



2022

Volume: 01

Issue: 04

October-December

Content

- ❖ Technologies Evaluated
- ❖ Event Organized and Visit
- ❖ Publications/Awards/Invited Lectures
- ❖ Extension Education Activities

Chief Editor

S.S. Singh

Director Extension Education

Editorial Board:

Ashutosh Sharma

Prabhat Tiwari

Alka Jain

Pavan Kumar

Sanjeev Kumar

From the Vice-Chancellor Desk



Millets are traditionally known for cultivation and consumption in Indian subcontinent for more than last 5000 years due to their nutrition rich grains. Out of many millet crops, about 8 are well known for their adaptation under harsh environments. Millets are gluten-free, rich in micronutrients including calcium, iron, and phosphorus, and fibre, etc and hence considered as highly nutritious and also known to help in preventing and controlling diabetes. The millets are easily digestible source of nutrients; therefore these should be part of the daily diet. Considering importance of millet as climate resilient crops and for human health, Government of India declared 2018 as National Year for Millets and also submitted proposal to the United Nations for declaring International Year of Millets which was supported by 72 countries and United Nations' General Assembly (UNGA) declared 2023 as International Year of Millets on 5th March 2021. Government of India is fully aware of its responsibilities and accordingly launched "Sub Mission on Millets" under National Food Security Mission during 2018 for promotion of millets production and consumption. In India, states viz., Rajasthan, Uttar Pradesh and Haryana accounts for more than 81 per cent share in total millet production. Rajasthan contributes half of the total millets' production in India's whereas Uttar Pradesh is sharing more than 19.6 per cent of the total production. The area under millets in Bundelkhand region of the Uttar Pradesh has reduced due to various reasons which use to be the traditional area. Among various millets grown, pearl millet alone contributes about 29 thousand ha area in the region.

RLBCAU has developed robust plan for promotion of millets production and create awareness for better human health. University is strengthening seed production of sawan, kodo and pearl millet. Efforts are being made to develop good agronomic practices (GAPs) and establish post harvest seed processing facilities. Demonstration plots of different millets have been established for the exposure of the stakeholders including students belonging to various schools and colleges. Efforts have been made to collect germplasm accessions of pseudo cereals like amaranth and quinoa for inclusion in crops' cafeteria. Threshing and processing of many types of millet is still a challenge. Promotion of millets cultivation in Bundelkhand region will certainly help in increasing cropping intensity which is far low in comparison to other parts of the state. To tackle various issues, University intends to establish required processing centre for millets with the help of RKVY, market linkages for increase production, value addition and develop smart food items. To create awareness targeting increase in millets consumption as a nutritious food, university organized Millet Day and ensured at least one food item is served to the students twice in a month. University has also planned to organize "National Conference on Millets" covering various issues to develop executable research and development strategies for both, production and consumption of nutritious grains of millets.

I am sure with better planning and execution, production, productivity and consumption of millets can be enhanced. Let's come forward and start consuming millets which will create demand for more production.

Vice-Chancellor



- ❖ Ashok Kumar Singh, Hon'ble Vice Chancellor, RLBCAU, Jhansi, attended the Kisan Mela at BUAT, Banda, UP as chief guest during the inauguration ceremony from Nov 3-5, 2022.
- ❖ Hon'ble Vice Chancellor attended the Kisan Mela at Morena, MP, jointly organised by Union Agriculture Ministry and MP government. Agriculture and Farmers Welfare Minister, Shri Narendra Singh Tomar, inaugurated the country's first mobile plant health clinic van designed by RLBCAU.
- ❖ On the occasion of the 187th birth anniversary of Maharani Laxmi Bai, Hon'ble Vice Chancellor celebrated the RLB Birth Anniversary at the college campus on Nov 19, 2022.
- ❖ Hon'ble Vice Chancellor attended three days agriculture fair organized at Pathardeva, Acharya Narendra Dev Inter College, Deoria, UP from Oct 18-20, 2022.



Technologies Evaluated

Mapping and identification of *Azadirachta indica* using semantic segmentation deep learning neural network

The high spatial resolution data presents a problem when it comes to mapping and identifying distinct tree species based on the characteristics of their canopies. The deep learning semantic segmentation approach based on artificial intelligence that we provide here can map and recognised *Azadirachta indica* trees. In recent years, deep learning has become more fashionable among academics for the analysis of remote sensing data. The semantic segmentation approach is based on Convolution Neural Networks (CNN). This method trains its model by making use of chips and labels of the item being segmented. The picture of the chip is segmented, and then the model is trained with the assistance of the object label and the data on the pixel value. The accuracy of the model is validated using the specified chips and labels, and the model's validity is tested using learning. The model's ability to identify items based on canopy shape, structure, density, and pixel data makes it very useful for mapping a single tree species as well as several tree species. The model validation results indicated an accuracy of 81-82%, which is regarded to be rather good. Based on ground census data, the validity percentage for trees is roughly 82%, while the validity rate for canopy area is probably between 78 and 80%. The method has the potential to be utilised for critical investigations such as tree censuses, agricultural product identification and mapping. The approach has the potential to be used for important research initiatives such as tree censuses and the identification and mapping of agricultural goods. The object detection picture is used as the input image for testing the semantic segmentation model. The size and scope of the object detection image are not restrictions on the model's testing.



Fig. 1: Instance segmentation using the tree dataset. (a) Initial image in its natural colour (b) PCA image with individually labelled tree crowns.

The image chips used for training and testing must have the same kind, bit count, and number of layers in order for the model intelligence to have the same foundation. Pixel demarcation allows for the detection of the tree object, which is then mapped into a class group. *Azadirachta indica* tree identification class and ground confirmation are both assessed using recognised pixels that span more than 40% of the canopy cover (Fig. 1). Images with a spatial resolution of 0.5 metres or greater get the best results for tree identification. We were able to collect aerial pictures of *Azadirachta indica* trees in a variety of places from Microsoft Bing with a spatial resolution of less than one metre. The deep learning segmentation approach was tested for its efficacy in tree identification using photos of tree canopies. To train the model, training picture chips and class labels with dimensions similar to the original data were created.

The semantic segmentation deep learning method is useful for mapping and recognising objects (Fig. 2). It will also be used to automate the process by employing the same intelligence model to test discoveries on new datasets and photos of other locations. This will be accomplished with the assistance of data. It greatly improves the efficiency of tree identification, census gathering, and mapping. It is useful for finding changes in forest tree inventories, changes in productivity, and changes that have happened as a consequence of natural disasters and tragedies. The technique has potential uses in forestry, including decision-making acceleration, efficient mapping of fire-affected zones, mapping of invasive and endangered species, and enhanced forest management. This technique may be used to design both non-wooded and forested landscapes, and it can also be used to monitor such plans. (Pavan Kumar and Manmohan Dobriyal).

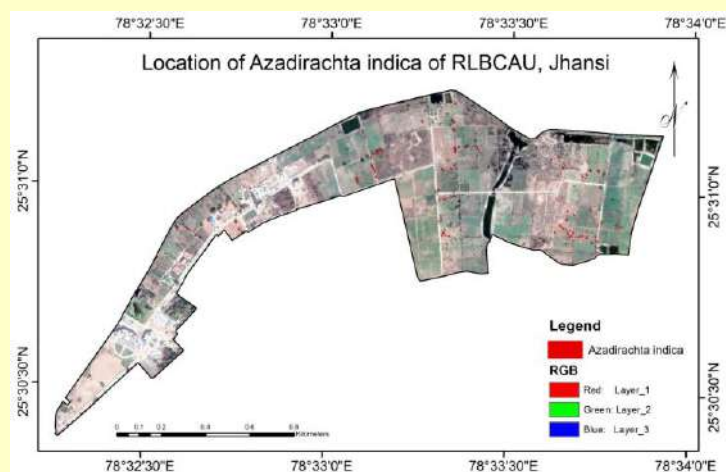


Fig. 2: The object identified map of the *Azadirachta indica* trees

Crop Cafeteria

The University has developed crop cafeteria for various stake holders namely students, farmers, scientists and school children to translate theory of crop production into practice and imbibe agricultural practical skills for decision making in real field environment. During the Rabi season, 2022-23 the various species and varieties of Rabi season crops were grown in cafeteria by adopting standard agronomic/plant protection practices (Table 1 and Fig. 3). It provides practical experiences based on the principle of ‘seeing believes’ for disseminating technical knowledge to the farmers, rural youths and extension functionaries as well as our students. Students were gets benefited with the practical knowledge of variations in different crops and species by real visualization. (Arpit Suryavanshi).

Table 1: Detail of the crop cafeteria during Rabi season 2022-23

S. No.	Crops	Varieties (90 Number)
Cereal Crops		
1.	Wheat	Black wheat, Manik 402, HD 3117, HD 3226, HD 3249, HD 3171, HI 8737, Shriram 303, HI 1544, HD 2932, HI 1620

2.	Barley	DWRB 137, DWRB 160, RD 2715, RD 2786, BH 959
3.	Rabi Maize	Shaktiman 2, Shaktiman 4, Shaktiman 5, Rajendra Maize 4, Deep Jwala
Pulse Crops		
4.	Chickpea	RLBGK 1, BG 4005, BG 3062, RVG 202, JG 63, JG 12, JG 36, BGM 10216, IPC 2006-77, Ujjawal
5.	Field pea	IPF 16-13, IPFD 14-2, IPFD 12-2, IPFD 10-12, IPFD 10-15, Aman
6.	Lentil	IPL 316, PL 6, Pant lentil 7
7.	Rajmash	HUR 137
8.	Lathyrus	Prateek, Mahateora
9.	Bakla (FabaBeans)	Local
10.	Pigeonpea	PANT A6, PANT A7
Oilseed Crops		
11.	Mustard Group	Giriraj, RH 725, RH 749, NRCHB 101, NRCDR 601, NRCDR 2, RCH 1, GSC 7, PC 6, Pusa Swarnima, PT 303, Shweta, Taramira
12.	Linseed	Parwati, Padmini, JLS 73, JLS 95
13.	Sunflower	KBSH 44, DRSH 1
14.	Safflower	NARI 57, NARI 96, RVSAF 18-1
15.	Castor	DCH 519, ICH 66
Fodder Crops		
16.	Berseem	BB 2, BB 3, JBSC 1, Vardan
17.	Oat	Kent, JHO 822, JHO 2000-4, BJ 2012-2, JHO 851
Millet Crops		
18.	Quinoa	Local
Sugar Crops		
19.	Sugarcane	Co 5, Co 1148, Co 238, Co 8492
Fibre Crops		
20.	Cotton	Jawahar Tapti, PA 8, RVK 11, RVK 67, JK 5, JK 4



Fig. 3: View of crop cafeteria during Rabi season 2022-23

Entrepreneurship Awareness Programme

The programme was organized under the guidance of Hon'ble Vice Chancellor A.K. Singh at the campus in collaboration with the MSME, GoI, on Oct 15, 2022. It aimed to provide information to the final-year students about various dimensions of entrepreneurship, government schemes, and recently developed technologies. Sh. V.K. Verma, Director, MSME, Development, and Facilitation Office, Kanpur, addressed the students on the importance and scope of agri-entrepreneurship. More than 100 students participated in the workshop. Lectures were organized by the faculties and other guest members. (Ghanshyam Abrol, Priyanka Sharma, MJ Dobriyal, Gaurav Sharma).

Familiarization with Jhansi Smart City

One day Workshop was organised on Dec 3, 2022, at RLBCAU in association with Jhansi Smart City under the guidance of Vice Chancellor (Fig. 4). The program started with the welcome speech of Gaurav Sharma. Anil Kumar Gupta explained the importance of smart city to the students. Manmohan Dobriyal highlighted the idea of working towards smart city as well as making smart citizens. Saurabh Kumar and Praveen Kumar from Jhansi smart city, told the students about their involvement in the different activities towards making Jhansi a smart city. (Ashwani Kumar and Ghanshyam Abrol).



Fig. 4: Workshop on familiarization with Jhansi smart city

World Food Day

The World Food Day is observed every year on the 16th of October to highlight the millions of people worldwide who cannot afford a healthy diet and the need for regular access to nutritious food. It was organized on Oct 16, 2022, with the theme of "Leave NO ONE behind" (Fig. 5). On this occasion, Scientific Exhibition was conducted for traditional food or posters related to food and nutritional security. Entrepreneurs of Jhansi, Students, and faculties of RLBCAU participated in this programme. Students and faculties prepared different kind of food product. Fruit raita, different types of *pokoda*, pancake, custard cake, plastic chutney, *payasa*, *vadapav*, *quinoa burfi*, *halva*, *chana masala*, are

displayed in the exhibition. (GhanShyam Abrol, Pavithra, BS, Ashwani Kumar).



Fig. 5: Exhibition for traditional food

Rani Lakshmi Bai Birthday Celebration

On the occasion of the 187th birth anniversary (Nov 19, 2022) of Maharani Laxmi Bai, a cultural program was organized on the lines of Ek Josh Ek Gatha at RLBCAU, Jhansi. It was presided over by A.K. Singh. Chief Guest Divisional Commissioner Adarsh Singh, Special Guest City MLA Ravi Sharma, Director IGFR, Amresh Chandra, Dean, S.K. Chaturvedi. Director of Education, Anil Kumar welcomed all the guests and threw light on the bravery of Rani Jhansi (Fig. 6). After that Hon'ble VS and all the guests addressed the evening and graced the occasion with some of the patriotic stories and heroic saga of the great warrior RLB. On this occasion, E Sparsh book "Medini" and Agri Life book were released, stationery items were distributed to the children under "My Social Responsibility-Student Centered Program". A cultural evening was organized by the students of the university. (Artika Singh, Rumana Khan).



Fig. 6: Welcome of the Guests

Run for Unity Day

The Run for Unity day was organized on Oct 31, 2022 to pay tribute & mark the immense contributions of Sardar Vallabhbhai Patel on his birth anniversary. During the event the bike rally was also organized which was flagged by Hon'ble Vice Chancellor, RLBCAU, Jhansi. Further, to

increase the public awareness about the perils of corruption, Vigilance Awareness Week was observed from 31st October and the staff and students of the University took the “Pledge of Vigilance” to be vigilant and commit to highest standards of honesty and integrity at all times and support the fight against corruption. (Meenakshi Arya).

Senior Technical Assistant (Gr.-1) visited the University

A visit of the newly appointed Senior Technical Assistant (Grop-1) Uttar Pradesh has made by U.P. Government Agriculture Training College, Chirgaon under 15 days training program on Dec 25, 2022. Director Education, Anil Kumar, briefed them about the role and working model of Rlbcau, Jhansi. The trainees also visited the Fruit and Vegetable cafeteria. (Govind Vishwakarma and Devesh Tiwari).

All India Tour of Forestry Students

The students of CoHF, IVth year of RLBCAU had been visited various Forest Institute and Colleges under the course curriculum of All India Education Tour. This tour comprises of 10 days Dec 06-17, 2022 (Fig. 7). The tour started from the Jhansi and went Jabalpur to visit TFRI and JLNKVV, Jabalpur, Madhya Pradesh. After Jabalpur, students visited Hyderabad where they got an exposure of Telangana State Forest Academy, Institute of Forest Biodiversity, CRIDA, Kasu Brahmanandha Reddy National Park and also interacted dignities with high intellect. The students also got to know about various forestry training programmes, seminar on national and international level and the research activity going in forest institutions. (Rakesh Kumar and BijiLaxmi Devi).



Fig. 7: All India tour of forestry students

Strengthening Expert Potential of Cereals in Bundelkhand Region

Workshop was organized at the RLBCAU on Dec 10, 2022, in collaboration with ICAR-IIWBR, Karnal; SAWBAR, Karnal & APEDA, New Delhi, under the leadership of Vice Chancellor (Fig. 8). Notable dignitaries were Gyanendra Singh, Director, IIWBR, Karnal; Randhir Singh, former

ADG Agriculture Extension, New Delhi; NP Singh, VC, BUAT, Banda; Ritesh Sharma, APEDA, New Delhi.



Fig. 8: Signing of MoU between RLBCAU and IIWBR, Karnal

The workshop aimed to hold discussions with stakeholders, including KVKs and FPOs, for identifying export zones and other logistics, particularly for wheat and barley in the Bundelkhand region. A MoU was signed between the RLBCAU, Jhansi, and ICAR-IIWBR, Karnal, on the latest varieties of wheat and barley so that the availability of seeds for the farmers can be ensured along with the promotion of research. More than 100 farmers, members of FPOs, and people associated with KVKs participated in this workshop, where contemporary topics like opportunities and challenges in the export of cereals, advanced wheat and barley production, plant protection, the role of agricultural producer associations in the export of cereals were also discussed.

Chaudhary Charan Singh's Birth Anniversary Celebrated as Kisan Diwas

Former PM Chaudhary Charan Singh's birth anniversary was celebrated on Dec 23, 2022 as Kisan Diwas at the university campus. It was presided over by SK Chaturvedi, and Pawan Gautam, District Panchayat President. S.S. Singh, Program Coordinator, and Anil Kumar. Ten farmers from three districts, namely Jhansi, Datia, and Lalitpur, were felicitated with certificates, bags, and seeds for their excellent performance in their respective FLDs. A live telecast of Shri Narendra Singh Tomar, Hon'ble Agriculture Minister, MoAFW, was also shared to disseminate information about the government's thrust to the agriculture sector. (Ashutosh Sharma, Sanjeev Kumar, Sushil Kumar Singh, Bharatlal, Sandeep Upadhyay).

Sports Activity

- ❖ Ashwani Kumar participated in 100 m race organized on the 61st Foundation Day (Nov 01, 2022) of ICAR-IGFRI, Jhansi, and secured 3rd position in the men's group.
- ❖ Ashwani Kumar participated in discus throw competition organized on the 61st Foundation Day (Nov 01, 2022) of ICAR-IGFRI, Jhansi, and secured 3rd position in men group.

Farm Advisory

दिनांक	सलाह	लेखक
6 Oct	सरसों की उपयुक्त किस्मों का चयन करें किसान	राकेश चौधरी
7 Oct	दुधारू पशुओं में लम्पी स्किन रोग के रोक थाम हेतु उपाय	प्रमोद सोनी
8 Oct	ग्लोबल वार्मिंग पर बताए उपाय	योगेश्वर सिंह
10 Oct	परासी जलाने से पर्यावरण को नुकसान	गुंजन गुलेरिया, योगेश्वर सिंह
15 Oct	समय से करें मूंगफली की कटाई एवं भण्डारण	राकेश चौधरी, आशुतोष शर्मा
19 Oct	वैज्ञानिक विधि से करें मक्के की फसल का भंडारण	मनोज कुमार सिंह
28 Oct	समय से करें मसूर की बुआई	मनोज कुमार सिंह, अंशुमान सिंह
29 Oct	चने के उत्पादन के लिए उन्नत प्रजाति का उपयोग करें	निशांत भानु, अंशुमान सिंह
31 Oct	सरसों की बुआई का सही समय	अर्तिका सिंह, राकेश चौधरी
01 Nov	किसान धूप में सुखाएं धान नमी से बचा कर भंडारण करें	मनोज कुमार सिंह, गुंजन गुलेरिया
03 Nov	गेहूँ के अच्छे उत्पादन के लिए समय पर बुवाई करें	रूमाना खान
05 Nov	पोषक तत्व संतुलित होंगे तो चना की ज्यादा पैदावार	संदीप उपाध्याय, राजीव नंदन
07 Nov	जौ की उन्नत किस्मों की करें सामयिक बुवाई	अनिल कुमार राय, योगेश्वर सिंह
11 Nov	मटर की खेती के लिए नवम्बर माह उत्तम	अनिल राय, योगेश्वरसिंह
12 Nov	बुंदेलखण्ड में स्ट्राबेरी पैदावार की अच्छी संभावनाएं	रंजीत पाल
16 Nov	ठंड में पशुओं को निमोनिया का खतरा	प्रमोद सोनी
18 Nov	अलसी की वैज्ञानिक विधि से खेती कर अधिक लाभ अर्जित करने की सलाह दी	अनिल कुमार राय, योगेश्वर सिंह
19 Nov	पछेती गेहूँ की बुआई कर किसान पा सकते हैं लाभ	अनिल कुमार राय
27 Nov	चने की खुटाई व सिंचाई कर बढ़ाएं उपज	अंशुमान सिंह, मनोज कुमार सिंह
01 Dec	पशुओं से इन्सानों में फैलने वाले ब्रुसिल्लोसिस संक्रमण की जानकारी दी	प्रमोद सोनी
03 Dec	सरसों की छटाई उचित समय पर करें किसान	राकेश चौधरी
05 Dec	सरसों की उपज बढ़ाने को करें मधुमक्खी पालन	सुंदर पाल
08 Dec	मेड़ पर सागौन के पौधे लगा कर लाखों कमाएं	पंकज लावानिया, मनमोहन डोवरियाल
09 Dec	गेहूँ की फसल को खरपतवार के नुकसान से बचाएं	अनिल कुमार राय, योगेश्वर सिंह
10 Dec	पछेती गेहूँ में खरपतवार प्रबंधन की सलाह	अनिल कुमार राय, योगेश्वर सिंह
14 Dec	अदरक में राइजोम मक्खी से बचाव की जानकारी को दवाई का प्रयोग	सुंदर पाल, योगेन्द्र मिश्रा
27 Dec	आलू की फसल को सफेद मक्खी पहुंचा रही नुकसान	योगेन्द्र मिश्रा, सुंदर पाल
28 Dec	सर्दी के फसल को पाले से बचाएं	मनोज कुमार सिंह
29 Dec	फलदार बगीचों का शरद ऋतु में रखे खास ध्यान	गोविन्द विश्वकर्मा, गौरव शर्मा
30 Dec	किसान उठाये नीम से अधिक लाभ	पंकज लावानिया, गरिमा गुप्ता
31 Dec	सरसों फसल को माहू से करें सुरक्षा	सुंदर पाल, योगेन्द्र मिश्रा

तकनीकी प्रसार साहित्य (हिंदी-फोल्डर)

बुंदेलखंड क्षेत्र में आंवले की उन्नत खेती	गोविंद विश्वकर्मा, रंजीत पाल सुकन्या मिश्रा एवं गौरव शर्मा	प्र.शि.नि./त.प्र.सा.-फोल्डर/ 2022/54
बुंदेलखंड क्षेत्र में अमरूद की उन्नत खेती	गोविंद विश्वकर्मा, रंजीत पाल एवं गौरव शर्मा	प्र.शि.नि./त.प्र.सा.-फोल्डर/ 2022 /55
बुंदेलखंड क्षेत्र में बेर की उन्नत खेती	गोविंद विश्वकर्मा, रंजीत पाल एवं गौरव शर्मा	प्र.शि.नि./त.प्र.सा.-फोल्डर/ 2022 /56
मोटेअनाजों के प्रसंस्कृत उत्पाद: बिस्कूट एवंब्रेड	अश्वनीकुमार, घन श्याम अबरोल एवं गौरव शर्मा	प्र.शि.नि./त.प्र.सा.-फोल्डर/ 2022 /57
अदरक की खेती एवं प्रसंस्करण	घनश्याम अबरोल, अश्वनी कुमार, रंजीत पाल एवं गौरव शर्मा	प्र.शि.नि./त.प्र.सा.-फोल्डर/ 2022 /58

Publications

- ❖ Abrol G., Kumar A., Pal R., Singh A.K., Sharma P., Sharma G. (2022). Analysing canonical correlation of BBD-RSM optimized process parameters for the development of Spinach-Lemon-Tulsi Beverage. Brazilian Archives of Biology and Technology. 11; 66. (NAAS: 7.18).
- ❖ Babele P.K., Srivastava A., Selim K.A., Kumar A. (2022). Millet-inspired systems metabolic engineering of NUE in crops. A Cell Press Journal. (NAAS: 27.94).
- ❖ Baradwal H, Ghosh A, Singh A.K., Ballesta R.J., Kumar R., Misra S. Manjanagouda S.S., Kumar S., Singh S., Yadav D., Mohan D. (2022). Soil nutrient dynamics under silviculture, silvipasture, & hortipasture as alternate land use system in semi-arid env., Forests. (NAAS: 8.63).
- ❖ Bhutia PL, Gupta B, Yadav RP, Bhutia KG, Bhutia P, Pal S, Khola O. (2022). Soil carbon stock and floristic biomass carbon under different agroforestry systems along an elevation gradient. Agrochimica 66(1):61-76. (NAAS: N/A).
- ❖ Bhutia PL, Gupta B, Yadav RP, Islam S, Pal S, Khola O, Bhutia KG. 2022. Predictive biomass equations of chir pine silvipasture ecosystem of Himalayas, India. Range Management & Agroforestry, 43(2):201-211. (NAAS: 6.28).
- ❖ Gaurav S., Amita S., Nishant K.S., Om P.S., Ashutosh S., Ajai K.P., Abhishek K., Sudhir K.T., Bharti S., Mukesh K.S. (2022). Assessment of long-term climate variability and its impact on central India's decadal growth of horticultural crops. Ecological Processes. 11-61. (NAAS: 10.39).
- ❖ Haque, Md A., Sudeep M., Alka A., Chandan K.D., Tanuj M., Sapna N., Karambir S.H. (2022). A lightweight convolutional neural network for recognition of severity stages of maydis leaf blight disease of maize. Frontiers in Plant Science 13: 5252. (NAAS: 12.62).
- ❖ Kumar M., Kaushik D., Kaur J., Proestos C., Oz F., Kumar A., Anjali E., Terzioglu M.E., Xiao J. (2022). Assessment of anti-obesity potential and techno- functional properties of Bougainvillea spectabilis Willd. Bracts. Separations, 9(12), 399. (NAAS: 9.0).
- ❖ Devi M.S., Mishra V.K., Usha, Chaturvedi S.K. (2022). Population dynamics of major pest infesting sorghum in Bundelkhand region of India. Journal of Experimental Zoology. India, 25(2):2325-2328. (NAAS: N/A).
- ❖ Mishra Y.K., Sharma A.K., Sondhia S., Ramakrishnan R.S., Panday A.K., Gharde Y., Singh S. (2022). Role of oxalic acid in expression of resistance against the pod borer *Helicoverpa armigera* in Chickpea Varieties. Legume Research, 5027(1-6). (NAAS: 6.69).
- ❖ Misra T., Arora A., Marwaha S., Jha R.R., Ray M., Kumar S., Kumar S., Chinnusamy V. (2022). Yield-SpikeSegNet: An extension of SpikeSegNet Deep-Learning approach for the yield estimation in the wheat using visual images. Applied Artificial Intelligence 36, 1, 2137642. (NAAS: 8.77).
- ❖ Yonzone R., Khalko S., Hembram S., Devi M.S., Das B. (2022). Correlation on population dynamics and disease

- incidence of bacterial wilt instigating pathogen (*Ralstonia solanacearum*) under the different intercropping system. *Bangladesh J. of Botany*, 51 (4): 807-812. (NAAS: N/A).
- ❖ Singh R., Saripalli G., Kumar A., Gautam T., Singh S. K., Gahlaut V., Gupta P.K. (2023). QTL analysis for nitrogen use efficiency in wheat (*Triticum aestivum* L.). *Euphytica*, 219(1), 1-22. (NAAS: 8.18).
 - ❖ Singh S., Pratap B., Viswakarma G., Rao A. Singh A.K. (2022). Evaluation of economics feasibility for aonla production with the aid of Integrated Nutrient Management. *Agriculture Association of Textile Chemical and Critical Review*, 39-44. (NAAS: N/A).
 - ❖ Sood S., Joshi D.C., Rajashekara H., Tiwari A., Bhinda M.S., Kumar A., Lakshmi Kant, Pattanayak A. (2022). Deciphering the genomic regions governing major agronomic traits and blast resistance using genome-wide association mapping in finger millet. *Gene*, 854, 147115. (NAAS: 9.91).
 - ❖ Sundar P., Abhishek K., David C.B., Ashutosh S., Pradeep K., Amit K.P., Arvind P., Vishal S. (2022). Modern drifts in bioengineered nanoparticles toward insect pest management: a review. *Photoprotection*, 101 (1); 1-13. (NAAS: N/A).

Books

- ❖ Pankaj U. and Pandey V.C. (2022). *Microbial-Based Land Restoration, 1: Plant-microbial interaction and soil remediation* (Eds.). CRC Press, T&F Group.
- ❖ Pandey V.C. and Pankaj U. (2022). *Microbial-Based Land Restoration, 2: Soil and plant health development* (Eds.). CRC Press, T&F Group.
- ❖ Rani M., Chaudhary B.S., Jamal S., Kumar P. (2022). *Towards Sustainable Natural Resources Monitoring and Managing Ecosystem Biodiversity*. Springer.

Book Chapters

- ❖ Devi M.S., Yonzon R., Usha, Mishra V.K. (2022). Biopesticide usage: An alternative to the menace of chemical hazard for sustainable plant protection. 167-198, T&F Group.
- ❖ Devi Y.B., Meetei T.T. (2022). Recent advances in potentiality of microorganisms in promoting plant growth and managing degraded land. 2, 245-260. T&F Group.
- ❖ Dubey N., Pankaj U., Pandey V.C., Singh K. (2022). Role of plant-microbial secondary metabolites in stress mitigation: current knowledge and future directions. 23-42, T&F Group.
- ❖ Ghosh A., Misra S., Alam K., Choudhury S., Pal R., Bhat J. A., Singh A.K. (2022). *Land degradation neutrality for achieving climate resilience in agriculture*, Springer.
- ❖ Habib A., Abdullah A., Puyam A. (2022). *Visual estimation: A classical approach for plant disease estimation*. 19-45, Springer.
- ❖ Jamal S., Kumar P. (2022). *Towards sustainable natural resources*. 447-448, Springer.

- ❖ Meetei, T. T., Devi, Y.B., Thounaojam, T.C. (2022). Role of soil organisms in maintaining soil health. 2, 225-244, T&F Group.
- ❖ Misra S., Pal R., Viswakarma G., Sharma G. (2022). *Fruit cracking, Its causes and management*.
- ❖ Modak K., Srikanth P.S., Ghosh A., Misra S. (2022). Atmospheric N deposition and fertilization impact on forest soil organic carbon and plant communities: Issues and implication 246-273, Springer.
- ❖ Singh G., Pankaj U., Verma R.K. (2022) *Bioremediation strategies for decontamination solid waste pollutants*. 160-190, Bentham Science.
- ❖ Yonzon R., Devi M.S., Bhaumik. (2022). Recognizing insight interaction, adaptation & potentialities of phyllosphere micro-biome under various distress towards sustainable plant growth, 177-208.
- ❖ Yonzon R., Devi M.S., Das B. (2022). *Bio-Nanotechnology in Plant Protection: A novel frontier for risk mitigation towards sustainable agriculture*. 73-98, T&F Group.
- ❖ Zaman F., Viswakarma G., Pal R. Misra S., Singh, S. (2022). *Canopy management in Fruit crops*.

Popular Articles

- ❖ Jain A. (2022). Is baras byaar bajre ki. Editorial. *Dainik Jagran, Jhansi*. Dec. 2022.
- ❖ Jain A. (2022). The Green Enthusiasts. *The Hindu*. Nov, 2022.
- ❖ Jain A. (2022). The Neem Tree. *Krishijagran*. Nov. 2022.
- ❖ Kuma A., Singh A. Singh A. (2022). Fasal Unnatikaran me DNA Anukraman takneekiyon ke smbhavit prayog. *Krish-e-pravahika*, 2(8): 18-22.
- ❖ Kumar R., Sharma G., Sharma A., Kumar A., Shukla S.K., Paul B., Pandey N.K., Singh A. (2022). Accessible bioactive compounds and nutritional profile of quinoa. *Marumegh*; 7(3).10-15.
- ❖ Misra S. (2022). *Fruit cracking: Its causes and Management*. *Agri India Today*.
- ❖ Misra S. (2022). *Mulching in Horticulture*. *Agri India Today*.
- ❖ Misra S. (2022). *Plant growth regulators: role in Horticulture*. *Agri-cos*.
- ❖ Misra S. (2022). Value addition and health benefits of minor fruits: opportunity of employment generation and healthy life of west Bengal tribal. *Agri-cos*.
- ❖ Misra S. (2022). *Value addition of minor fruit crop*. *Agriculture and food*.
- ❖ Misra S. and Ghosh A. (2022). *Soil-less culture for Horticulture crop*. *Agri India Today*.
- ❖ Misra S., Pal R., Vishwakarma G. (2022). *Value addition and Nutritional value of Jackfruit*. *Agri India Today*.
- ❖ Pal R., Misra S., Vishwakarma G., Kholia A., Sharma G., Abrol G.S., Pandey A.K. (2022). *Strawberry: A potential cash crop in Bundelkhand region*, *Agri-India Today*, 2, (5): 9-13.

- ❖ Sharma G., Singh A., Shukla S.K., Sharma A., Kumar A. (2022). Biofortification of major vegetable crops to alleviate malnutrition. *Curr. Agri.Tren*, 1(8), 3-6.
- ❖ Shukla S.K., Singh A., Kumar A., Singh A., Paul B., Sharma A. (2022). Nutritional profile and health benefits of kodo millet (*Paspalum scrobiculatum*L). *An International e-Newsletter*, 6(6):1-7.
- ❖ Singh A., Shukla S.K., Kumar A., Kumar A., Kumar R., Sharma G., Singh A. (2022). Biosynthetic routes of naturally occurring plant alkaloids. *biomolecule reports: An International e-Newsletter*, 6(5):1-6.
- ❖ Singh A., Singh A., Kumar A. (2022). Nanotechnology ki sambhavit upyogita ewam bhavishya ki parikalpnayen. *Krish-e-pravahika*, 2(9): 06 – 10.e-ISSN: 2583-0430.
- ❖ अनुसुईया पांडा, सुशील कुमार सिंह, प्रेरणा डोंगरा, कैराश चंद्र एवं ओम प्रकाश (अक्टूबर 2022), खरीफ फसलों में खर-पतवार प्रबंधन के उपाय , मेरुमेघ किसान इ पत्रिका.
- ❖ अनिल कुमार (25 अक्टूबर) पंचमहाभूत के जीवन दर्शन से ही लोक कल्याण (दैनिक जागरण).
- ❖ अनिल कुमार (21 दिसम्बर). बुंदेलखण्ड के बेर के बादफूट एवं कचरिया भी बनेंगी पहचान (दैनिक जागरण).
- ❖ संजीव कुमार, अर्पित सूर्यवंशी, तनुज मिश्रा, शैलेंद्र कुमार. (दिसम्बर 2022). जरूरी हैं पशुपालन में जैविक विधि के सिद्धांतों का अंगीकार: वर्ष-27, अंक -एक, पृष्ठ 19-20.
- ❖ गोविन्द विश्वकर्मा (2022). कृषि क्षेत्र में नवाचार, कृषि जीवन पत्रिका, 60-61.

Invited Lectures/Training

- ❖ Abrol GhanShyam participated in the national E-conference on "*Prevention of communicable disease*" organized by IQAC & Department of Zoology, Bipin Bihari College, Jhansi. (Dec 18, 2022).
- ❖ AbrolGhan Shyam attended 21-day CAFT on "*Food Processing Technologies: Developing Smart Food for Boosting Human Health and Agripreneurship*" organized by the DoB, ICAR-IARI, New Delhi. (Nov 1-21, 2022.)
- ❖ Anil Kumar delivered a lecture on "*New dimension for fetching intellectual property rights and technology valuation in agriculture sector*" organised by ICAR-CAFT at CIAE, Bhopal. (Nov 24, 2022).
- ❖ Anil Kumar delivered a lecture on "*Igniting the young and sparked mindsets by improvising the self-consciousness*" organised by Institute of Engineering and Technology, Jhansi. (Nov 17, 2022).
- ❖ Anil Kumar delivered a lecture on "*Recent development in plant sciences for a resilient future*" organized by Botanical Society, Department of Botany, DU. (Nov 9-10, 2022).
- ❖ Anil Kumar delivered a lecture on "*Sustainability, food security and climate change: three intertwined challenges*" on world food day organized by Agrivision4u, Guwahati, Assam. (Oct 16, 2022).
- ❖ Anusuiya Panda, presented poster entitled "*Direct and residual effect of biochar application on growth and nutrient uptake of rice-wheat cropping system*" in 24th Annual Convention and National Conference at NBSS&LUP, Kolkata. (Oct, 2022).
- ❖ Ashutosh Singh attended 21 days CAFT training on "*Genome editing and utilization for useful traits in plant's*" at NIPB, IARI, New Delhi. (Nov 30- Dec 20, 2022).
- ❖ Ashutosh Singh attended a six-week online course, "*Statistical techniques for agriculturists*," organized by IIT, Kanpur.
- ❖ Ashwani Kumar attended a 2 days national webinar on "*Emerging trends in post-harvest technology and value addition in food processing*" organized by ANGRAU, Andhra Pradesh (15-16 Nov. 2022)
- ❖ Ashwani Kumar attended a 2 days training on "*Sampling of fruits, vegetables and other items for pesticide residue analysis*" held at the NIPHM, Hyderabad. (Dec 19-20, 2022).
- ❖ Ashwani Kumar delivered a lecture on "*Consideration for new product development for a new start-up*" on the entrepreneurship awareness programme organised by MSME, DFO Kanpur & RLBCAU, Jhansi. (Oct 15, 2022).
- ❖ Ghanshyam Abrol delivered a lecture on "*Importance of postharvest technology and scope of processing in Bundelkhand*" under the PMFME scheme to the entrepreneurs at Government Food Science Training Center, Jhansi. (Nov 29, 2022).
- ❖ Pankaj Kumar attended an 8 days hands-on training on "*National training on molecular techniques in microbial diversity analyses: Trends and Advances*" organized by ICAR-NBAIM, Mau, UP. (Nov 23-30, 2022).
- ❖ Prabhat Tiwari 21 days winter School on "*Adding value to primery produce and secondary produce (by-products): building agricultural enterprises in rural india via secondary agriculture*" at RPCAU, Pusa, Bihar. (Nov 10-30. 2022).
- ❖ Priyanka Sharma attended ICAR sponsored 21 days CAFT training on "*Natural farming: perspectives and prospects in changing agriculture scenario*" at MPUAT, Udaipur. (Nov 9-29, 2022)
- ❖ Susheel Kumar Singh attended ICAR-sponsored 21- Day CAFT training on "*Natural farming: challenges and opportunities*" at JNKVV, Jabalpur. (Nov 1-21, 2022).

Awards

1. Yogeshwar Singh received best oral paper presentation award in International Conference on Reimaging Rainfed Agro-ecosystems-Challenges & Opportunities Dec 22-24, 2022, Hyderabad.
2. Sukanya Mishra received best young scholar award in International Award Conference on Multidisciplinary Research, and Latest Innovation for Academic Excellence on Nov 20, 2022.
3. Priyanka Sharma received an appreciation award in 21-day CAFT training on Natural Farming: Perspectives and Prospects in Changing Agriculture Scenario held from Nov 9- 29, 2022 at MPUAT, Udaipur.
4. Yumnam Bijilaxmi Devi received the young researcher award from the Society for Advancement in Agricultural Technology and Development.

Front Line Demonstrations

❖ A Field day-cum-training was organized on Oct 1, 2022, at village Simmardha in district Lalitpur, Uttar Pradesh, under the FLDs Urd bean (SCSP-IIPR), emphasizing the storage of harvested urdbean crop (*Kharif-2022*) & protection from insect pests (Fig. 9). The farmers appreciated the urdbean variety IPC 2006-77 with respect to the production despite the unfavorable *kharif* rains. Thirteen farmers out of 115 FLDs could harvest around 4 quintals of urdbean from one-acre land. (Meenakshi Arya, Anshuman Singh, Arpit Suryawanshi, Sanjeev Kumar, Sunder Pal).



Fig. 9 : Field day at Simardha village, Lalitpur

❖ Twenty farmers from the villages of Dhikoli, Digara, and Parwai of Jhansi district, PahadiTilwaran of Tikamgarh district, and Imliya of Lalitpur district were identified Under FLD on Chickpea (SCSP-IIPR), and selected for the demonstrations (*Rabi 2022-23*). These farmers were provided 40 kg seeds of improved variety, i.e., BG 3062, on Oct 20, 2022. (Anshuman Singh, Meenakshi Arya, Arpit Suryawanshi, Prince Som).

❖ Under the FLD on lentil and field pea (AICRP-MULLaRP), training and seed distribution was organized (Fig. 10) on Oct 21, 2022, among 4 farmers of Sunaura Khiriya and Bamouri villages of Tikamgarh district (2 in lentil and 2 in field pea). Improved varieties of green peas IPFD 10-12 and IPL 316 lentils were given. Also, the seed of lentil IPL 316 and field pea, IPFD 10-12 were given to 6 farmers of Prithvipur Nayakhera of Jhansi district along with plant protection chemicals. (Anshuman Singh, Nishant Bhanu, M. Soniya Devi, Rajeev Nandan).



Fig. 10: Seed distribution of FLD

❖ Fifteen farmers from the village Karengaand & Imliya of Lalitpur and village Pahadi Tilwaran of Tikamgarh district were identified and selected for the demonstrations (*Rabi 2022-23*). These farmers were provided with 40 kg of seeds of improved variety, i.e., IPFD 12-2 (White) on Nov 7, under the FLD-Fieldpea (SCSP-IASRI) (*Rabi 2022-23*). (Anshuman Singh, Meenakshi Arya, Sunder Pal, A. Nishant Bhanu).

❖ Under the IARI-CATAT collaborative program, the team made a field visit (Rice crop) on 17th October at Rudra Krari village of Jhansi district. Under this program, 20 kg of rice variety Pusa-1850 was given to each farmer during the first week of July (Fig. 11). The visit also included discussions on relevant data about crop performance, disease incidence, and parali management. (Ashutosh Sharma, Sanjeev Kumar, A Nishant Bhanu, Yogendra Mishra).



Fig. 11: Harvesting of rice at farmers' field, Jhansi

❖ Under the AICRP-Rapeseed & Mustard, 200 front-line demonstrations are being conducted in the three districts, namely Jhansi (Vill.: RundKarari, Hastinapur, and Rauneja), Lalitpur (Vill.: Imliya, Kari toran, Karenga) and Niwari (Vill.: AsatiKhas, Binwara, Harsh Mau). FLDs are being conducted for one acre area each, and each farmer is provided with seeds of recent mustard varieties, viz. RH-725, Radhika, Giriraj, and RH-749 and agri-inputs like Nano urea, SSP, MOP, and need-based pesticides on Oct 20, 2022 (Fig. 12). (Rakesh Choudhary, Shubha Trivedi, Sharwan Shukla, Yogendra Mishra, Bharat Lal, and Ashish Gupta)



Fig. 12: Distribution of inputs in the presence of Hon'ble VC

❖ Fifteen FLDs are being conducted for chickpeas in Khaikhera village of district Lalitpur under ICAR-CAFRI, Jhansi. The treated seed was distributed on Oct 20, 2022 and the farmers were advised to adopt scientific method of cultivation. The team ensured that the packages of practices and line sowing had been adopted, and regular monitoring was done. **(Meenakshi Arya, Anshuman Singh, Arpit Suryavanshi, Ashish Gupta).**

❖ Under Aerobic rice-FLD (SCSP- IIPR), a field visit was carried out. Earlier Agri inputs viz., 2 quintal seeds of aerobic rice (DRR Dhan 42 and DRR Dhan 44), Nano-urea, Pendimethalin, Bispiribac sodium, etc., were given to 12 farmers of village Nayakheda and Pura villages. The team visited the farmer's field at the time of harvesting on Oct 29 2022. Farmers preferred these varieties as well as aerobic rice in their fields. The IRRI team also visited farmers' fields and appreciated the University's efforts to promote aerobic rice in the Bundelkhand area. **(Gunjan Guleria, A. Nishant Bhanu, MK Singh).**

❖ Under FLD on Chickpea (AICRP), fifteen farmers from the village Dhikauli of Jhansi, Imliya of Lalitpur, and Pahadi Tilwaran of Tikamgarh district were identified and selected for the demonstrations (*Rabi* 2022-23). These farmers were provided with 80 kg of seeds of improved variety, i.e., BGM 10216, for one ha. of land, on Nov 7, 2022. **(Anshuman Singh, Meenakshi Arya, Sunder Pal, A. Nishant Bhanu).**

❖ Seed distribution-cum-Training under Wheat FLD-SCSP was organized where the seeds of different wheat varieties (K 1317, Raj 8027, HI 1605, HI 1634, and DBW 187) were given to beneficiaries farmers of different villages under the SCSP-CAFRI, SCSP-IASRI, and SCSP-IIWR projects during 2nd week of Nov (Fig. 13). These varieties were distributed to 84 farmers of Imliya, Karenga, Parvai (UP) and Larayta, Banwas and Katili (MP). The demonstration is for 34 hec of land (37.40 quintals seed). **(Gunjan Guleria, Susheel Kumar Singh, Anil Kumar Rai, Sandeep Upadhyay).**



Fig. 13: Distribution of improved variety of wheat seeds

❖ Under IARI-CATAT collaborative programme, 11 demonstrations are being organized where improved crop seeds like wheat, lentil, chickpea, and carrot distribution were made at the university campus in the presence of hon'ble VC and DEE, on Nov 10, 2022 (Fig. 14). These progressive farmers are from Rudrkrari and Parwai villages of Jhansi district **(Ashutosh Sharma, Sanjeev Kumar, A. Nishant Bhanu, Yogendra Mishra).**



Fig. 14: Seed Distribution of Rabi crops under the IARI-CATAT

❖ Under the FLD on fruit crops programme sponsored by ICAR-CAFRI, 5 farmers were selected and benefitted with Citrus and Papaya plants at Imalia villages of Lalitpur on Nov 29, 2022. They were also informed about the methods of planting and aftercare of fruit plants. **(Ranjit Pal, Govind Vishwakarma, Sukanya Misra, Gaurav Sharma).**

❖ Field day-cum-farmers training on Sustainable crop production and protection technologies was organized under FLD-Maize SCSP, IIMR, Ludhiana at Imilia village of Lalitpur (U.P.) on Nov 28, 2022 (Fig. 15). A keynote address was given on improved maize production, government schemes for farmers, integrated pest management, integrated nutrient management, and the importance of essential nutrients for human health. Discussions were held during the training, where more than 120 farmers actively participated and benefited from expert knowledge. **(Susheel Kumar Singh, Usha, Vijay Kumar Mishra, Ashish Kumar Gupta).**



Fig. 15: Field day-cum-farmers training at Imilia village (UP)

❖ Field day and distribution of plants under the FLD Agroforestry-SCSP-IIPR programme was organized on Dec 17, 2022 at the Parwai village of Jhansi district. Industrial agro-forestry and source of additional income aspects were emphasized. Saplings of agro-forestry trees like teak, siris, neem, *karanj*, drumstick, and other species were distributed to the farmers. (Fig. 16). (**Prabhat Tiwari, Garima Gupta, Prince Kumar**).



Fig. 16: Field day at the Parwai village

❖ Under the Vegetable SCSP-IIPR demonstrations, the potato seed tubers of *Kufri Chandarmukhi* were planted at the farmer's (20 numbers) field in Bhojla village. Under the SCSP-CPRI Modipurum, *Kufri Frysona* seed tubers of potato were distributed to 20 Parwai and Pohara village farmers of Jhansi District to boost potato cultivation in the Bundelkhand region. The potato seed tubers of *Kufri Chandarmukhi* were planted at the farmer's field at chirgaon village of Jhansi district under the SCSP-CAFRI. The garden pea seeds of the AP-3 variety were distributed to the 20 farmers of Parwai and Pohara under SCSP- CAFRI. (**Arjunlal Ola, Saurabh Singh, Devesh Tiwari**).

❖ A 'Mobile Plant Health Clinic' was developed under a project funded by RKVY, UP, in the DoPP, CoA, RLBCAU, Jhansi. This is the first van of its kind in India which can diagnose crop diseases and insect pests along with soil testing. The primary purpose of this Mobile Plant Health Clinic is to 'reach to the unreachable.' Shri Narendra Singh Tomar, Hon'ble Union Agriculture Minister, inaugurated the clinic on Nov 12, 2022 in a Kisan Mela at Morena (MP). The air-conditioned van is well-equipped with various equipment like a magnifying glass, stereo and compound microscope, laminar flow, BOD incubator, refrigerator, electronic balance, Soil testing, and fertilizer recommendation kit. This van is organizing camps in villages in farmers' fields to diagnose plant samples. Soil tests are being conducted on the spot giving the status of soil for 12 elements, including E.C. and pH of soil (Fig. 17). Van has visited many villages of Uttar Pradesh and Madhya Pradesh along with the experts. (**Prashant Jhambhulkar, Vaibhav Singh**).



Fig. 17: Flagged off ceremony of PHC van by Hon'ble Union Agriculture Minister

Exhibition/Kisan Mela

Gramodaya Mela and Sharadotsav, Chitrakoot

The University participated in this mela at Deen Dayal Research Institute organized at Deen Dayal Campus, Udhmaita Vidhyapeeth, from Oct 8-12, 2022. Information about the scientific method of production of pulses, oilseed crops, millet crops, vegetables, fruits, agro-forestry, and flowers was provided to farmers through seed samples, banners, magazines, and live specimens. The species of gourd and citrus fruits displayed by the University became the center of attraction among the farmers. Surya Pratap Sahi, Hon'ble Agriculture Minister, UP, Virendra Kumar Khatik, Lok Sabha MP, and Gajendra Singh Shekhawat, Ministry of Jal Shakti and Namami Ganga, reviewed and praised the works of the University (Fig. 18). (**Sanjeev Kumar, Nishant Bhanu, Devesh Tiwari**).



Fig. 18: Hon'ble Agriculture Minister, UP, at the University stall

Agro-climatic Zone Level Farmers Fair cum Exhibition

The University actively participated and set up an exhibition stall. The event was organized at Patherdeva, Deoria, U.P., from Oct 18-20, 2022. The entire activity during the event was effectively carried out. During the event, the Hon'ble Chief Minister and minister of the UP government, officials of the agriculture department, and the farmers visited the university stall. They received information about various activities carried out by the University. Minor and course millets were the main center of interest among the visitors (Fig. 19). (**Anil Kumar Rai, Saurabh Singh, Ashish Kumar Gupta**).



Fig. 19: Union & state Agriculture Minister to the University stall

Kishan Mela at ICAR-IGFRI, Jhansi

One day, Kishan mela was organized by ICAR-IGFRI, Jhansi, on Nov 1, 2022. About 200 farmers visited our stall and showed much interest in the different Agricultural exhibitions our University presented. Live samples, farm literature, and seed varieties draw major attraction in the mela. (Ashutosh Sharma, Govind Vishwakarma, Ashish Gupta, and Dheeraj Goutam).

Kisan Mela at BUAT, Banda

RLBCAU left a mark at the "Farmers' fair" by BUAT, Banda, U.P. from Nov 3-5, 2022. The University set up its exhibition stall at the farmers' fair, where improved varieties of pulses, cereals, and oilseeds were displayed along with live samples. Dr. Ashok Kumar Singh, Hon'ble Vice Chancellor, RLBCAU, Jhansi, attended the mela as chief guest during the inauguration ceremony. During the event, different UP government ministers, BUAT officials, and farmers visited the university stall and got information about various activities. During the event, the University stall gets appreciation for its work on a seed production project of minor and course millets (Fig. 20). (Arjun Ola, Ashish Kumar Gupta, Vijay Kumar Mishra).



Fig. 20: Hon'ble V.C., during the inauguration ceremony.

Kishan Mela at Morena

A three days Kisanmela was organized at Morena, Madhya Pradesh, in collaboration with the Central Govt. & Madhya Pradesh during Nov 11-13, 2022. About 5000 farmers visited University along with Sri Narendra Singh Tomar, Hon'ble Union Agriculture Minister, Hon'ble CM(M.P.) Sri Shivraj Singh Chauhan, Civil Aviation Minister of India, Sri Jyotiraditya Scindia. Farmers showed much interest in learning about the different exhibitions presented by our University. Agriculture Minister inaugurated the Plant Health Clinic van, designed by the University. This van's various features and benefits were major attractions during the mela (Fig. 21). (Ashutosh Sharma, Govind Vishwakarma, Bharat Lal, Vaibhav Singh, and Abhishek Shukla).



Fig. 21: University stall showing planting materials and PHC

Bateshwar Krishi Mela at Agra

The Kisan Mela was organized during Dec 23-26, 2022 in which Shri Dinesh Pratap Singh, Hon'ble Minister of State and large number of farmers, scientist and agriculture officers visited the Plant Health Clinic (PHC) Van of RLBCAU. The team with Mobile PHC explained about the facilities and importance of the PHC Van to the farmers, scientist and delegates, resolved their plant protection related queries and also explained about mushroom cultivation details to the interested farmers and visitors scientist (Fig. 22). (PP Jambhulkar, Vaibhav Singh).



Fig. 22: Virat kisan mela at Bateshwar

Training

Recent Technologies and Developments in Rapeseed and Mustard Cultivation

Under the AICRP- Rapeseed & Mustard FLDs programme, a two-day training programme from Oct 14-15 2022 for state government extension workers was organized. Twenty extension workers from the Jhansi district participated in the training. The subject experts delivered lectures on different aspects like nutrient management, water management, advanced agronomic practices, crop protection, recent varieties, and seed production aspects of rapeseed and mustard. (Rakesh Choudhary, Artika Singh, Shubha Trivedi).

Solar Powered Irrigation Systems

Borlough Institute for South Asia (BISA) organized a three days training program, at Jabalpur, MP, on Solar Powered Irrigation Systems (SPIS) during Dec 01-03, 2022. Nine team members (Govind Vishwakarma, Amey Kale, Arpit Suryavansi, Anil Kumar Rai, Rakesh Negi, Chandra Pal, Rajveer Singh Yadav, Nitin Namdev, Pushpendra, Niranjana) and two progressive farmers participated in this training. The training focused on the installation, function, and working capacity of Solar Panels and Solar Powered Irrigation Systems. During the training, the team visited different experimental farms and learned about various schemes and subsidies offered by the central and state government (Fig. 23).



Fig. 23: Participants of training programme at BISA), Jabalpur, Madhya Pradesh

White Button Mushroom Cultivation

A six-day residential training on White Button Mushroom Cultivation was organized under RKVY, UP, from Dec 17-22, 2022. This was the first residential training for farmers at the University. Seventeen farmers from 3 different districts of the Bundelkhand region participated in this training. The primary emphasis was on mushroom cultivation's practical and hands-on training as an additional income for them. Lectures, including faculties from other institutes (online), were also arranged (Fig. 24). (Shubha Trivedi, PP Jambhulkar, Vaibhav Singh Anita Puyam, Sanjeev Kumar, Tanuj Misra, Pallavi Shukla).



Fig. 24: Distribution of certificates during the training

Selection and Management of Multipurpose Trees in Agroforestry

This Training programme was conducted during Dec, 19-24 2022 for the farmers by Dept. of Silviculture and Agroforestry, CoH&F, RLBCAU, Jhansi sponsored under the RKVY project i.e. "Establishment of Hi-tech Nursery for Quality Planting Material of Agroforestry and Plantation Trees in Bundelkhand Region of Uttar Pradesh". Farmers were imparted with the skilled information on forest trees, their selection and management along with allied sector associated with forestry like fish farming and dairy, nursery raising technique and plantation methods in agroforestry to increase their income and utilize their land through promotion of agroforestry as per National Agroforestry Policy, 2014. During this training Program about 50 farmers of were benefitted (Fig. 25). (Prabhat Tiwari, RP Yadav, Garima Gupta, MJ Dobriyal).



Fig. 25: Distribution of certificates during the training

Dissemination of Quality Seed for Sustainable Livelihood Security of Farmers of Scheduled Caste Community

Under this outreach project funded by Education Planning and Home Science, ICAR, New Delhi, two field day training were organized to identify Schedule Caste farmers and their training for plant doctors. The first training was organized on Nov 21, 2022 at Baruasagar (Jhansi, U.P.), and the second in Bichondna (Datia, M.P.) on Nov 29, 2022 (Fig. 26). (Rakesh Choudhary, Anshuman Singh, Rumana Khan, Meenakshi Arya, Artika Singh Kushwaha).



Fig. 26: Field day trainings at Baruasagar (Jhansi, U.P)

Kisan Samman Nidhi Programme

The Ministry of Agriculture and Farmers' Welfare organized the PM Kisan Samman Sammelan, where more than 15,000 farmers participated at Mela ground of ICAR-IARI, New Delhi, on Oct 17, 2022, inaugurated by the Hon'ble Prime Minister of India at 11:00 AM. This meeting was live telecasted among more than 100 farmers of the Bundelkhand region associated with different FLDs and training at the University campus.

Farmers RLBCAU Visit

❖ More than 100 farmers visited the University campus on Oct 17, 2022, on the eve of PM Kisan Samman Sammelan. These farmers visited the Crop Cafeteria, fruit orchard, and the vermicompost unit of the University (Fig. 27). The farmers were associated with different FLDs and training at the University campus.



Fig. 27: Farmers visit at the University

❖ On Oct 20, 2022, more than 20 S.C. farmers from village Khaikheda, district Lalitpur, Uttar Pradesh, visited the Crop Cafeteria, where cotton, sugarcane, pigeon pea, castor, millets were primarily showcased. They also received primary information on the variety of suitable packages for the practice of the crop sown in this region. Water conservation and Vermicompost unit aspects of farming were also sensitized among them. (Arpit Suryawanshi).

❖ Hon'ble Vice-Chancellor, Director of Extension Education and Dean, CoA, visited Crop Cafeteria on Dec 20, 2022 to see the present status of the cafeteria. It was also proposed that new varieties of crops suitable for this region should be grown to attract the farmers, their needs, and aspirations. More than 90 varieties of cereal, pulses, oilseeds, fodder, millets, sugar and fibre crops are grown for demonstration purposes. (Arpit Suryawanshi).

❖ Under the Indo Global Social Service Society (IGSSS), New Delhi (VISTAR *Pariyojana*), a group of 65 women farmers from two districts, Mahoba (UP) and Chhatarpur (M.P.), visited the Crop Cafeteria on Dec 22, 2022, where more than 90 varieties of cereal, pulses, oilseeds, fodder, millets, sugar and fibre crops are grown for the demonstration purpose. They also received information regarding the vermicompost unit and the package of practices and visited the fruit cafeteria at the University. (Arpit Suryawanshi).

❖ On the eve of Kisan Diwas, Dec 23, 2022, a group of 50 farmers from different villages, i.e., Palinda, Parwai, Bamer, Hatnapur, and Sijwah of the Jhansi district (UP) visited University and the Crop Cafeteria. These farmers were keenly interested in pulses and oilseed crops of the rabi season. Line sowing, water conservation, and intercropping aspects of the farming were mainly focused on during these visits. (Arpit Suryawanshi).

Meeting with FSSAI officials and Directors of FPOs at Jhansi under the NABARD Project

A meeting with the Food Safety and Standards Authority of India (FSSAI) officials and Farmer Producer Organization's representatives of Jhansi district was organized at Kisan Samridhi Vidyapeeth, Ambabai, Jhansi, where FSSAI registration and certification issues among the farm producers were emphasized to facilitate the forward market linkage on Dec 28, 2022. University representatives also participated in this meeting under the activities of the NABARD project (Fig. 28). (Tanuj Mishra, Shailendra Kumar).



Fig. 28: Meeting with FSSAI officials and FPOs

Agriculture Farm at Harshmau, Niwari

Vice Chancellor of Rani Lakshmi Bai Central Agricultural University, A.K. Singh and S.S. Singh visited an agricultural farm situated at Harshmau, dist. Niwari at M.P. This farm is about 7 km away from Niwari proper. Total area of the farm is around 14 hectare. During the ongoing Rabi season, Mustard is sown while in *Kharif* season groundnut, moong, urd and millets are sown. Seed and millets production were emphasized as future plans of the farm (MK Singh, Arpit Suryavanshi).

Student's Achievements

❖ In the year 2018-19 total 12 students have registered for B.Sc Forestry and among them 11 students completed their degree programme successfully in the year 2022. Later they have appeared for several entrance exams conducted by ICAR and state government. Five students viz., Nadia Arfin (AIR-34), Pawas Sharma (AIR-30), Toshika Tamrakar (AIR-25), Ranu Sharma (AIR-79), Lekshmi R. (AIR-6) cleared ICAR-JRF entrance exam with good ranking and got admission for M.Sc degree in reputed Universities, Sabad K cleared state entrance exam and got admission. Remaining students are preparing for competitive exams.

❖ Two students were registered for M.Sc degree programme in the department of Silviculture and Agroforestry in the year 2020-21 and successfully completed their degree in the year 2022. Among two students Chinmaya Pradhan cleared ICAR-SRF exam and Shakshi Jitendra Jain cleared state entrance exam and got admission for Ph.D degree programme.

Radio Talk

क्र. सं.	विषय	वक्ता	स्थान	दिनांक
1.	सूक्ष्म जैविक खाद का कृषि में उपयोग	उमेश पंकज	आकाशवाणी केंद्र, झाँसी	10 अक्टूबर
2.	बुंदेलखंड का भविष्य है मोटे पोषक अनाज	अश्वनी कुमार	आकाशवाणी केंद्र, झाँसी	18 अक्टूबर
3.	बुंदेलखण्ड में स्ट्रॉबेरी की खेती से युवाओं को रोजगार	सुकन्या मिश्रा	आकाशवाणी केंद्र, छतरपुर	22 दिसंबर
4.	राष्ट्रीय किसान दिवस के उपलक्ष्य में कृषक संगोष्ठी में कृषि विशेषज्ञ	रंजीत पाल	आकाशवाणी केंद्र, झाँसी	23 दिसंबर

Joining/Relive/Retirement

- ❖ Krishan Murari Pandey, typist, CS scheme retired on Oct 31, 2022.
- ❖ Raghu Raj Singh, field man, CS scheme retired on Oct 31, 2022.



International Year of Millets: 2023

R

L

B

C

A

U