unit like Cropping System, Horticulture, Mushroom, Dairy, Poultry, Goatry, Piggery, Apiary, Agroforestry, etc.

Recruitment of contractual staffs under NAHEP-CAAST

The contractual staffs as per the sanctioned posts of Research Associates, Senior Research Fellows, Young Professionals, Skilled and Unskilled Persons have been recruited and functioning smoothly. The delay in recruitment was due to the Assembly election of Jharkhand.

Recruitment of contractual staffs under NAHEP-CAAST

The contractual staffs as per the sanctioned posts of Consultants, Research Associates, Senior Research Fellows, Young Professionals, Skilled and Unskilled Persons have been recruited and functioning smoothly. The delay in recruitment was due to the Assembly election of Jharkhand.

Sl. No.	Name	Designation	Specialization
1	Dr. Angadi Rabbani	Consultant	Horticulture
2	Dr. K.S. Risam	Consultant	Veterinary Science
3	Mr. Sunny Kant Sinha	Consultant	Finance
4	Dr. Deeba Hasan	Research Associate	Agronomy (Till July 2020)
5	Dr. Adyant Kumar	Research Associate	Agronomy
6	Dr. Anita F. Katekhaye	Research Associate	Veterinary Science
7	Dr. Nirmala Kumari	SRF	Soil Science
8	Dr. Sudeepa Kumari Jha	SRF	Entomology
9	Dr. Amarjeet Kujur	SRF	Agronomy
10	Ms. Nikita Kumari	SRF	Agro-forestry (Till December 2020)
11	Mr. Ranjan Kr. Nirala	SRF	Agricultural Engineering
12	Mr. Naveen Kr. Ranjan	SRF	Horticulture
13	Ms. Lily Sinha	SRF	Plant Pathology
14	Ms. Christina Minz	SRF	Agricultural Economics
15	Mr. Arvind Roshan Khalkho	YP-II	Entomology
16	Mr. Pradeep Kr. Thakur	YP-II	Agro-forestry
17	Ms. Lovelin Shweta Xaxa	SP	Veterinary Science (Till November 2020)
18	Mr. Lakshman Hansda	SP	Entomology
19	Ms. Shefa Mahroze	SP	Agriculture Science (Till August 2020)
20	Ms. Suman Kumari	SP	Accounts
21	Ms. Gouri Kumari	SP	Accounts
22	Mr. Tarique Anwar	SP	Computer Science
23	Mr. Anuj Kumar	SP	Computer Science
24	Mr. Danish Mehdi	SP	Engineering

World Soil Day celebration

NAHEP-CAAST organized World Soil Day Celebration with the theme "Soil Health and Environmental Safety" on 05th December, 2019. Faculties, Post-graduate students and farmers participated in the programme. The lectures on various topics were delivered by the speakers during the technical session, as per below mentioned details:


मिट्टी ही जीवन का आधार और अंतिम पड़ाव

हॉस्टलों का औचक निरीक्षण

Sl. No.	Lectures delivered during the Technical Session	Speakers
1.	Soil Borne Pathogens & Its Remediation	Dr. Manoj Barnwal Co-PI, NAHEP
2.	Soil moisture conservation & its importance on Soil Health	Dr. Sheela Barla Co-PI, NAHEP
3.	Soil Erosion: The great challenge for sustainable soil management	Dr. Prabhat R. Oraon, Co-PI, NAHEP
4.	Importance of soil in plant, animal & human continuum	Dr. Arvind Kumar, Co-PI, NAHEP

Workshop on "Procurement, Grievance Redressal Mechanism (GRM) and Equity Action Plan (EAP)"

The Principal Investigator & Co-PIs of the NAHEP – CAAST – IFS project attended Regional Procurement Workshop for Eastern Region on 5th December, 2019; and Grievance Redressal Mechanism (GRM) and Equity Action Plan (EAP) on 6th December, 2019 at Guwahati.

Review Meeting organized by ICAR – NAHEP, New Delhi

Principal Investigator and Nodal officers of NAHEP – CAAST – IFS, BAU, Ranchi attended the review meeting on 17th & 18th December, 2019 at NAHEP Headquarter, New Delhi. The Principal Investigator has presented the progress report on work done in NAHEP – CAAST – IFS project along with the expenditures.

Workshop on "Development of Efficient and Effective Marketing System for Small holder Farmers practicing the Integrated Farming System"

Shri Pawan Kumar Marwaha, General Manager, Medha Dairy Ltd., Ranchi made a presentation on **"Overview of Dairy Sector & Dairying Scenario in Jharkhand".** He discussed about the problems faced by Indian Agriculture and the ways to move forward. He also discussed about how they became the largest milk producer in the country. The next presentation was given by Mr. A.K. Verma, CEO, PRAN, who focused on "**Enhancing Agriculture of Women and Marginal Households through Preservation and Proliferation of Rural Resources and Nature."**

Whereas, the last presentation of the session was given by Mr. Ashok Kumar, TRIF on the topic **"Efficient and Effective Marketing System for Small Holding Farmers Practicing Integrated Farming System".** At the end of presentation session, a group discussion, brainstorming and open house discussion were co-ordinated by the renowned persons, and was moderated by Dr. Niva Bara, Head, Department of Agricultural Extension and Communication, B.A.U., Ranchi.

बीएयू की कार्यशाला में बोले नाबार्ड के मुख्य महाप्रबंधक

किसानों पर बोलने वाला नहीं उनकी आवाज सुनने वाला चाहिए

बीएयू में आयोजित कार्यशाला का उद्घाटन करते अतिथि.

मुख्य संवाददाता ▷ रांची

नाबार्ड के मुख्य महाप्रबंधक एके पाढ़ी ने कहा कि किसान को आज सबसे ज्यादा तिरस्कार के भाव से देखा जाता है. इस कारण इस पेशा को छोड़नेवाले धीरे-धीरे बढ़ रहे हैं. किसानों की बात तो हो रही है, लेकिन इनकी सुनी नहीं जा रही है. आज जरूरत किसानों पर बोलनेवाले की नहीं, सुननेवाले की है. वैसी व्यवस्था चाहिए, जो किसानों की सुने. उनकी समस्याएं दूर करें. उनको बाजार उपलब्ध कराये.

श्री पाढ़ी शनिवार को बीएयू में 'छोटे किसानों के लिए कुशल और प्रभावी विपणन प्रणाली का विकास' पर आयोजित कार्यशाला में बोल रहे थे.

झारखंड में दुग्ध उत्पादन के क्षेत्र में काफी संभावना : मेधा डेयरी के प्रबंध निदेशक सुधीर कुमार सिंह ने कहा कि झारखंड में दुग्ध उत्पादन के क्षेत्र में काफी संभावना है. केवल साहेबगंज के दूध से हम राज्य के कई जिलों को दूध पिला सकते हैं. मेधा का तीन प्रोसेसिंग प्लांट जल्द तैयार होनेवाला है. इससे दूध के क्षेत्र में काफी बदलाव होगा. कंपनी किसानों के हित के लिए काम करती है. जेजीबी ग्रुप के अंकुश साहा ने कहा कि किसानों की आय बढ़ाने के लिए निर्यात बढ़ाना होगा. किसानों के उत्पाद दूसरे देशों में कैसे जायें, इस पर विचार करना होगा. आज देश में करीब 40 फीसदी सब्जी और फल बर्बाद हो जाते हैं. इसको रोकने की जरूरत है.

देश में केवल बीएयू को मिला है यह प्रोजेक्ट : परियोजना के निदेशक डॉ एमएस मल्लिक ने बताया कि नेशनल एग्रीकल्चरल हायर एजुकेशन प्रोजेक्ट के तहत स्टैंडराइजेशन ऑफ इंटीग्रेटेड फार्मिंग सिस्टम मॉडल्स फॉर झारखंड स्कीम पूरे देश में केवल बीएयू को मिला है. परियोजना तीन साल की है. इसके लिए 23 करोड़ रुपये का प्रावधान वर्ल्ड बैंक ने किया है. मौके पर रजिस्टार डॉ एन कुदादा ने भी अपने विचार रखे. संचालन डॉ नेहा पांडेय ने किया.

Publicity of GRM and Display of five boards and boxes related to GRM at BAU Ranchi

The NAHEP-CAAST unit displayed five boards and boxes associated to Grievance Redressal Mechanism in different Faculties of BAU, Ranchi and also at important place for awareness and redressal of the grievances among the people.

For establishment of a fair and transparent system, a Grievance Redressal Mechanism has been set up under NAHEP-CAAST on "Standardization of Integrated Farming System Models for the state of Jharkhand". A Grievance Redressal cell has been set up under this mechanism with an objective to redress the grievances of students, employees, clients, vendors, procurement, social and environment and other stakeholders. This is a 3-tier system which operates at various levels. Dr. Rekha Sinha, Head, Department of Home Science, has been designated as Grievance Redressal Officer (GRO) at university level (Tier-I) to facilitate the disposal of complaints received pertaining to NAHEP- CAAST. Sri Dilip Roy, under Secretary, Project Implementation Unit NAHEP (Tier-II) shall act as Nodal Officer GRM and is responsible for redressing grievances in context of overall project. He will also monitor and document the GRM process. However, Dr. R.C. Agarwal, National Director NAHEP will be final authority in this context. All the complaints will be registered in the university through in-person, post, drop box, phone-calls and e-mail or on the website (https://nahep.icar.gov.in), which will be acknowledged and registered in a grievance log. The complainant will be communicated within 10 days for redressal. If complainant is satisfied with the redressal at same stage, then, the complaint is resolved. Otherwise, it should pass on to the next stage as an appeal.

A workshop on Environmental and Social Standards (ESS) under NAHEP was organised on 6th December, 2019 at College of Veterinary Science, Khanapara, Guwahti. Dr. Rekha Sinha (University Professor and Head, Department of Home Science), as Nodal Officer of GRM, attended the workshop.

College-wise nodal officers have also been identified for smooth functioning of GRM unit. The details of College-wise nodal officers are given below:

College	Nodal Officer
Ranchi Agriculture College	Dr. Md. Naiyer Ali, Department of Agronomy
Ranchi Veterinary College	Dr. Gloria Tigga, Department of Physiology
College of Forestry	Dr. B.C. Oraon, Department of Silviculture & Agroforestry

Visit to Krishi Vigyan Kendra of Lohardaga and Saraikela

Dr. M. S. Malik, Principal Investigator, NAHEP – CAAST – IFS project visited the Krishi Vigyan Kendras of Lohardaga and Saraikela for strengthening the existing IFS models at the KVKs. The observation on present status of the farming system adopted by the farmers of Lohardaga and Saraikela was also made by Dr. Malik. He also interacted with the farmers for the promotion of standardised IFS models based on various components.

Guest Lecture on "Governance of Soil Health" under NAHEP – CAAST on IFS Project

The guest lecture **"Governance of Soil Health – Some Random Thoughts"** was organized on 16th January 2020 by NAHEP – CAAST – IFS project for enhancement of the know-how among PG and Ph.D. students as well as scientists of different faculties. Dr. M. S. Malik (Principal Investigator, NAHEP – CAAST – IFS) inaugurated the Guest Lecture programme focussing on the objective to acquaint the PG students, researchers and faculties for their higher education, exposure visits at national and international institutes with the aim of up-gradation of their knowledge and skills in various aspects of integrated farming system.

Dr. B. K. Agarwal greeted the guest speaker Prof. Biswapati Mandal (Professor of Soil Science; Former Pro-VC, Bidhan Chandra Krishi Viswavidyalaya, Mohanpur, West Bengal) with the bouquet. The keynote speaker, Dr. Biswapati Mandal, started his lecture with the Canadian prophase **"If we die, we are buried in the soil. If soil dies,.....?** He focused on the major problems which are responsible for the deterioration of soil quality in present context as well as the declining factor productivity. The main emphasis of the lecture was over exploitation of the soil in last 45-50 years and the major factors responsible for declination in the yield of agricultural produce. He concluded his lecture with the statement that if the soil will be healthy, then only production will increase in a regular pattern; otherwise it will increase at first and then show the decreasing pattern along with the deterioration of soil fertility. Dr. M. S. Malik (PI of the project) presented a shawl and memento to Dr. Biswapati Mandal. The vote of thanks for the lecture to the guest and audience was delivered by Dr. Arvind Kumar (Scientist, Department of SSAC).

राष्ट्रीय मृदा नीति शीघ्र लागू हो : प्रो मंडल

रांची. मृदा वैज्ञानिक व बिधान चंद्र कृषि विवि के पूर्व कुलपति प्रो बिस्वपति मंडल ने कहा है कि देश में यथा शीघ्र राष्ट्रीय मृदा नीति लागू करने और मृदा स्वास्थ्य प्रबंधन पर पर्याप्त विनियोग करने की आवश्यकता है, ताकि भावी पीढ़ियों के लिए स्वस्थ मृदा बचायी जा सके. प्रो मंडल गुरुवार को बिरसा कृषि विवि में विशिष्ट व्याख्यानमाला श्रृंखला के तहत मृदा स्वास्थ्य नियमन : कुछ अव्यवस्थित विचार विषय पर व्याख्यान दे रहे थे. उन्होंने कहा कि भारत में मृदा स्वास्थ्य प्रबंधन के लिए कोई प्रभावी नीति या कार्यक्रम नहीं है. अमेरिका में केवल दो प्रतिशत किसान है, यूरोप में चार प्रतिशत और ऑस्ट्रेलिया में तीन से चार प्रतिशत किसान है, लेकिन वहां मृदा नीति है, जबकि भारत की आबादी में 56 प्रतिशत किसान होने के बावजूद यहां मृदा स्वास्थ्य पर सरकार और नीति निर्धारकों का अपेक्षित ध्यान नहीं है. डॉ चौबे शक्ती ने मृदा विज्ञान में डॉ मंडल के योगदान की चर्चा की. डॉ एम्पस मलिक ने कास्ट परियोजना के उद्देश्यों पर प्रकाश डाला. संचालन डॉ चौबे अग्रवाल ने व धन्यवाद ज्ञापन डॉ अरविंद कुमार ने किया

Guest Lecture on "The Indigenous Soil and Water Management Farming Systems of the Tribes of North Eastern Region of India"

The NAHEP – CAAST – IFS organised a guest lecture to enhance the knowledge of **"The Indigenous Soil and Water Management Farming System of the Tribes of North Eastern Region of India"** among the students and faculty members on 17th January 2020 at Birsa Agricultural University. Dr. M.S. Malik (PI of the project) and Dr. B.K. Agarwal (Co-PI of the project) greeted the Guest Speaker, Dr. U.C. Sharma (Ex-National Coordinator, NIAP and Joint Director, ICAR Research Complex for NEH Region, Barapani) by presenting a bouquet.

Dr. Sharma discussed on the various aspects related to water management in the North Eastern Region. He also offered his view that the tribes of Nagaland recognized the importance of water century ago and developed a unique rainwater harvesting and management system for meeting their irrigation and drinking water requirement.. This system is known as "*Zabo*" in their local language, which simply means "impounding of water". The "*Zabo*" system is a combination of Forestry, Agriculture, Livestock and Fisheries Management with a sound water and soil conservation base. The adoption of this system has resulted in scarcity being turned into plenty and it has transformed the society by improving crop productivity, the environment, the resource base and the quality of life of the people. Dr. M. S. Malik (PI of the project) presented a *Shawl* to Dr. U.C. Sharma. The vote of thanks for the lecture to the guest and audience was presented by Dr. Arvind Kumar (Scientist, Department of SSAC).

Guest Lecture on "Integrated Farming System – For Better Livelihood and Economic Sustainability" under NAHEP – CAAST on IFS Project

The NAHEP – CAAST organized a guest lecture on the topic **"Integrated Farming System – For Better Livelihood and Economic Sustainability"** on 25th February, 2020 at BAU, Ranchi. Dr. M.S. Malik (PI of the project) briefed about the topic by suggesting the scope of IFS in research, teaching and agri-entrepreneurship. Dr. B.K. Agarwal greeted Dr. D.C. Ghosh (Professor of Agronomy (Retired), Institute of Agriculture, Visva Bharti, Sriniketan and Member of Ex-committee, Visva-Bharti, Nominated by PM of India), guest speaker by presenting a bouquet. Dr. D.C. Ghosh started the lecture with the major problems occurring in the Indian farming and declining in the production of agricultural produces. He told that soil erosion and degradation, chemical contamination of land and produce through pesticides,

herbicides, fertilizers, etc., emission of greenhouse gases due to faulty agricultural practices, global warming, loss of biodiversity are the major causes of reduction in yield and environmental quality. Dr. Ghosh also focused on the need of Integrated Farming System in improving the yield of crops and quality of environment. He also gave the emphasis on integration of the farming components on cyclic, rationale and ecologically sustainable basis. Dr. M. S. Malik (PI of the project) presented a Shawl to Dr. D. C. Ghosh. The vote of thanks for the lecture to the guest and audience was given by Dr. Arvind Kumar (Scientist, Department of SSAC).

बिरसा कृषि विवि

एकीकृत खेती प्रणाली पर व्याख्यान शृंखला, वैज्ञानिक डॉ डीसी घोष बोले

स्वास्थ्य के लिए एकीकृत खेती प्रणाली बेहतर विकल्प

Guest Lecture on "Career and Entrepreneurship Opportunities in Livestock & Poultry Farming System"

A guest lecture on "**Career and Entrepreneurship Opportunities in Livestock and Poultry Farming System**" was organized on 7th March 2020 at BAU Ranchi. The Principal Investigator of NAHEP – CAAST, Dr. M.S. Malik, gave a detailed overview of the IFS project highlighting its achievements till date. Dr. N Kudada (Registrar, BAU Ranchi) inaugurated the event by welcoming and felicitating the guest speaker, Dr. Shahaji Sambhaji Phand [Assistant Director, Allied Extension, National Institute of Agricultural Extension Management (MANAGE), Hyderabad]. The lecture was started by the guest speaker with a famous quote of Muhammad Yunus (a Social Entrepreneur of Bangladesh and Nobel Peace Proze Awardee) – "***all human beings are entrepreneurs, we are not born to work for somebody else***". He told that India is leading milk producer in the world accounting for 18.5% share. He presented the present scenario of livestock sector in India, its contribution in development of agricultural sector, entrepreneurship opportunities in livestock sector. He said that the basis of becoming a successful entrepreneur is to understand the scope of commodity in present scenario in a broader perspective. At the end, Dr. Phand addressed the youth to become a job provider instead of a job seeker and encouraged youths to take up entrepreneurship as one of the career choice. The lecture saw an enthusiastic participation of all participants, with interesting, thought-provoking queries being raised to the expert. Dr. Ravinder Kumar, Assistant Professor in Livestock Production Management department of Ranchi Veterinary College presented the vote of thanks to speaker and participants.

National Symposium on "Livestock, Poultry under Farming Conditions" was organized by NAHEP – CAAST on IFS Project

NAHEP-CAAST conducted a National symposium on **"Recent Advances in Diagnostic Pathology for Emerging and Re-emerging Diseases of Livestock, Poultry under Farming Conditions and Wildlife"**, during 22nd and 23rd February 2020 at Department of Veterinary Pathology, College of Veterinary Sciences and Animal Husbandry, Birsa Agricultural University, Ranchi, Jharkhand. The main aim of the symposium was to bring together Veterinary pathologists, researchers, disease diagnostician and students from different parts of India to research and diagnosis for the welfare of human race. The symposium consists of 7 different technical sessions comprising of 17 lead lectures and 89 oral & poster presentations. The inaugural address was delivered by Dr. B.N. Tripathi [Hon'ble Deputy Director General (Animal Science), ICAR, New Delhi] who showed the concern over recent incidences of emerging and re-emerging diseases such as Lumpy skin, Avian influenza, PRRS, PPR, etc. which are becoming major problem for animal industry and causing heavy economic losses. He emphasised the need to develop advanced disease diagnosis laboratories in each state of country which should work on close association with National laboratories. The invited lectures were delivered by Dr. G. Raikumar (Principal Scientist, Division of Pathology, IVRI, Izatnagar) on **"Anthropogenic activities threatening global public health"** and Dr. Naveen Kumar (Principal Scientist, NRCVTC, Hissar) on **"Incidence of lumpy skin disease in Jharkhand"** and Prof. N. K. Sood presented on "Wide scope of cytology in the diagnosis of Non-neoplastic affection". Dr. Sushil Prasad (Dean, RVC and also a Co-PI of NAHEP-CAAST-IFS project) accentuated the researchers towards the **"Impact of Climate Change on Livestock Health and Mortality".** Dr. M.S. Malik (PI of the project) highlighted the role of NAHEP-CAAST-IFS project as well as acquainted the audiences with the role of the project in aiding the University its Development and also the farmers of Jharkhand to adopt IFS for improving their livelihoods. In the last session, discussions were held on many emerging and transboundary disease conditions which are challenging the veterinarians and farmers throughout the country and appropriate conclusions were also drawn.

Workshop on "Academic Management System: NAHEP Component – II

A workshop was organized by BAU Ranchi and ICAR – IASRI, New Delhi on 09th December, 2020 at the LPM Building; Ranchi Veterinary College The presentation was made by Mr. Sandeep Marwaha before Dr. Onkar Nath Singh (Hon'ble Vice-Chancellor of BAU), Dr. R.C. Agarwal (National Director, NAHEP-CAAST) and Dr. Prabhat Kumar (National Coordinator, NAHEP-CAAST).

Guest Lecture on "Forest, Wildlife & Biodiversity Conservation of Sriharikota"

A guest lecture on the topic "Forest, Wildlife & Biodiversity Conservation of Sriharikota" was delivered by Dr. Angadi Rabbani (Asso. Project Director & Head, Environment Forest and Horticulture Division, Satish Dhawan Space Centre, ISRO, Sriharikota) at the RAC Auditorium on 20th December 2020 under NAHEP – CAAST on IFS project.

बीएयू : बागवानी, वन, वन्य जीवन और जैव विविधता संरक्षण पर अतिथि व्याख्यान आयोजित

भारत में जैव विविधता का नुकसान खतरनाक संकेत : डॉ अंगदी

राष्ट्रीय सागर संवाददाता

रांची : बीएयू में संचालित सेंटर फॉर एडवांस्ड एग्रीकल्चर साइंस एंड टेक्नोलॉजी (नाहेप-कास्ट) परियोजना के विशिष्ट व्याख्यान शृंखला के तहत सोमवार को बागवानी, वन, वन्य जीवन और जैव विविधता संरक्षण विषय पर अतिथि व्याख्यान का आयोजन किया गया। इस व्याख्यान के मुख्य वक्ता राष्ट्रीय स्तर पर प्रसिद्ध बागवानी विशेषज्ञ डॉ अंगदी रब्बानी थे। वे एसोसिएट परियोजना निदेशक एवं प्रमुख (सेवानिवृत्त) पर्यावरण वन और बागवानी प्रभाग के पद पर इसरो, श्रीहरिकोटा, आंध्र प्रदेश में कार्यरत है। व्याख्यान में डॉ अंगदी ने श्रीहरिकोटा के द्वीप में इसरो द्वारा चलाये जा रहे बागवानी, वन, वन्य जीवन और जैव विविधता संरक्षण कार्यक्रमों पर चर्चा की। उन्होंने कहा कि यह भूभाग भारत के तटीय उष्णकटिबंधीय शुष्क सदाबहार वन अवशेषों के बड़े भागों में से एक है। इस द्वीप में समृद्ध

प्रमुख वनस्पतियों, विभिन्न पारिस्थितिक स्थितियों और अतीत और हाल के मानवजनित कारकों, स्क्रब जंगल, वृक्षारोपण, परित्यक्त चीड़ के जंगल, घास के मैदान और रेत के टिब्बा में वनस्पति भी मौजूद हैं और एक समृद्ध पशु विविधता भी है। डॉ अंगदी ने कहा कि भारत में जैव विविधता का नुकसान खतरनाक संकेत दे रहा है। श्रीहरिकोटा स्थित इसरो संस्थान ने 180 वर्ग किलोमीटर में फैले इस द्वीप में बागवानी, वन, वन्य जीवन और जैव विविधता संरक्षण के क्षेत्र में उल्लेखनीय कार्य किये है। देशी वन पौध नर्सरी, एग्रो शेड नर्सरी, पौध अवशेषों का री-साइकिलिंग द्वारा कम्पोस्ट निर्माण, कासुरेना पौध, काजु पौध, नारियल पौध व बांस पौध नर्सरी की स्थापना कर वृक्षारोपण को बढ़ावा दिया जा रहा है। द्वीप में देशी जंगलों को पुनर्जीवित करने का प्रयास हो रहा है, ताकि द्वीप की प्राचीन महिमा वापस लाई जा सके। कार्यक्रम की अध्यक्षता करते हुए कुलपति डॉ ओंकार नाथ सिंह ने झारखण्ड प्रदेश की समृद्ध जैव विविधता को रक्षा में एकीकृत कृषि प्रणाली का समावेश किया जाना होगा। उन्होंने कहा कि इसरो जैसे संस्थान में कृषि वैज्ञानिक के रूप में पहचान स्थापित करना बड़ी चुनौती है। व्याख्यान में डॉ सुशील प्रसाद तथा डॉ जेड़ए हैदर ने परिचर्चा में भाग लिया। मौके पर डॉ एमएस यादव ने एकीकृत कृषि प्रणाली मात्र के उपयोग से जैव विविधता संरक्षण के बारे में बताया। डॉ अब्दुल वहूद ने मौसम एवं जलवायु परिवर्तन तथा तापक्रम में वैश्विक वृद्धि को देखते हुए जैव विविधता संरक्षण की महत्ता पर प्रकाश डाला। व्याख्यान का संचालन डॉ बीके अग्रवाल ने की। स्वागत भाषण में डॉ एमएस मल्लिक ने नाहेप-कास्ट परियोजना के उद्देश्यों के बारे में बताया, धन्यवाद ज्ञापन डॉ अरविन्द कुमार ने दी। व्याख्यान में पीजी छात्रों, रिसर्च फेलो और बिरसा कृषि विश्वविद्यालय के शिक्षक, वैज्ञानिक और विश्वविद्यालय अधिकारियों ने भाग लिया।

Online Workshop on "Commodity Marketing"

A workshop on commodity marketing was organized by NAHEP-CAAST on IFS Project, BAU in collaboration with NCDEX on 24th February, 2021. The keynote speaker of the webinar, the project's principal investigator, Dr. M.S. Malik, described how to buy and sell commodities in the commodity market. He said that it works like a stock market where commodities can earn profits by buying and selling the share of commodities. It is not only investment in the product that can be traded but the demand and supply of commodities in the commodity market has a special importance. Most of the world's commodity markets show the agricultural raw products and how far the commodities are traded. On the occasion, discussion has been done on the problems faced by the small amount of the trade of agricultural products in the integrated farming system. Horticulture consultant Dr. Angadi Rabbani of the NAHEP-CAAST on IFS project called for the need to adopt an effective trading system to prevent loss from the loss of low succulence of horticultural crops on the role of commodity derivatives market. Dr. B.K. Jha underlined the importance of spot market and future market, highlighting the role of commodity derivatives market in providing remunerative prices to farmers.

कमोडिटी मार्केट वस्तुओं के शेयर खरीदने और बेचने का माध्यम : डॉ मल्लिक

वरीय संवाददाता

रांची : नेशनल कमोडिटी डेरिवेटिव्स एक्सचेंज (एनसीडेक्स) के प्लेटफॉर्म पर बिरसा कृषि विश्वविद्यालय के संयुक्त तत्वावधान में कमोडिटी डेरिवेटिव्स मार्केट विषय पर वेबिनार माध्यम से जागरूकता कार्यक्रम का आयोजन किया गया। वेबिनार में मुख्य वक्ता नाहेप-कास्ट परियोजना के मुख्य अन्वेषक डॉ एमएस मल्लिक ने कमोडिटी मार्केट को वस्तुओं के शेयर को खरीदने और बेचने का माध्यम बताया। उन्होंने कहा कि यह शेयर मार्केट की तरह ही काम करता है, जहां वस्तुओं के शेयर को खरीद और बेच कर मुनाफा कमा सकते हैं। कमोडिटी एक ट्रेडिंग उत्पाद होता है, जिसमें सिर्फ निवेश नहीं, बल्कि ट्रेडिंग की जा सकती है। कमोडिटी बाजार में वस्तुओं की मांग और आपूर्ति का विशेष महत्व होता

है। विश्व के अधिकतर कमोडिटी बाजार कृषि उत्पादों और कच्चे वस्तुओं का कारोबार करते हैं। साथ ही समन्वित कृषि प्रणाली में कृषि उत्पादों की कम मात्रा से विपणन में आ रही दिक्कतों पर चर्चा की। मौके पर नाहेप-कास्ट परियोजना के उद्यान सलाहकार डॉ अंगदी रब्बानी ने बागवानी फसलों की कम शेल्फ लाइफ से नुकसान से बचाव के लिए प्रभावी विपणन व्यवस्था अपनाने की आवश्यकता जतायी। परियोजना के सह-अन्वेषक डॉ बीके झा ने स्पॉट मार्केट और फ्यूचर मार्केट के महत्व को रेखांकित करते हुए किसानों को लाभकारी मूल्य दिलाने में कमोडिटी डेरिवेटिव्स मार्केट की भूमिका पर प्रकाश डाला। एनसीडेक्स अधिकारी अभिषेक दत्ता ने बताया कि निवेशक स्पॉट प्राइस, फॉरवर्ड, फ्यूचर्स और ऑप्शंस का उपयोग करके फिजिकल ट्रेडिंग और डेरिवेटिव्स ट्रेडिंग माध्यम से इसमें शामिल हो सकते हैं। एनसीडेक्स द्वारा 30 प्रकार के कृषि उत्पादों का कारोबार किया जाता है। समन्वित कृषि प्रणाली से जुड़े किसान कम उत्पाद से विपणन की समस्या के समाधान के लिए एफपीओ बनाकर दूर कर सकते हैं। मौके पर कंपनी के सिक्योरिटीज अधिकारी शुभांशु और बीपीडी-सीएसए सोसाइटी के डॉ सिद्धार्थ जायसवाल ने भी कमोडिटी डेरिवेटिव्स मार्केट की बारीकियों पर प्रकाश डाला। वेबिनार में बीएयू वैज्ञानिकों, छात्रों एवं किसानों सहित करीब 100 प्रतिभागियों ने भाग लिया।

Guest Lecture on "Wisdom for Happy Life"

The lecture on "Wisdom for Happy Life" under NAHEP-CAAST on IFS project was delivered by Dr. D.S. Rathore at the Veterinary College Auditorium on 22nd March, 2021. Conducting the program, Chief Scientist, Dr. B.K. Agarwal welcomed all the participants to the auditorium. Dr. Malik, P.I. of project, welcomed the Chief Guest Dr. D.S. Rathore and the Hon'ble Vice Chancellor of Birsa Agricultural University. Giving thought on a happy and successful life, Dr. Rathore said that we have to depend on our intelligence to get true happiness and success in life. Describing the things to find joy and happiness in life, he said that happiness is a goal and it is something that you have to work every day to achieve it to become a happy person. At the end of the lecture, the hon'ble Vice Chancellor, requested everyone to pay attention on the importance of intelligence to make a happy and successful life. Dr. Arvind Kumar, Assistant Professor (Soil Science) delivered the vote of thanks for the lecture to the guest and audience.

Guest Lecture on "Recent Technological Advances in Horticulture"

A lecture on "Recent Technological Advances in Horticulture" under NAHEP-CAAST on IFS project was delivered by Dr. D.S. Rathore, Ex-ADG (Horticulture), ICAR, New Delhi on 23rd March, 2021 at the RAC Auditorium, BAU, Ranchi. Dr. Rathore said that our country has a special contribution in horticulture in the world. Our country ranks second in the production of fruits and vegetables. Similarly, we are not less than anyone in the production of other horticultural crops. But in the international market the price of our horticultural products is underestimated as compared to other countries, not only this, our government had to ban the export of some products. Due to the ban on horticultural products, the horticulture based farming in India has been diminished. The solution to this huge problem is adoption of modern technology of horticulture, commonly referred to as "**hi-tech horticulture**" which incorporates tissue culture, gene engineering, biotechnology, polyhouse, greenhouse techniques, micro-propagation, integrated pest management and preservation of fruits, vegetables and flowers as a modern technology for cultivation of horticultural crops to get maximum production as well as good quality produce, which can re-establish our position in the WTO.

Fellowship to the PG & Ph.D. Students involved in research related to NAHEP-CAAST-IFS project, BAU Ranchi

Sl. No.	Name of the Student	Degree Programme	Research Topic
Faculty of Agriculture			
1.	Priya Pallavi	Ph.D. (Ag. Ext.)	Design, Development and validation of decision support system for IFS
2.	Piyush Kr. Bhargaw	Ph.D. (Agro.)	Tillage and Residue Management in Rice-Wheat in the farming system
3.	Miss Sulochna	Ph.D. (Agro.)	Tillage & organic nutrient management in Finger millet & French bean Cropping System
4.	Alka Kumari	Ph.D. (Ento.)	Management of major Lepidopteron insect pests of rice
5.	Jaya Bharati	Ph.D. (Agro.)	Long term effect of INM on nutrient utilization and soil organic carbon storage under maize-wheat cropping system
6.	Pooja Kumari	M.Sc. (Ag. Ext.)	Efficacy of herbicides on weed dynamics and productivity of mustard
7.	Anup Kumar	M.Sc. (Ag. Ext.)	Constraints analysis in adoption in integrated farming systems
8.	Sweta Kumari	M.Sc. (Ag. Ext.)	Perception of marginal and small farmers of Jharkhand about Integrated Farming System

Sl. No.	Name of the Student	Degree Programme	Research Topic
9.	Aastha Sinha	M.Sc. (Pl. Path.)	Supplementation of compost and casing on yield attributes of mushroom in IFS
Faculty of Forestry			
10.	Firoz Ahmad	Ph.D.(For.)	Growth, yield and quality assessment of tree and fodder Crops under Agroforestry based Farming System
11.	Kavita Kumari	Ph.D.(For.)	Studies on growth & yield of tree and intercrops in *Moringa oleifera* (Drumstick) based Agroforestry Farming System
12.	Gulnaz Ambrin	M.Sc. (For.)	High Density Jackfruit plantation with intercrop under agroforestry based Integrated Farming System
Faculty of Veterinary Science			
13.	Dr. Mukesh Kumar	Ph.D. Vet. Sc.	Production, reproductive performance and molecular characterization of Black Bengal goat as a component of integrated farming system in Jharkhand
14.	Dr. Sanjay Kr. Dubey	M.V.Sc.	Ameliorative efficacy of Herbal drugs in the treatment of subclinical mastitis in cow under Integrated Farming System.
15.	Dr. Brajesh Verma	M.V.Sc.	Evaluation of Anaesthesia in Bovine Calf
16.	Dr. Sushil Tudu	M.V.Sc.	Study on common parasitic disease of livestock reared by farmers of Jharkhand in Integrated farming System.
17.	Dr. Rahul Kumar	M.V.Sc.	Studies on incidence of gastro-intestinal parasites and their amelioration using herbal anthelmintics and chemical drugs in Chotanagpur sheep
18.	Dr. Sunil Oraon	M.V.Sc.	Effects of epidural levobupivacanine alone and in combination with fentanyl citrate and butorphenol in goats.
19.	Dr. Indrajit Kumar	M.V.Sc.	Physical characteristics, reproductive and productive performances of *Desi* cattle

Distribution of Mask, Sanitizer and Disinfectants through NAHEP-CAAST, BAU, Ranchi

Masks, sanitizers and disinfectants 500 each were distributed through Dr. M. S. Malik (PI of the NAHEP-CAAST-IFS), Dr. Sushil Prasad (Dean, RVC), Dr. N. Kudada (Registrar, BAU) and Sri Rakesh Kumar Verma (Comptroller, BAU,

बिरसा कृषि विश्वविद्यालय (बीएयू) में सोमवार को कोरोना संक्रमण से बचाव के लिए आकस्मिक सेवाओं से जुड़े लोगों के बीच मास्क का वितरण किया गया। रजिस्ट्रार डॉ नरेंद्र कुदादा ने विश्वविद्यालय कर्मियों, पदाधिकारियों व सभी सुरक्षा से जुड़े कर्मियों को मास्क बांटा।

पशु चिकित्सा संकाय में डीन वेटनरी डॉ सुशील प्रसाद ने डेयरी, पोल्ट्री, सूकर व बकरी आदि फार्म के कर्मियों को मास्क प्रदान किया। डॉ प्रसाद ने बताया कि पशुपालन से जुड़े फार्म्स में कोरोना संक्रमण से बचाव के लिएसभी एहतियात बरते जा रहे है। सभी पशु स्वास्थ हैं और उनके

Ranchi) among the field staffs of Dairy, Poultry, Piggery, Goatry, Agroforestry, Integrated Farming System, foreign PG students, security persons and employees for protection against COVID-19.

The banners were fixed and displayed regarding the protection for COVID-19 at College of Agriculture (Main building and Department of Agriculture Meteorology) Ranchi Veterinary College (Main building, Clinic and Department of LPM) and College of Forestry (Main Entrance of the Building and NAHEP office).

Renovation & Repairing of Existing Integrated Farming System Model

The renovation and repairing of existing IFS models with different components at the Main Campus of Birsa Agricultural University has been carried out under the supervision of engineer of Works and Plant Department, BAU. The components of IFS which were renovated and repaired are Farmer's House, Cropping Unit, Nutritional Garden, Agroforestry, High Density Orchard of Mango, Mushroom Unit, Vermicompost Unit, Cattle Unit, Duckery Unit, Poultry Unit and Fishery Unit.




As per the suggestions made by NAHEP Delhi team, two important events, i.e., provision of fellowship to PG students and development of IFS model for the state of Jharkhand has been initiated. The details are discussed below:

- NAHEP-CAAST has initiated the fellowship programme for the PG and Ph.D. students of Birsa Agricultural University, Ranchi. The fellowship has been awarded to 19 post graduate students (11 M.Sc. and 8 Ph.D.) who are conducting their master's and doctoral research work relevant to the different components and aspects of Integrated Farming System.
- NAHEP-CAAST has initiated the development of following models on IFS for improving the livelihood standard of the people residing in the state of Jharkhand:

i. Crop-based Integrated Farming System Model,
ii. Animal-based Integrated Farming System Model,
iii. Duck cum Fish-based Integrated Farming System Model,
iv. Agroforestry-based Integrated Farming System Model, and
v. Organic visitable based integrated posming system
vi. Integrated Farming System Model for Landless Farmers.

Various Integrated Farming System Models Developed under NAHEP – CAAST – IFS Project, BAU, Ranchi

Crop-based Integrated Farming System Model
Birsa Agricultural University, Ranchi

Nutritional garden of IFS Model
Birsa Agricultural University, Ranchi

Agro-forestry-based Integrated Farming System Model
Birsa Agricultural University, Ranchi

Pond-based Integrated Farming System Model
Birsa Agricultural University, Ranchi

Organic Vegetable-based Integrated Farming System Model Birsa Agricultural University, Ranchi

• To showcase the potential of integrated farming system, the NAHEP – CAAST – IFS project of Birsa Agricultural University has established the different demonstration models of Integrated Farming System at its main campus and at different KVKs (KVK, Lohardaga and KVK, Saraikela-Kharsawa). The various need-based integrated farming system models have been developed by the judicious integration of crop enterprises suited to specific agro-climatic and socio-economic situation of the farmers with other components viz. horticulture, agriculture and livestock, for augmenting the income of a farm and increasing the family labour employment. Since its establishment, more than thousands of farmers from every nook and corner of the state have visited the IFS models and interacted with the Principal Investigator of the NAHEP-CAAST-IFS project and other scientists for strengthening their know-how in integrated farming system. Based on this IFS unit, the various IFS models need to be standardized for both rainfed and irrigated conditions for each agro-climatic zones of the Jharkhand which is the need of the hour.

Sl.	Farming System Model	Area	Components
1.	Crop-based	1 hectare	Crop + Horticulture + Dairy + Vermicompost + Mushroom + Apiary + Fishery
2.	Crop-based	2 hectare	Crop + Horticulture + Poultry + Dairy + Goatry + Duckery + Mushroom + Apiary + Vermicompost + Fishery + Tree
3.	Agroforestry-based	1 hectare	Tree + Agricultural Crops + Fodder + Apiary + Moringa Plantation + Medicinal Plant
4.	Pond-based	0.5 hectare	Fishery + Duckery + Vegetable + Horticulture + Trees + Spices
5.	Organic vegetable based Farming System	1 acre	Organic Vegetables + Diary + Goatry + Vermicompost
6.	IFS for landless farmers	-	Poultry + Goatry + Dairy + Mushroom
7.	Horticulture Biodiversity Park	1 hectare	Fruit crops + Vegetables

The following Scientists are associated as PI and Co-PIs of the Project

Sl. No.	Name of the Scientists	Designation	Affiliation	Role in NAHEP-CAAST Project
1	Dr. M.S. Malik	Dean (Faculty of Forestry)	Department of Silviculture and Agroforestry, Faculty of Forestry, B.A.U., Ranchi	PI
2	Dr. M.S. Yadava	Chief Scientist (Agronomy)	Department of Agronomy, Ranchi Agricultural College, B.A.U., Ranchi	Co-PI
3	Dr. B.K. Agarwal	Chief Scientist (Soil Science)	Department of Soil Science, Ranchi Agricultural College, B.A.U., Ranchi	Co-PI
4	Dr. Sushil Prasad	Dean (Ranchi Veterinary College) & Chairman (Livestock Production & Management)	Department of Livestock Production & Management, Ranchi Veterinary College, B.A.U., Ranchi	Co-PI
5	Dr. A.K. Singh	Associate Dean (College of Fishery Science)	College of Fishery Science, Gumla, B.A.U., Ranchi	Co-PI
6	Dr. M.K. Barnwal	Junior Scientist (Plant Pathology)	Department of Plant Pathology, Ranchi Agricultural College, B.A.U., Ranchi	Co-PI
7	Dr. Arvind Kumar	Assistant Professor (Soil Science)	Department of Soil Science, Ranchi Agricultural College, B.A.U., Ranchi	Co-PI
8	Dr. Pramod Rai	Junior Scientist (Precision Farming)	Department of Agricultural Engineering, Ranchi Agricultural College, B.A.U., Ranchi	Co-PI
9	Dr. Abdul Majid Ansari	Junior Scientist (Horticulture)	Zonal Research Station, Chianki (B.A.U., Ranchi)	Co-PI
10	Dr. R.P. Manjhi	Assistant Professor (Agronomy)	Department of Agronomy, Ranchi Agricultural College, B.A.U., Ranchi	Co-PI
11	Dr. Sheela Barla	Assistant Professor (Agronomy)	Department of Agronomy, Ranchi Agricultural College, B.A.U., Ranchi	Co-PI
12	Dr. P.R. Oaron	Junior Scientist (Silviculture & Agroforestry)	Department of Silviculture and Agroforestry, Faculty of Forestry, B.A.U., Ranchi	Co-PI

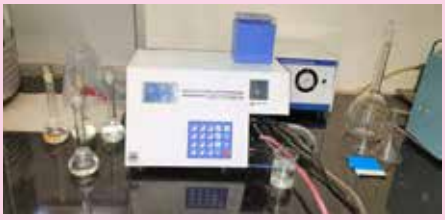
A visit of IFS model near the Faculty of Forestry was done by the Nodal officer Finance cum Comptroller, BAU Ranchi; Dr. M. S. Malik (PI of the project) and staff members of NAHEP-CAAST. Dr. Malik acquainted him with activities being performed at the IFS farm.

Equipments and Farm Machineries Procured for Excellence in Research

NAHEP – CAAST procured various equipments and machineries for bringing the excellence in research and teaching through strengthening and upgradation of the laboratories, farm, seminar/ conference halls, online classes, etc. in different colleges and KVKs. The list of equipments and machineries procured are given below –

Sl.	Name of the Equipment	Function	Installed at
1.	Tractor with trolley 	Tractor has been used on farms to mechanize several agricultural tasks viz. ploughing, tilling and planting fields in addition to routine lawn care, landscape maintenance, moving or spreading fertilizer and clearing bushes.	IFS Farm
2.	Power Sprayer 	Power sprayer is an agricultural and landscaping device used for spraying the fertilizers over the plants, grass, creepers and shrubs as well as for spraying pesticides, fungicides, insecticides, etc.	IFS Agronomy, KVK Lohardaga, KVK Saraikela, and IFS near Forestry
3.	Power tiller 	It is a 2- wheeled agricultural implement fitted with rotary tillers which gives a smooth resistance to all farm activities. It has multiple uses *viz*. helps in preparing the soil, sowing & planting the seeds, adding & spraying the fertilizers, herbicides & water.	IFS Agronomy, Department of SSAC, IFS Agro-forestry, and KVK Saraikela
4.	Chaff Cutter 	It is a mechanical device for cutting straw or hay into small pieces before being mixed together with other forage and fed to livestocks.	IFS Agronomy, IFS near Forestry, Instructional Livestock Complex (RVC), KVK Lohardaga and KVK Saraikela
5.	Reaper 	It helps to ease your work and save labour cost, and help to harvest the crops when they are ripe.	IFS Agronomy, IFS Agro-forestry, KVK Lohardaga and KVK Saraikela
6.	Zero till cum Seed drill 	It is used for sowing crops in unprepared field after harvesting of previous crop. It saves Rs 2000-3000 per hectare as well as time and labour. It also saves one pre-irrigation.	IFS Agronomy, IFS Agro-forestry, KVK Lohardaga and KVK Saraikela
7.	Planter 	It is used for planting of the seedlings of various crops like cereals, vegetables, etc. It saves time and labour.	IFS Agronomy, IFS Agro-forestry, KVK Lohardaga and KVK Saraikela

Sl.	Name of the Equipment	Function	Installed at
8.	Multi-grain Thresher 	It is an agricultural product that can thresh various types of crops in just one machine. These crops include maize, sorghum, barley, rice, etc. It can be used more efficiently reducing the amount of hard labour.	IFS Agronomy, KVK Lohardaga and KVK Saraikela
9.	Egg washer 	It uses a high-quality nylon brush to wash off the dirt on the surface of eggshell at a faster rate.	Poultry Unit (RVC)
10.	Milking Machine 	The principle of machine milking is to extract milk from the cow or buffalo by vacuum. The machines are designed to apply a constant vacuum to the end of the teat to suck the milk out and convey it to a suitable container, and to give a periodic squeeze applied externally to the whole of the teat to maintain blood circulation.	Department of LPT (RVC)
11.	Milk Analyzer 	It performs measurement of fat & solid-not-fats (SNF) content in milk. The percentage of fat & SNF content is measured accurately and displayed quickly for quick measurement of milk parameters, processing and storing them for records.	Department of LPT (RVC)
12.	Vacuum Packaging Machine 	Vacuum packing reduces atmospheric oxygen, limiting the growth of aerobic bacteria or fungi, and preventing the evaporation of volatile components. It is also commonly used to store dry foods over a long period of time, such as cereals, nuts, cured meats, cheese, smoked fish, coffee, and potato chips.	Department of LPT (RVC)
13.	Sausage Filling Machine 	It is widely used for stuffing various casing products such as meat paste sausage, ham sausage, ham, etc. it is also suitable for tying a knot , for natural casing, collagen casing, fiber casing, etc. it is suitable for filling all kinds of bottle or box products.	Department of LPT (RVC)

Sl.	Name of the Equipment	Function	Installed at
14.	Flame Photometer 	It is used to determine the concentration of sodium and potassium ions in infusion solutions, such as NaCl solution, Ringer solution, etc.	Department of SSAC
15.	Atomic Absorption Spectrophotometer 	It is a spectroanalytical procedure for the quantitative determination of chemical elements using the absorption of optical radiation (light) by free atoms in the gaseous state. Atomic absorption spectroscopy is based on absorption of light by free metallic ions.	Department of SSAC
16.	Photosynthesis Analyzer 	Photosynthesis analyzer is electronic scientific instruments designed for non-destructive measurement of photosynthetic rates in the field. These are commonly used in agronomic and environmental research, as well as studies of the global carbon cycle.	Department of Agronomy
17.	Nitrogen digestion cum distillation unit 	The Kjeldahl method or Kjeldahl digestion in analytical chemistry is a method for the quantitative determination of nitrogen contained in organic substances plus the nitrogen contained in the inorganic compounds ammonia and ammonium.	Department of SSAC
18.	Root Scanner 	The root scanner analyses roots using desktop scanner, suitable for image acquisition of macroscopic roots. Scanner is available as accessories for root positioning & scanning.	Department of Agronomy
19.	Water Testing Kit 	Water is tested in laboratories to find out the minerals present in it along with parameters like pH, conductivity, colour and turbidity. The tests help establish the presence of any parameter and the extent to which it is present in a particular water. Most of the tests are done using the time tested method of titration, using laboratory glassware like burettes, pipettes, conical flasks and beakers. This method still prevails although modern instruments like spectrophotometers, chromatographs, etc have started making their presence felt for testing parameters where the titration method cannot be used.	Department of Fisheries (RVC)

Sl.	Name of the Equipment	Function	Installed at
20.	BOD Incubator 	BOD incubators are used to grow microbial culture or cell cultures. They can also be used to maintain the culture of organisms to be used later, as well as, to increase the growth rate of organisms, having a prolonged growth rate in the natural environment.	Department of SSAC, and Soil & Plant Analysis Lab, Faculty of Forestry
21.	Grain Moisture Meter 	They are specially calibrated to provide fast and accurate measurements of the moisture content of grain.	Department of Agronomy
22.	Soil Moisture Meter 	It uses the capacitance to measure water content of soil (by measuring the dielectric permittivity of the soil). The sensors of moisture meter are inserted into the soil to be tested, and the volumetric water content of the soil is reported in percent.	Department of SSAC
23.	Fish Tub and Sieve  	Fish tubs are used in aquaculture for propagating the fingerlings while sieve is used to separate the creatures from the tank. It is especially useful to separate one or more creatures such as copepods, rotifers, and amphipods.	College of Fishery Sciences, Gumla
24.	Water Bath 	It is laboratory equipment that is used to incubate samples at a constant temperature over a long period of time. It is a preferred heat source for heating flammable chemicals instead of an open flame to prevent ignition. The other areas of its utilizations include warming of reagents, melting of substrates, or incubation of cell cultures.	Department of SSAC

Work / Activities

- The primary and secondary tillage has been done at the crop field of existing IFS farm – Agronomy.

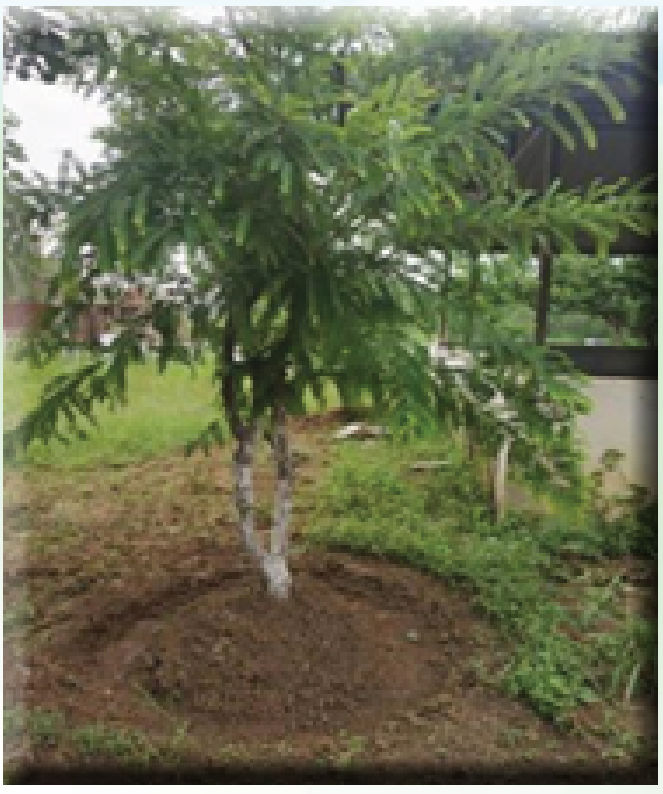
- **Equipment and Farm Machines Provided to Department of Agronomy:** As requested by Officer In-charge, IFS Unit – Agronomy, NAHEP-CAAST project of Birsa Agricultural University has provided/ transferred the mentioned equipments and machineries including Tractor with Trolley and Accessories, Power-operated Branch Cutter, Power-operated Chaff Cutter, Power tiller with accessories, Power-operated Weed Cutter, Power Sprayer, Reaper, Vegetable Planter, Zero Tillage cum Seed Drill, Multi-grain Thrasher, Drip and Sprinkler irrigation system for smooth conduction and implementation of different components of the IFS.

- As per the requisition made by Department of Agronomy, NAHEP-CAAST of BAU was provided the instruments *viz*. Photosynthesis Analyzer, Root Scanner, Overhead Projector, D-Link of Internet Connectivity, Glassware and Chemicals at the department for use in research activity of Post-Graduate Students and Faculties.

- **Equipment provided to Department of Soil Science and Agricultural Chemistry:** As per the requisition, NAHEP-CAAST of BAU provided the instruments *viz*. Atomic Absorption Spectrophotometer, UV Spectrophotometer, Water Bath, Shaker, Chemicals and Glassware at the department of Soil Science and Agricultural Chemistry for use in research activity conducted by Post-Graduate Students and Faculties.

- **Instruments Computer Center of BAU Ranchi:** NAHEP-CAAST of BAU has also provided instruments *Computer, Webcam*. Tubular Battery for backup of server at Computer Center of Birsa Agricultural University, Ranchi.

- Inter cultivation operations (preparation of ring basin and application of manures and fertilizers) were done in fruits crops viz. Mango, Litchi, Aonla, Custard Apple and Guava at the nutritional garden of IFS model near Faculty of Forestry.



- Preparation of land for cultivation of various vegetable crops at the nutritional garden of IFS model near Faculty of Forestry.

- Formation of ridges and furrows for sowing vegetable crops at the nutritional garden of IFS model near Faculty of Forestry.

- Digging of the pits for plantation of mango orchard and Preparation of seedbeds for raising of paddy seedlings *var*. MTU-1010 in the nursery.\

- Preparation (ploughing and leveling) of the main field for transplanting rice crop *var*. MTU-1010 in the IFS farm of Department of Agronomy, BAU, Ranchi under lowland condition.

- Preparation of Pandal system for staking in sponge gourd and long yard bean for support of tender climbers in IFS near faculty of Forestry.

- Sowing of the pulses and fodder crops *viz*. greengram (Moong), pigeon pea (Arhar) and Cowpea in the interspaces of Gamhar trees at the Agroforestry field, Birsa Agricultural University, Ranchi.

- **Plantation Drive of Trees at Agroforestry field of BAU Ranchi:**

  A plantation drive was conducted on 1st week of June (Nursery plantation) and 10th to 20th July (Trees plantation) to plant different forest trees and horticultural fruit plants. About 9000 Gamhar, 450 teak, 100 Curry, 900 papaya plants, 100 Bael, 200 Phalsa plants and 350 Sal plants were planted in the Agroforestry field, Birsa Agricultural University, Ranchi.

- **Preparation of Planning and Layout of Nutritional Garden at IFS model near Faculty of Forestry:** Dr. Abdul Majid Ansari (Horticulture expert) along with Dr. M.S Malik (PI of the IFS Project) visited and discussed on the preparation of the layout and planning of plantation of various fruits and vegetable crops in the nutritional garden of Integrated Farming System model near Faculty of Forestry BAU, Ranchi.

- Repairing and Renovation of Cowshed troughs and floor has been completed at IFS unit of Agronomy, Birsa Agricultural University, Ranchi, Jharkhand.

- Farm visit and survey had been done with farmers on their farms along with experts for establishment of IFS Model at Lohardaga district.

- Sowing of Oilseed, Cereal and Pulse crops such as Mustard, Wheat and Chickpea had been done in Moringa based Integrated Farming System at RVC, Ranchi.

- Dr. Rakesh Ranjan, Horticulture expert along with Dr. Elishma Xaxa visited and discussed the layout and planning for establishment of different components of IFS Model such as nutritional garden and Agroforestry unit in two hectare area of IFS Model at KVK Lohardaga district under the project NAHEP-CAAST, BAU Ranchi.

- **From machineries provided to KVK, Lohardaga:** NAHEP-CAAST of BAU has also been provided equipments and machineries *viz*. Power-operated Branch Cutter, Power-operated Chaff Cutter, Zero Tillage cum Seed Drill, Power-operated Weed Cutter, Power Sprayer, Reaper, Vegetable Planter, Multi-grain Thresher, Drip and Sprinkler Irrigation System for smooth conduction and implementation of different components of the Integrated Farming System.
- **From machineries provided to KVK, Saraikela:** NAHEP-CAAST of BAU has also been provided equipments and machineries *viz*. Power-operated Branch Cutter, Power-operated Chaff Cutter, Zero Tillage cum Seed Drill, Power-operated Weed Cutter, Power Sprayer, Reaper, Vegetable Planter, Multi-grain Thresher, Power Tiller with accessories, Drip and Sprinkler Irrigation System for smooth conduction and implementation of different components of the Integrated Farming System.
- **Repairing and Renovation of Fish Ponds and Other Units:** Renovation of fish pond under IFS at KVK Lohardaga and Saraikela-Kharsawa has been completed, while the renovation of Poultry, Duckery and Azolla unit is in progress.

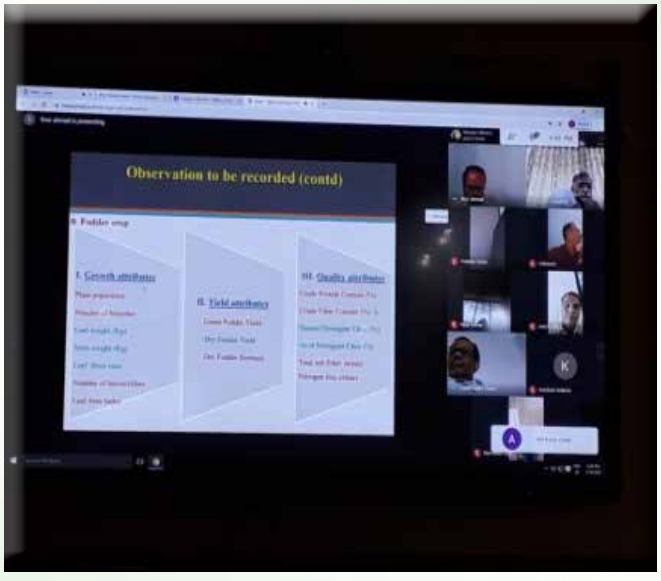
- Sowing of Tomato seedling and irrigation has been done in the plots of Nutritional garden at KVK Saraikela-Kharsawan district under the project NAHEP CAAST, BAU Ranchi.

- Low cost fencing had been done in the nutritional garden for protection of agricultural fields and to keep animals away from crop field to avoid damage to the crops and boundary delineation in the nutritional garden at KVK Saraikela-Kharswan district under the project NAHEP-CAAST, BAU Ranchi.

- Harvesting of fingerling size of fishes of different breeds such as Rohu, Katla, Mrigal and Grass carp for seed sales to the farmers for stocking purpose in the pond based IFS model near LPM building at Ranchi Veterinary College, BAU.

Post Graduate Student's Research/Activity

- Mr. Firoz Ahmad (Ph.D. Research Scholar) presented the synopsis seminar of his research topic **"Agroforestry-based IFS"** through online mode. The PG students and faculties took active part in discussion during the synopsis seminar.



- Harvesting of Fodder groundnut (Charabadam) and Stylo grasses from Silvipastural research plot of Ph.D. student at Agroforestry field, Birsa Agricultural University, Ranchi.

- The Ph.D. research work on analysis of quality of water samples collected from reservoir at Kanke, Ranchi was performed through the NAHEP-CAAST supported equipment "Multi-parameter Water Testing Kit" during 2019-20.

- Smt. Seema Agarwal, a research scholar of veterinary science, is conducting research on Livestock Production Management related to Biotechnological Aspect at Indian Institute of Agricultural Biotechnology, Namkum, Ranchi. NAHEP-CAAST-IFS project is supporting the student for smooth conduct of doctoral program.

- A lecture series was organized by NAHEP-CAAST of BAU, Ranchi on the Birth Anniversary of Mahatma Gandhi and former Prime Minister Lal Bahadur Shastri. The dignitaries present in the programmes were Dr. Onkar Nath Singh (Hon'ble Vice-Chancellor), Registrar and Deans of the faculties. The scientists and students of the university took part in the programme. Hon'ble Vice-chancellor presented his view on the message given by Late Mahatma Gandhi and Late Lal Bahadur Shastri and also suggested to adopt their ideas.

- Farmers of Khunti district visited the IFS farm of Department of Agronomy, BAU Ranchi and interacted with scientists for establishment of various components of IFS in their villages.

- **Regular Monthly Review Meeting of NAHEP-CAAST:** A monthly meeting was held at the conference hall of LPM, Ranchi Veterinary College on 22nd June 2020 with participation of Principal Investigator, Co-Principal Investigators and staff members of NAHEP-CAAST. The meeting was also attended by Dr. Ramesh Kumar Verma (Comptroller, BAU), Dr.B.K. Agarwal (Nodal Officer of NAHEP-CAAST), Dr Sushil Prasad (Dean, Ranchi Veterinary College), Dr. Arvind Kumar, Dr. Abdul Majid Ansari and others. The progress of activities, work done and future action plans were discussed in this meeting.

- **Review Meeting with officials of NAHEP Headquarter and World Bank:** A review meeting with the National Director, National Coordinator and Consultant was held on 30th June 2020. The progress report including expenditure and further roadmap was presented by Dr. M.S. Malik (PI of the project).
- **Submission of Reports:** NAHEP-CAAST of BAU Ranchi usually submit Weekly Progress report, Interim Utilized Financial report, Statement of Expenditure, Equity Action Plan, Environmental Safeguard, Demand of Fund, PMTS, etc. to National Coordinator, NAHEP-CAAST, New Delhi at regular interval.
- A webinar on **"Post-Procurement Review with all Agricultural Universities"** was held on 13th July 2020 with the National Director & National Coordinator of NAHEP and World Bank officials. Dr. M.S. Malik (PI of the project) and Dr. B.K. Agarwal (Nodal officer, Procurement) of NAHEP – CAAST – IFS project of BAU Ranchi attended the webinar.

- **Review meeting with National Coordinator, NAHEP-CAAST:** The Dean PGS, PI, Co-PIs, SRFs, YPs and SPs attended the review meeting with National Coordinator, NAHEP-CAAST, New Delhi on 17th August 2020. A brief objective-wise report of the NAHEP-CAAST project was presented regarding the activities and work done at the BAU Ranchi. The National Coordinator also interacted with the Co-PIs, SRFs and YPs and SPs. He also gave some valuable suggestions for smooth functioning of the project at BAU Ranchi.

- **Review meeting with Hon'ble Vice-Chancellor, BAU, Ranchi:** The Hon'ble Vice-Chancellor reviewed the progress of NAHEP-CAAST Project along with the Deans, Directors and Staff of NAHEP Project on 29th December 2020. The work done report of different activities including Financial Report, Future road map, Recruitment of contractual staff and procurement process of World Bank, STEP portal, etc. were presented by PI of the project and discussed.

- A lecture on the topic **"Prevailing Integrated Farming System in Jharkhand – Validation and Perfection"** was organized on 08th October 2020 under the chairmanship of the Dean, Post-Graduate Studies The Director of Extension Education, Deans of various Faculties, Principal Investigator, Co-Principal Investigators and staff members of NAHEP – CAAST – IFS project were present. An overview on the above-mentioned lecture was presented to the Hon'ble Vice-chancellor under his chairmanship with all the members.

- A meeting with the Principal Investigator, Nodal Officer (Environmental Safeguard), Co-PIs and Staff members of NAHEP – CAAST – IFS was held at Department of Agricultural Engineering on 29th October 2020 for making the Green and Eco-safe campus of the university.

- Hon'ble Vice- Chancellor of this University along with PI, Co-PI and Dean, Faculty of Forestry visited the Mushroom unit and different components of Integrated Farming System Model near Faculty of Forestry and discussed about the action, planning and implementation of ideas for the smooth running of NAHEP-CAAST, Project BAU, Ranchi.

- **Presentation on Academic Management System: NAHEP Component – II** was organized by BAU Ranchi and ICAR – IASRI, New Delhi on 09th December, 2020 at the LPM Building, Ranchi Veterinary College The presentation was made by Mr. Sandeep Marwaha before Dr. Onkar Nath Singh (Hon'ble Vice-Chancellor of BAU). Dr. R.C. Agarwal (National Director, NAHEP-CAAST) and Dr. Prabhat Kumar (National Coordinator, NAHEP-CAAST).

- A guest lecture on the topic "Forest, Wildlife & Biodiversity Conservation of Sriharikota" was delivered by Dr. Angadi Rabbani (Asso. Project Director & Head, Environment Forest and Horticulture Division, Satish Dhawan Space Centre, ISRO, Sriharikota) at the RAC Auditorium on 20th December 2020 under NAHEP – CAAST – IFS project

बीएयू : बागवानी, वन, वन्य जीवन और जैव विविधता संरक्षण पर अतिथि व्याख्यान आयोजित

भारत में जैव विविधता का नुकसान खतरनाक संकेत : डॉ अंगदी

Green Initiatives at BAU, Ranchi

For establishment of a fair and transparent system, a grievance redressal mechanism has been set up under NAHEP-CAAST on Standardization of Integrated Farming System Models for the State of Jharkhand. A grievance redressal cell has been set up under this mechanism with an objective to redress the grievances of students, employees, clients, vendors, procurement, social and environment and other stakeholders.

There exists 3-tier system. At the University level i.e., Tier-I, Dr. Rekha Sinha, Head Department of Home Science has been designated as Grievance Redressal officer(GRO) to facilitate the disposal of complaints received pertaining to NAHEP-CAST. Shri. Dilip Roy, undersecretary at Tier-II level i.e. Project implementation unit and Dr R.C. Agarwal, National Director at Tier-III level are responsible for redressal of complaints. Complaints can be lodged in the university through in person, post, drop box, phone and E-mail.

Complaint can also be lodged on http:nahep,icar.gov.in. Complainant will be communicated within 10 days about redressal. If complainant gets satisfied, the complaint is resolved. If not it passes on to the next stage as an appeal.

Progress report of the environmental sustainability plan (ESP) sent to ICAR- NAHEP- CAAST, New Delhi

NAHEP

Environmental Sustainability Plan (ESP)

Project Title: Standardization of Integrated Farming System Models for the State of Jharkhand (CAAST)

Environmental sustainability (ES) activities proposed at BAU during project period and this proposal is already submitted in google sheet to coordinating unit, NAHEP

S.No.	Activities	1. Compliances and Lab safety measures	Remarks
1.		(i) laboratories accreditation (Soil Sciences/ Entomology/ Pathology/Food Technology/Dairy Technology / Fish Processing)	
	E (Existing)	-	
	Pro (Proposed)	2	1. One Laboratory in Department of Soil science & Agricultural Chemistry (Faculty of Agriculture) 2. One Laboratory in Faculty of Forestry
	Remarks	In progress	
		(ii) Laboratories with proper/safe disposal of laboratory wastes (Soil Sciences/ Entomology/ Pathology/Food Technology/Dairy Technology / Fish Processing)	
	HSW (Hazardous Solid waste	2	1. One Laboratory in Department of Soil science & Agricultural Chemistry (Faculty of Agriculture) 2. One Laboratory in Faculty of

Data sheet of coffee table book under Environmental Safeguard (ES) report sent to ICAR- NAHEP-CAAST, New Delhi

Green Initiatives in the Campus

Name of the AU: Birsa Agricultural University Kanke Ranchi 834006
Name of Nodal officer: Dr. Pramod Rai
Contact number: 8986644713

1. Waste Management

Source	First Month	Second Month	Third Month	Quantity
Residential	-	-	-	Proposed
Farm	-	-	-	Yes
Laboratories	-	-	-	-

Waste segregation	
Type	Quantity
Dry	Proposed
Kitchen	Proposed
Hazardous chemicals	Handling at University

On campus waste treatment	
Types	Quantity
Dry	-
	Proposed
Kitchen	-
	Proposed

Green Initiative of BAU Ranchi

A survey and data collection under the green initiative of NAHEP-CAAST was made on the basis of Environmental Safeguard like solar street light, solar water heater, waste management and also water and energy conservation at Post-Graduate Boy's and Girl's hostels of College of Agriculture, Veterinary and Forestry, BAU Ranchi. The action plan regarding the Environmental Safeguard of the university has been proposed and implementation work has been initiated.

Celebration of World Environment Day

The celebration of world environment day with the theme **"Protection and Conservation of Environment & Biodiversity: Post COVID-19"** at Ranchi Veterinary College, Birsa Agricultural University was organized by NAHEP-CAAST on 05th June 2020. The safeguard rules of social distancing and wearing of face masks were strictly followed during the programme. Online series of lectures was also organised on the occasion of "World Environment Day, 2020" on given below topics:

- Time for nature.
- Greening Post COVID-19.
- Economic recovery.

- **Tree Plantation:** Plantation of the trees *viz*. Neem, Karanj and Gulmohar was done in the premises of Livestock Production Management (LPM) building by the dignitaries, Faculty and staff members of Ranchi Veterinary College. The staff members of NAHEP-CAAST were also present in the event.

- **Celebration of International Yoga Day:** The International Yoga Day was celebrated on 21st June, 2020 at Ranchi Veterinary College, Birsa Agricultural University maintaining the social distancing and adopting the proper guidelines of COVID-19.

A survey was also made on the Present Situation of Energy Conservation and Waste Management in Birsa Agricultural University, Ranchi.

- **R &B Meeting of NAHEP-CAAST was held on 08th June 2020 at Faculty of Forestry, Birsa Agricultural University, Ranchi.**

➢ PRA survey related to IFS is in progress.

➢ Nursery raising of paddy crop.

A meeting by Dr. M. S. Malik (PI, NAHEP-CAAST) with Dr. R. Thakur, Dr. S. K. Pal and Dr. R.R. Upasani was held on 17th June 2020. They discussed about the repairing work of the IFS farm and purchase of farm implement for Integrated Farming System, Department of Agronomy, BAU, Ranchi.

➢ Secondary tillage done in upland plot (vegetable) of IFS unit of Department of Agronomy, Birsa Agricultural University, Ranchi.

➢ Four Milking machines and Lactometer under NAHEP-CAAST project were installed at the Department of Livestock Production Management, RVC, BAU, Ranchi on 24th June 2020.

➢ Solar generator under NAHEP-CAAST project was installed for the Conference Hall of Livestock Production Management, RVC, Birsa Agricultural University, Ranchi for proper functioning arrangement of meetings and lectures.

- The brick cemented floor was constructed at the feeding trough region of Cattle at the IFS farm of Department of Agronomy, Birsa Agricultural University, Ranchi on from 7th July 2020 to 9th July 2020.

- Attended Webinar on **"Contribution of agro-forestry to achieve additional carbon sink of 2.5 to 3 billion tonnes of CO_2 equivalent through additional tree cover in India by 2030"** as panelist and presented on the topic **"Issue and challenges of Agroforestry in India"** on 08th July 2020, which was organized by The Energy and Resource Institute, New Delhi.

- Application of FYM and sowing of hybrid seeds of Pumpkin, Okra and French bean was carried in the plots of nutritional garden at IFS farm near to the Faculty of Forestry, BAU Ranchi.

- Construction of bamboo walls for covering the open space and renovation of Goatry unit in IFS unit near Faculty of Forestry.

➢ Plantation of the Hedges (*Golden duranta*) was done in the vicinity of conference/ seminar/ meeting hall of NAHEP, LPM building, RVC, BAU, Ranchi.

➢ Nursery of Gamhar plants were raised by filling 4000 polybags along with the seeds. In addition to this, 160 plants of Karanj, Jamun, Gulmohar, Neem, Karam, Lacucha, Shisham, Bahera, Kadam, Mahogoni, Chatni, Arjun, Mahuwa and Gamhar were planted at the RVC Campus, BAU, Ranchi, Jharkhand.

➢ Hedge (Golden duranta) plantation was done around the nutritional garden of IFS near Faculty of Forestry, Birsa Agricultural University, Ranchi.

➢ Renovation of floor, water tank roof and walls of mushroom unit of IFS near Faculty of Forestry, Birsa Agricultural University.

➢ Report on quarterly expenditure (1st April to 30th June 2020) and IUFR was submitted by NAHEP-CAAST, BAU, Ranchi to NAHEP, New Delhi.

➢ Pruning of the HDP mango orchard for removal of disease and insect pests affected parts was done In IFS unit near the Faculty of Forestry.

➢ Wire fencing has been done to protect the plantation and garden around the NAHEP Conference Hall and Post-Graduate laboratory in the Livestock Production

Management and LPT building of Birsa Agricultural University as per the suggestion of Co PI, NAHEP-CAAST and Dean, Ranchi Veterinary College.

- Meeting of PI with Co-PIs was organized on to discuss NAHEP-CAAST, IFS project progress as well as research issues of each Co-PI as well as PG research.

- The PI, Co-PIs and technical staffs attended the Workshop on "Improving Higher Agriculture Education Job Outcomes in India: Challenges and Opportunities" organized by PIU-NAHEP along with World Bank on 03rd September 2020. The report regarding the above-mentioned workshop was submitted to Hon'ble Vice Chancellor, Deans, Directors and Scientists.
- Attended a meeting on 04.09.2020 with Director Horticulture and officials of Govt. Of Jharkhand along with scientists of Birsa Agricultural University and discussed about technologies, doubling of farmer's incomes, marketing and NAHEP CAAST IFS project.
- Plantation of pineapple plants have been done in the existing mango orchard of IFS field near Faculty of Forestry, BAU Ranchi.

- Eco-friendly solar light has been provided in the newly renovated and repaired cowshed, goat shed, duck shed, road and farmer's house under existing integrated farming system.
- Sowing of Dolichos bean, Radish, Okra and Amaranthus seeds in the different plots of nutritional garden of IFS unit near Faculty of Forestry, BAU, Ranchi.

- **Exposure Visit:** Anganwari Sahiyas visited the Nutritional Garden developed by NAHEP-CAAST in the collaboration with KVK Saraikela-Kharsawan.

- Preparation of land near the pond for establishment of Nutritional Garden at KVK Lohardaga under the NAHEP-CAAST project, Birsa Agricultural University, Ranchi.

➢ Plantation of fruit crops *viz*. Mosambi, Pummelo, Kinnow and Lemon in the nutritional garden and Agroforestry unit of IFS near Faculty of Forestry, BAU, Ranchi.

➢ Transplantation of tomato seedlings *var*. KSP-1306 in nutritional garden of IFS near the Faculty of Forestry, BAU, Ranchi.

➢ Activities performed at Kisko village (adopted by KVK), Lohardaga on the occasion of Birth Anniversary of Mahatma Gandhi and former Prime Minister Lal Bahadur Shastri –

- Farmers – Scientists Interaction was conducted to solve the problems related to crop production and livestock management through providing the valuable suggestions.
- Various trees were planted to keep the environment clean and safe as well as to maintain the ecological balance.

➢ Workshop on Green Campus/ Building Certification was organized by ICAR, New Delhi on 09th October 2020 and Co-PI of the NAHEP-CAAST, BAU, Ranchi attended the workshop through online mode.

- Procurement Meeting of NAHEP – CAAST – IFS project, BAU Ranchi was organized under the chairmanship of Dr. M.S. Malik (PI of the project) along with participation of Co-PIs and Nodal officers for smooth functioning of the project.
- Pesticide application for the control of insect-pests and diseases in French bean, Dolichos bean, Sponge gourd, Radish, Amaranthus and Tomato plots in IFS near Faculty of Forestry, BAU.

- Irrigation and Weeding operations has been performed in nutritional garden of Integrated Farming System in Krishi Vigyan Kendra, Saraikela-Kharswan district under the project NAHEP CAAST, BAU Ranchi.

- Bamboo walls and gates of Goatry, Dairy and Duckery unit had been painted with green colour in IFS unit near to Faculty of Forestry BAU, Ranchi.
- Repairing and Renovation of Mushroom unit of Integrated Farming System model in Krishi Vigyan Kendra, Saraikela-Kharsawan under the project NAHEP CAAST, BAU Ranchi.
- Sanitization had been done in mushroom unit for cultivation of mushroom at IFS model near Faculty of Forestry, BAU, Ranchi.
- Partially dried chopped paddy straw with spawn was bagged and labelled for cultivation of mushroom at IFS model near Faculty of Forestry, BAU, Ranchi.

- Training of farmers of Kisko block(KVK Lohardaga) on goat rearing by Dr. Hemant Kumar at Krishi Vigyan Kendra, Lohardaga

- Surveying of Water Harvesting Structure at BAU campus, Ranchi

- Online Interview for the recruitment of Contractual staff under NAHEP-CAAST project for post of Consultant, Research Associate, Senior Research Fellow, Young Professional and Skilled Person was held at LPM hall, BAU, Ranchi.
- Report on Output-Outcome Monitoring Framework 2020-22 targets submitted to NAHEP-CAAST, Delhi.
- Attended webinar on Rehabilitation of displaced farmers organized by TERI (The Energy and Resources Institute), New Delhi.
- Report send to NAHEP-CAAST on Green and Clean Campus Award 2020
- Sowing of Papaya fruit crop had been done in nutritional garden in Krishi Vigyan Kendra Saraikela-Kharsawan under NAHEP- CAAST project.

- Dr. M.S. Malik, Principal Investigator attended the 25th ICAR regional committee meeting held on 27th November, 2020.
- Training on bamboo cultivation and value addition of bamboo product has been organized for enhancing the knowledge of farmers and making their business more profitable at Krishi Vigyan Kendra, Saraikela-Kharsawan under NAHEP-CAAST from 10th December 2020 to 12th December 2020.

- Training program on Soil had been organised on the occasion of "World Soil Day" at Krishi Vigyan Kendra Lohardaga under NAHEP-CAAST on 5th December 2020.

➢ A group of farmers with Block Technical Manager came from "Itki" block had visited the field of Medicinal and Aromatic plants of Kisan Bhawan, and Integrated Farming System model of Agronomy and near Faculty of Forestry at Birsa Agricultural University, Kanke, Ranchi on 11th December 2020.

➢ Sowing of Cabbage and Brinjal vegetable crops in the plots of Nutritional garden of IFS Model near Faculty of Forestry, BAU Ranchi.

➢ Training programme on Bamboo cultivation and value addition has been conducted on 3rd December 2020 to 5th December 2020 and distribution of bamboo kits and accessories among the farmers has been done in the Krishi Vigyan Kendra of Saraikela-Kharsawan district under NAHEP-CAAST project.

➢ Sowing of pea seeds of hybrid variety after the application of compost in the plot of Nutritional garden of IFS Model near Faculty of Forestry BAU Ranchi.

➢ Transplanting of Onion seedlings after the application of fertilizers (DAP, SSP and compost) in the plots of Nutritional garden of IFS Model near Faculty of Forestry BAU Ranchi.

Participation of NAHEP-CAAST in Kisan Mela

NAHEP-CAAST-IFS project of BAU participated in a three-day (05 – 07 March, 2021) mega state level farmer's fair "*Purvi Kshetriya Pradeshik Krishi Mela and Agrotech Kisan Mela 2021*" with the theme of "Higher *Education in Agriculture*". The staffs, scientists, consultants as well as principal investigator interacted with farmers, students, researchers, academicians and others and gave their views on the higher education in agriculture, job opportunities, etc. They also disseminated the scientific knowledge regarding cultivation of field and horticultural crops, rearing of goats, cattle, buffaloes, sheep, ducks, poultry, pigs, etc. as well as on the scientific know-how regarding integrated farming system.

Publications

A number of publications have been prepared by various scientists and has been published under NAHEP – CAAST – IFS Project. The publications have been developed for farmers, researchers, scientists and academicians as well as students, which could prove in the field of agriculture development and management. The list of publications has be given below –

a) Development of Indigenous Eco-Green Village Ulihatu – An Integrated Farming System Approach

b) Abhay Kumar, M.S. Malik, M.H. Siddiqui and M.S. Yadava. (2021). Soil Quality and Health, In: Abhay Kumar, Asha Kumari Sinha and Swati Shabnam, Problematic Soils and Their Management, New India Publishing Agency, New Delhi.

c) Abhay Kumar, M.S. Malik, M.H. Siddiqui and M.S. Yadava. (2021). Multi-Purpose Tree Species, In: Abhay Kumar, Asha Kumari Sinha and Swati Shabnam, Problematic Soils and Their Management, New India Publishing Agency, New Delhi.

d) M.S. Malik, P.K. Ghosh, Pinaky Rai, Nikita Kumari and Christina Minz. (2021). Innovative Farming Systems for Self-Reliance of Farmers in Eastern India, In: P.K. Ghosh, Prabhat Kumar, Debashis Chakraborty, Debashis Mandal and P.N. Sivalingam, Innovations in Agriculture for A Self-Reliant India, New India Publishing Agency, New Delhi, pp. 353-370.

e) Development of Indigenous Eco-Green Village Ulihatu – An Integrated Farming System Approach

f) M.S. Malik, Prabhat Kumar, P.K. Ghosh, D.K. Jaiswal and Adyant Kumar. Monograph on Integrated Farming System

g) Md. Parwaiz Alam, M.S. Malik, P. Mahapatra, Sulochna and S.K. Singh. (2021). Soil and Water Analysis: Laboratory Manual,

h) Package and Practices of Jharsuk Pig (in Hindi and English), Package and Practices of Black Bengal Goat (in Hindi and English),

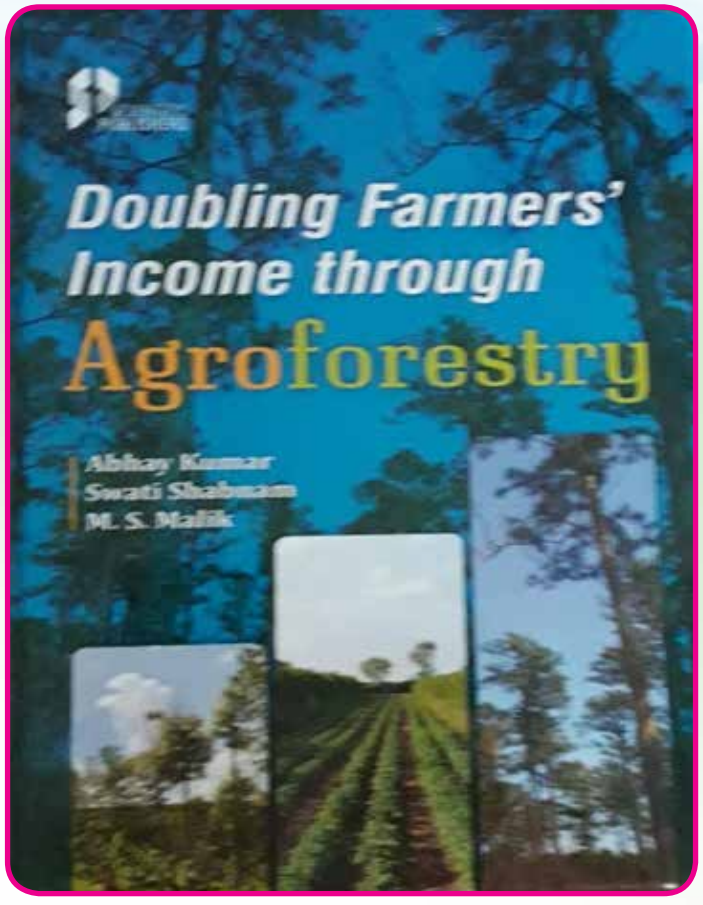
i) Package and Practices of Jharshim Poultry (in Hindi and English),

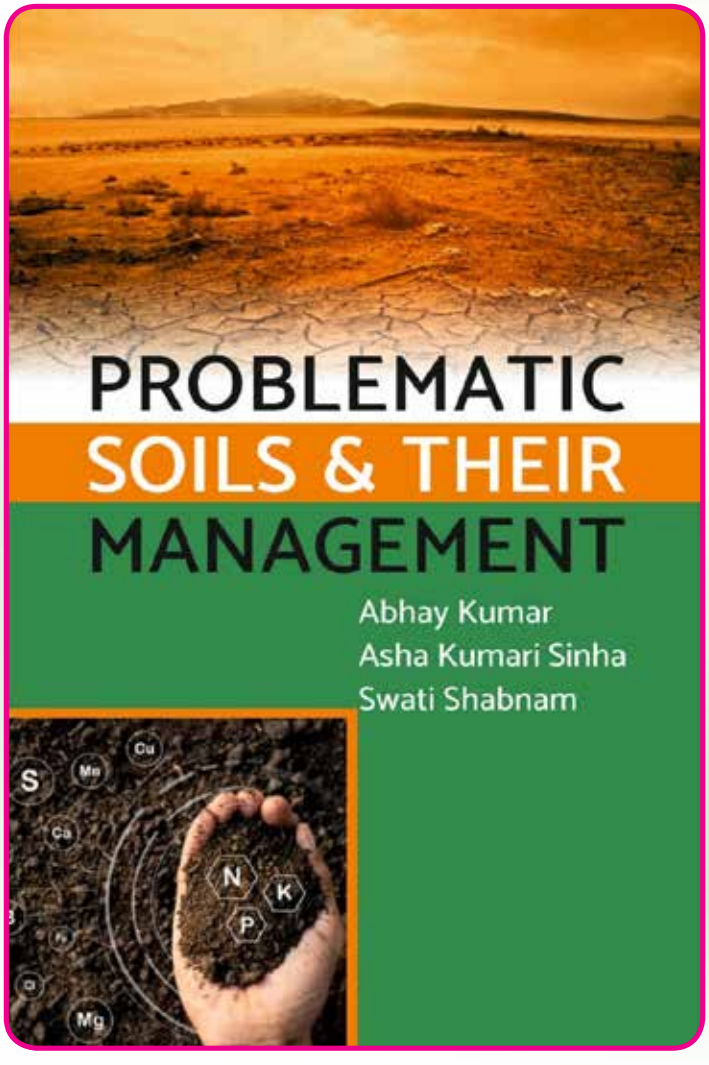
j) Fish culture and Value Addition (in Hindi and English),

k) Career Opportunities in Fisheries Sciences,

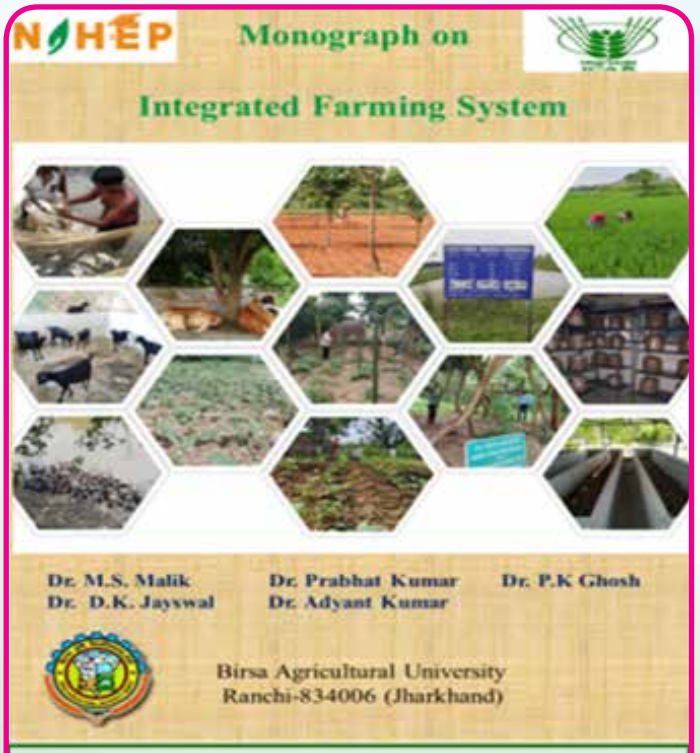
l) Fish production through Bioflock,

m) Abhay Kumar, Swati Shabnamand M.S. Malik. (2021). Doubling Farmers Income through Agroforestry, Scientific Publishers, Jodhpur, ISBN: 978-93-90495-71-9, eISBN: 978-93-90495-71-0.

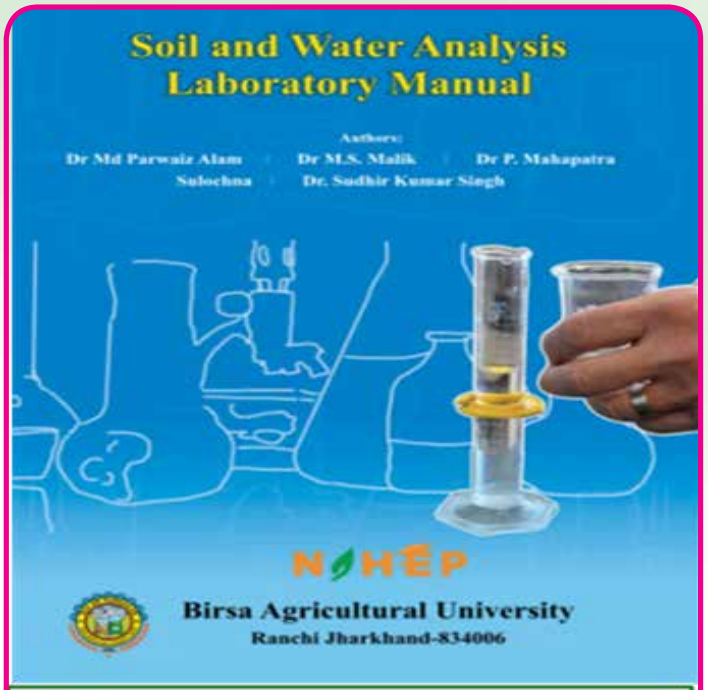




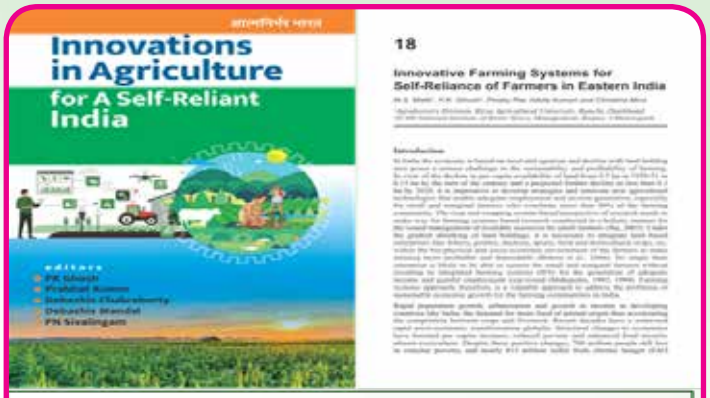
Development of Indigenous Eco-Green Village Ulihatu – An Integrated Farming System Approach



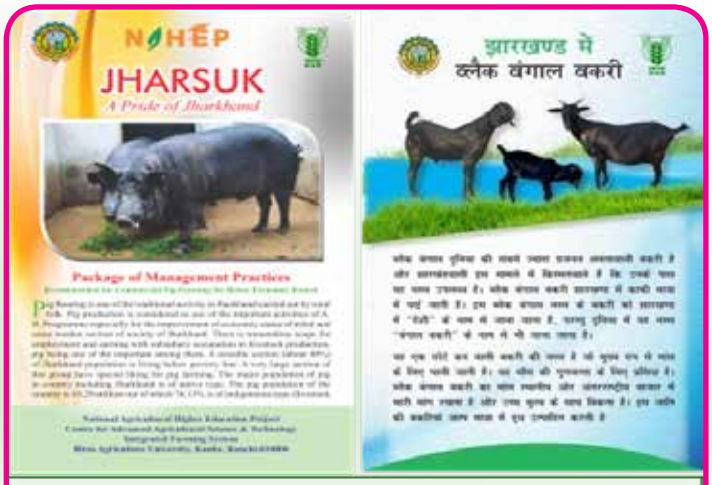
Monograph on Integrated Farming System (In Press)



Soil and Water Analysis Laboratory Manual



Book chapter 'Innovative Farming Systems for Self-Reliance of Farmers in Eastern India' in Innovations in Agriculture for A Self-Reliant India



Package and Practices of Jharsuk Pig and Black Bengal Goat (In Hindi and English)

Brochure published Package and Practices of Jharshim Poultry & Fish Culture and Value Addition (In Hindi and English)

Message from the Principal Investigator

Dr. M. S. Malik

Dean (Faculty of Forestry) & PI (NAHEP-CAAST-IFS)

For overall development of agriculture, better livelihood and socio-economic upliftment, the integrated farming system plays a very crucial role in obtaining the higher yield as well as food and nutritional security among the farmers. The World Bank funded NAHEP-CAAST project entitled "*Standardization of Integrated Farming System Models for the state of Jharkhand*" is an intervention of ICAR to take the agricultural research and education to the next level of growth. This project has provided an opportunity to build up the strings of the whole institution towards excellence upon quality education, quality research, inter-institutional networking, multi-disciplinary collaborations and MoU's. The vision of project was providing the leadership for research, development, capacity building and transfer of technology for promotion and adoption of integrated farming system in terms of sustainable management of farm resources in integrated manner for achieving household food, nutritional and livelihood improvement among the small and marginal farmers as well as landless labourers of Jharkhand and other adjoining states. These efforts led the university towards being a more sensitive and responsible institution. Stringent compliance of rules, target based working, multi-disciplinary team effort, regular evaluation and introspection, proper documentation and publications, need based programmes and encompassing dimensions of social equity and environmental consciousness, were some of the major tenets of the work culture of NAHEP-CAAST-IFS Project. This work culture helped the project to make a substantial impact on the academic and research performance, skilling levels of the students of the university.

अधिक जानकारी के लिए संपर्क करें :-

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