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From the Vice-Chancellor Desk



During the last five decades, the issues around food security have evolved rapidly. The concept of food security has moved beyond the realm of producing a sufficient quantity of food. Now, making adequate quantities and quality of food affordable and accessible to all citizens of the country on a sustainable basis has become the prime purpose of the food security perspective. The importance of food security has increased further due to climate change, COVID-19, and conflicts.

Globally, around two billion people, mainly pregnant women and children under the age of five, are facing acute malnutrition. The proportion of people affected by the lack of micronutrients is relatively higher than those suffering from low energy intake and poor dietary quality. The deficiency of vitamin A, zinc, iron, and iodine causes the death of around 20% of children under the age of five. Studies suggest that approximately 150 million children under the age of five are stunted. Malnutrition is the cause of nearly 45 percent of fatalities among children under the age of five. The situation is significantly worse in regions like Southeast Asia, where 30.1 percent and 14.5 percent of children under the age of five are stunted and wasted, respectively, compared to 22 percent and 6.7 percent globally.

Shift in the scope of food security and its increasing importance demands a reorientation of research and extension priorities. The objectives of the modern concept of food security demand a shifting focus of R&D activities from production enhancement to enhancing the quality of produce. To make food affordable for the poorest sections of society, the focus must be shifted towards developing technologies to reduce the cost of cultivation, efficient use of land resources, and reduce post-harvest losses. Agricultural research organizations must also focus on enhancing people's access to quality food. Access to quality food can be ensured through diversifying production centers, promoting the food processing sector, and undertaking research to develop abiotic stress resistance in crop plants.

To a great extent, nations across the globe, including India, have been able to meet the objectives of making food affordable and accessible in adequate quantity. However, ensuring the nutritional quality of food remains a larger area of concern. Agricultural universities and research institutions are making several efforts to meet the needs of enhancing the nutritional quality of food. Bio fortification is an upcoming, promising, cost-effective, and sustainable technique for delivering micronutrients to a population with limited access to diverse diets and other interventions. Several agronomic, biotechnological, and breeding approaches are being employed globally to bio fortify staple food crops, including rice, wheat, maize, etc.

To realize the benefits of technological advancements for enhancing food security, the extension machinery of the state must engage in the development and implementation of strategies for the promotion of relevant technologies, mobilization of farmers for reducing transaction costs, diversification of production centers, and creation awareness among rural masses about nutrition and food safety.

Vice-Chancellor



Assessment of suitable habitat sites for Tiger (*Panthera tigris*) at the Panna Tiger Reserve, MP, using MCDA and GIS Techniques

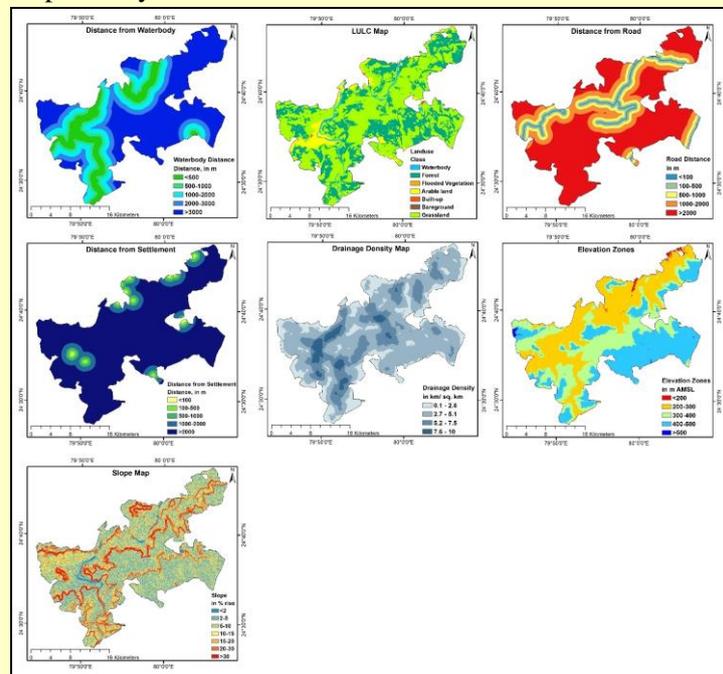
Wildlife conservation is essential to humanity as it plays an important role in preserving the ecological balance and mitigating the impacts of climate change. The tiger (*Panthera tigris*) is one of the most endangered species in India due to its habitat loss and poaching. The Government of India (GoI) started Project Tiger in 1973 to protect the country's threatened tiger population. Assessing suitable habitat sites for tigers in the Panna Tiger Reserve (PTR), Madhya Pradesh, using Multi-Criteria Decision Analysis (MCDA) and Geographic Information Systems (GIS) techniques, is a valuable approach for the conservation and management of the tiger population.

Table 1: Weights and rating values for subclasses

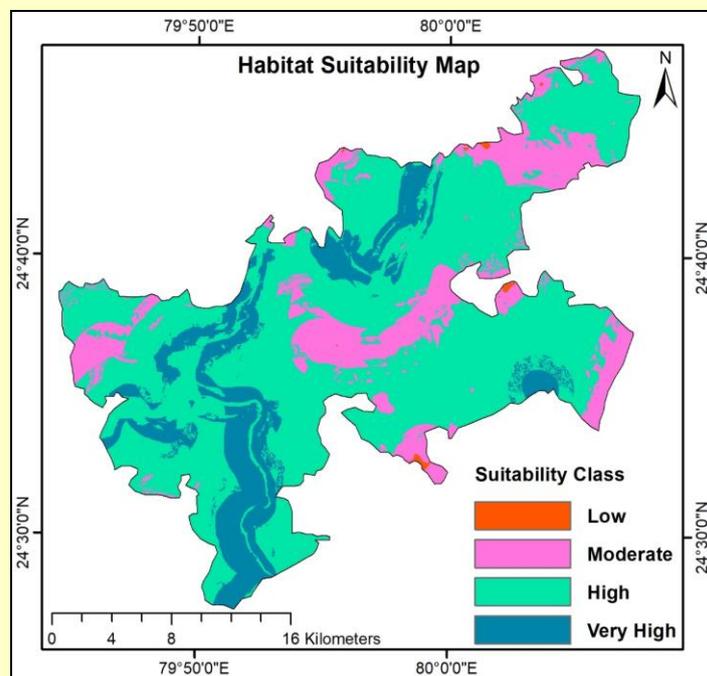
Factor	Weights	Classes	Rating
Distance from water bodies (m)	38	Less than 500	1
		500 to 1000	3
		1000 to 2000	5
		2000 to 3000	7
		>3000	9
LULC class	24	Waterbody	2
		Forest	9
		Flooded Vegetation	2
		Arable land	4
		Built-up/ Settlement	1
		Bareground	1
		Grassland/ Pasture	8
Distance from the road (m)	16	Less than 100	1
		100 to 500	3
		500 to 1000	5
		1000 to 2000	7
		>2000	9
Distance from the settlement (m)	10	Less than 100	2
		100 to 500	4
		500 to 1000	6
		>1000	9
Drainage Density	6	Low	5
		Moderate	9
		High	4
		Very high	2
Elevation Zones (m AMSL)	4	Less than 200	7
		200 to 300	7
		300 to 400	7
		400 to 500	9
		Greater than 500	6
Slope (% rise)	2	Less than 2	2
		2 to 5	3
		5 to 10	9
		10 to 15	7
		15 to 20	5
		20 to 30	4
		Greater than 30	1

The study developed AHP over seven parameters that affect the distribution of the tiger population over a landscape. These include distance from perennial water bodies, land use, distance from roads and settlements, drainage density,

elevation zones, and slope. These influencers were then assigned suitable weights and were overlaid using a weightage overlay tool over the ArcGIS platform. The results from the analysis suggested that approximately 67.02 % and 15.65 % of the area of the tiger reserve offer very high and high suitability for tiger habitat, whereas 17.13 % and 0.2 % of the area have moderate and low suitability, respectively.



Assign parameter for habitat suitability



Habitat suitability map for Tiger at PTR

Tiger habitat is dynamic and requires continuous monitoring and adaptive management to ensure the long-term survival of tigers. Additionally, involving local communities and stakeholders in the conservation efforts is crucial for success. This approach combines MCDA and GIS to create a valuable tiger habitat assessment and conservation tool.

❖ Three-day sensitization workshop organized for the students

A three-day sensitization workshop for the students was organized from 5th - 7th July 2023 in collaboration with NAHEP-IASRI-RAES (Resilient Agricultural Education System). This workshop aimed to empower students with valuable knowledge and provide them with hands-on experience with the diverse functionalities of Virtual Reality (VR) kits. Additionally, participants were introduced to newly developed VR modules. A total of 36 UG/PG students participated in the training program.



❖ Students of LRBCAU participated in CATC - 202

The 32UP (G) Battalion of NCC organized a Combined Annual Training Camp (CATC-202) at Battalion ground near Lalkurti Railway crossing, Army Cantt. Jhansi from 11th to 20th September 2023, in which the NCC cadets of the university participated actively. In this ten-day camp, the cadets of the second year from the university participated in various competitions and won prizes. Cadets won the trophy for best drill. Among other competitions, cadets won first prize in a dance competition. In the debate competition, Cadet Surbhi Jha and Cadet Thoibi Pangambam won first and second prizes, respectively.



❖ Cleanliness drive by NCC cadets at Pahuj Dam

The university's NCC cadets under the 32 UP Girls Battalion organized a cleanliness drive under the Swacchta Hi Sewa

program at Pahuj Dam on 27th September 2023. In this program, about thirty NCC cadets, a JCO, an NCO, and an NCC Caretaker participated and cleaned the dam's vicinity. Spending more than an hour, cadets collected and safely disposed of about two quintals of waste from the site.



❖ Students completed industrial attachment in Jaipur

The VII semester students of B.Sc. Forestry from the College of Horticulture and Forestry, Jhansi, completed industrial training organized under the FOWE Program 2023 at Jaipur. Students' industrial training was organized at J. C. Antiques & Crafts, Jaipur. The training was done in partial fulfillment of the BSc (Hons) Forestry degree program. The five-day training took place from 25th to 30th September 2023.



In this program, eleven students underwent industrial training and exposure concerning various aspects of raw material procurement, wood processing of handicrafts, product manufacturing, and quality control. During the training, students also learned to operate modern wood machinery like computer numerical control (CNC) routers, edge banding, chain mortizers, etc., used to manufacture wooden furniture. Students were also able to see themselves in the raw material.

❖ Cleanliness drive under *Puneet Sagar Abhiyan* at Gharmau Lake

Rani Lakshmi Bai Central Agricultural University, Jhansi, in collaboration with 32 UP Girls battalion NCC, Jhansi, organized a cleanliness drive under Puneet Sagar Abhiyan at Gharmau Lake, Jhansi on 8th September 2023. In this program, about 15 NCC cadets participated and cleaned the area around the lake.



❖ 25th lecture of *Atal Jai Vigyan* lecture series organized successfully

The silver jubilee lecture of the *Atal Jai Vigyan* lecture series was delivered invited speaker K. K. Unni, Ex - Chairman & MD, Bayer Group Company. The occasion was graced by Hon'ble Vice Chancellor. The purpose of lecture series was celebrating advancement in science, technology and spirit of inquiry and innovation that has been the hallmark of *Atal Jai Vigyan* lecture series on 4th July 2023.



Shir. Unni delivered lecture on "Trainee to towers: motivational lecture for young agricultural graduates to pursue their career in agri input industry" to encourage the students, faculties and other stake holders to push the boundaries of knowledge and foster a culture of excellence in education and research.

❖ 77th Independence day celebrated at RLBCAU

The university celebrated 77th Independence day on 15th August 2023 which started with the Guard of Honour by the NCC candidates and UPSRD *jawan* to the Hon'ble Vice Chancellor. Hon'ble Vice Chancellor hoisted the flag and

highlighted the importance of freedom and responsibility by virtue of this important historical day. The programme was followed by cultural programme and distribution of certificates related to events organized throughout the year among the student.



❖ University celebrated National Sports Day

University celebrated National Sports Day on 29th August 2023 in the gracious presence of Hon'ble Vice Chancellor. He administered the "Fit India Pledge" to everyone and urged youth to inculcate the habit of playing games at least for 30 minutes every day for healthy life. Different indoor and outdoor sports activities were also organized throughout the day which included walk, running race, tug of war, plank challenge, chess and carom. All the staff, students, NSS volunteers actively participated in the games and took keen interest and made the program a grand success with their participation.



❖ University commemorates 135th birth anniversary of Sarvepalli Radhakrishnan

On 5th September 2023, university celebrated National Teachers' Day to commemorate 135th birth anniversary of Bharat Ratna, Dr. Sarvepalli Radhakrishnan. Hon'ble Vice Chancellor A.K. Singh graced the occasion with his gracious presence. Dr. P. B. Bhadoria, Retired Professor of IIT, Khargpur was the distinguished guest. Dr. Bhadoria delivered lecture on rural technologies for enhancing the livelihood security of rural masses. Distinguished Guests Alka Arora and Somen Pal from ICAR-IASRI, New Delhi were also present and delivered the lecture on "Blended Learning". During this occasion students were also present.



❖ **Swachhata Hi Sewa Special Campaign 3.0, started at RLBCAU**

The *Swachhata Hi Sewa* Special Campaign 3.0, kick started at RLBCAU, Jhansi on September 25, 2023, that underlines university's commitment to cleanliness and hygiene. This aims at encouraging students, faculty and staff to actively participate in cleanliness drives, waste reduction programs, and community awareness initiatives. By reinforcing the importance of cleanliness and sustainability, the campaign aims to cultivate a sense of responsibility among all members of our university community.



❖ **Twenty-four students of the university successfully completed Master's degree**

In a display of academic excellence, 24 postgraduate students hailing from eight disciplines of agriculture, horticulture and forestry have successfully completed the degree programme. These scholars have demonstrated their commitment to the pursuit of knowledge and research, cementing their place as future researchers in their respective fields. Hon'ble Vice Chancellor congratulated all the students and urged them to work towards making significant contribution to the field of science and work towards upliftment of farming community.

❖ विश्वविद्यालय में राजभाषा को प्रोत्साहित करने के लिए 14 से 30 सितम्बर 2023 के मध्य हिन्दी पखवाड़ों का आयोजन किया गया। हिन्दी पखवाड़े का शुभारम्भ 14 सितम्बर को हिन्दी दिवस के आयोजन से हुआ तथा 15 दिनों तक चले हिन्दी पखवाड़े में विभिन्न प्रतियोगिताओं जैसे श्रुति

लेखन, निबंध लेखन, स्व-रचित कविता प्रतियोगिता, अंताक्षरी प्रतियोगिता और पोस्टर प्रतियोगिता का आयोजन विद्यार्थियों, शैक्षणिक एवं अशैक्षणिक कर्मचारी स्तर पर किया गया तथा इन प्रतियोगिताओं में सभी ने उत्साहपूर्वक भाग लिया।

❖ विश्वविद्यालय में राजभाषा कार्य में प्रगति लाने हेतु प्रति तिमाही की भांति एक दिवसीय कार्यशाला 30 सितम्बर को आयोजित की गई जिसमें राजभाषा सचिव डॉ राकेश चौधरी ने विश्वविद्यालय के गैर शैक्षणिक वर्ग के कर्मचारियों को गृह मंत्रालय के राजभाषा विभाग द्वारा विकसित सॉफ्टवेयर "कंठस्थ 2.0- स्मृति आधारित अनुवाद" पर अभ्यास आधारित प्रशिक्षण दिया।

❖ **Farm Advisories Published**

To disseminate the farm production and livestock management technologies among the farmers, the university uses various means of communication including print media. As a part of this outreach effort, RLBCAU regularly circulates the technical farm advisories to various print media outlets in the locality. During the third quarter of 2023 more than 22 farm advisories were published in local and national daily news print media on the various enterprises including crop production, livestock management, floriculture, horticulture and allied enterprises. During this period scientists of the university also recorded three radio programmes on the topics of Importance of FPOs, Importance of nutri-cereals and land preparation of *Kharif* green gram cultivation.

❖ **Capacity building and HRD**

During the third quarter of the year, 14 scientists and teachers of RLBCAU participated in training/certificate programs and delivered invited lectures. Dr. Ghan Shyam Abrol completed a six-week AgMOOC training entitled "Agricultural Statistics in Practice" from July 11 to August 31, 2023. Similarly, Dr. Pavithra, B. S Completed a six-week AgMOOC training entitled "Agricultural Statistics in Practice" from July 11 to August 31, 2023. Eight newly inducted faculty members of the university participated in the 21-day Foundations Course organized by ICAR-NAARM, Hyderabad, from September 7 to September 27, 2023. Dr. Yumnam Bijilaxmi attended a six-week AgMOOC course on Agricultural Statistics in Practice from July 11 to August 31, 2023.

Yumnam Bijilaxmi Devi received the Hindustan Icon Award for her contribution to the field of Agriculture on the occasion of Agri Tech World 2023 from 15-25th Aug 2023, jointly organized by CIAT, ICARDA, BUAT, SNAU, AU, IIMR, ATARI, CIRG, IISR and HARWS. She also delivered a lecture on the topic 'Management of problematic soils: A Hyperspectral Approach' on 18th 2023 during an online 11 days Certificate-cum Training Program on Agri Tech World (ATW-2023) from 15/08/2023 to 25/08/2023 organized by Hindustan Agricultural Research Welfare Society (HARWS) in association with Indian Institute of Millets Research (IIMR).

❖ **Three day training programme on *Kharif* Pulse production was organized successfully**

Three days farmers training programme on the topic “बुंदेलखंड में खरीफ दलहनी फसलों के उत्पादन की उन्नत तकनीक” was organized under the aegis of SCSP Scheme funded by ICAR-IASRI, New Delhi during 5-7 July 2023. Thirty farmers belonging to schedule castes from Karari, Peetampur and Hastinapur villages of Jhansi district participated in the programme. The knapsack sprayers were also distributed to the trainees during the training programme.



❖ **Quality seeds were distributed to farmers for promotion of millet production**

As a part of frontline demonstration activity, quality seeds various millet crops were distributed among farmers for promotion of millets cultivation. The seeds of Bajra (bajra-MPMH-21), Sava (Sava-Co-KV 2), and Kodo (Kodo-TNAU-86) were distributed on 7th July 2023 at Taricharkalan of Niwari district and Magarpur village of Jhansi district with the cooperation of Uldan Agriculture Producer Company Ltd. Total 75 demonstrations were organized in these villages for promotion of millet cultivation.



❖ **Frontline demonstrations organized for promoting Sesame cultivation**

For increasing the area, production and productivity of sesame in Bundelkhand region under NFSM-AICRP-oilseeds project, 50 Sesame FLDs were conducted in Baajana, Bhojala, Simra villages of Jhansi district. The agro-

inputs like seeds and fertilizers were provided to 50 farmers on 13 July 2023 in the villages along with advisory on various aspects of sesame cultivation.



❖ Under IARI-CATAT programme demonstrations were organized on paddy (Pusa-1850), among 6 farmers of the Jhansi districts of Uttar Pradesh. Seeds of improved variety were distributed during the second week of July.



❖ **RLBCAU organized more than one hundred Blackgram demonstrations**

More than a hundred demonstrations on scientific cultivation of Blackgram were organized by the university during *Kharif* 2023 in the fields of 26 and 89 farmers of Khaikhera and Simmardha villages, respectively. As a part of this programme pre-treated seeds were distributed to the farmers for scientific black gram cultivation. In these demonstrations, improved variety of Blackgram IPU 13-1 were supplied to the farmers.



❖ **Distribution of Input under Aerobic rice FLD**

Seed of about 200 kg of aerobic rice (DRR Dhan 42), Fertilizer (Nano urea) as well as the pre-emergence and post-emergence were distributed to twelve farmers of Imliya village of Lalitpur district and Palinda villages in Jhansi

district on 21st July, 2023. Farmers were advised to undertake two sprays of nano-urea and pre-emergence and post-emergence herbicide for realizing higher productivity in aerobic rice.



❖ Field Day cum Plantation programme on agroforestry and medicinal and aromatic plants

Field Day cum Plantation programme on Agroforestry and medicinal and aromatic plants was organized at Imaliya village of Lalitpur district on 11th August 2023. Under this programme the quality planting material of medicinal plants and agroforestry trees including seedlings of Aloe vera, Tulsi, Lemon Grass and Ashwagandha, as well as the saplings of Kadamb, Gmelina, Melia, Teak, Shisham etc. were distributed to 100 farmers. The scientists also discussed with farmers the scientific techniques of medicinal and agroforestry plants cultivation.



❖ Training organized for skill development in advance seed production techniques

A five days residential training programme was organized during 22-26 August, 2023 on the topic “Advanced Seed Production Techniques of Major *Kharif* Crops” under the aegis of ICAR, New Delhi sponsored project titled Dissemination of quality seed for sustainable livelihood security of farmers of Scheduled Caste community of Bundelkhand region. Twenty farmers of Lalitpur district participated in the training in which farmers were trained on various aspects like seed production practices, plant protection measures along with seed processing and packaging.



❖ Field Day organized on Agroforestry and medicinal and aromatic plants

Field Day programme on Agroforestry and medicinal and aromatic plants was organized at Ronija Village of Jhansi District on 21th August 2023. The quality planting material of Aloe-vera, Tulsi, Lemon Grass, Ashwagandha and the saplings of Kadamb, Gmelina, Melia, Teak, Shisham etc. were distributed among more than 100 farmers who attended the programme.



❖ University organized training programme on agroforestry and cultivation of medicinal and aromatic plants

A three day long training programme on “Advanced technology of agroforestry and cultivation of medicinal plants” was conducted during 24th to 26th August 2023 at the University Head Quarters where 25 farmers of Ronija village, Jhansi participated and were awarded with the certificate by the Hon'ble Vice Chancellor for completion of training programme. Fourteen lectures on aspects such as multipurpose trees and plants, bamboo based agroforestry, integration of animals in IFS etc., were delivered and thoroughly discussed. Farmers also learnt about medicinal and aromatic plants cultivation and industrial agroforestry models developed in the campus. Exposure visits were made to the medicinal plants garden of the university to sensitize farmers about the commercial cultivation of the medicinal and aromatic plants and their processing.



❖ **Kisan Ghosthi on livestock production organized at RLBCAU**

A Kisan Ghosthi on livestock production was organized at RLBCAU, Jhansi, on 15 September 2023. In this interface meeting, 35 dairy and goat farmers of Purwai and Simardha village of Jhansi district participated actively. During the discussion, the importance of macro and micro minerals in livestock production and health management was highlighted, and farmers were encouraged to ensure regular feeding of mineral mixture to dairy animals. These mineral mixtures are crucial to the metabolic processes that sustain the growth, development, immune system function, production, and reproductive efficiency. They also reduce the calving period and prevent metabolic diseases like milk fever in dairy animals



❖ One field day was organized under the FLD aerobic rice at Imliya village of Lalitpuron 21st September, 2023 during which farmers were made aware about the improved production practices and government schemes. In this programme more than 30 farmers actively participated.

❖ **FLD on flower crops organized successfully**

FLD on flower crops funded by the University was conducted at 6 different villages of Jhansi and Datia districts of UP and MP. Under these demonstrations, rooting cuttings of marigold Cv. 'Cricket Ball' was distributed to about 22 farmers during the month of July and August. The team of scientists visited the village Katili of Datia on 26th September, 2023.



❖ **Scientists assessed medicinal and aromatic crops production possibilities at Gursrain and Kheri villages of Jhansi**

Field visit was conducted on 30th September 2023 to interact and discuss the possibilities of cultivation of medicinal and aromatic crops among farmers associated with Gursrai Herbal and Organic Producer Company Ltd. at Chirgaon, Gursrain and Kheri villages of Jhansi district. During the meeting the farmers were made aware about the commercial cultivation of MAP's and one district one product. Farmers showed interest for adopting low input cultivation on small scale.



❖ **Two days farmers' training was organized on "kharif onion production technology" organized at RLBCAU**

Two days farmers' training was organized on "kharif onion production technology" on 14-15th July 2023 by the Department of Vegetable Science to promote kharif onion cultivation in Bundelkhand region 50 numbers of farmers participated from Babina blocks of Jhansi, Datia districts in this training programme.

❖ **Quality seeds distributed for area expansion under Kharif vegetable crops**

To enhance the Kharif season vegetable area in Bundelkhand region, seeds of different vegetable crops were distributed to the farmers of Jhansi, Lalitpur and Datia districts. Under this, 100 FLDs of Okra, 10 FLDs of tomato, 25 FLDs of Brinjal, 25 FLDs of sponge gourd and 25 FLDs of bitter gourd were conducted under University funded FLD programme.



❖ The 3rd Extension Education Council Meeting was held on 5th July 2023 under the chairmanship of Hon'ble Vice-Chancellor Dr. A. K Singh in the University's administrative building. Dr. P Das, Former DDG (AE), ICAR, New Delhi, Shantanu Kumar Dubey, Director, ICAR-ATARI, Kanpur, M P Singh, Deputy Director Agriculture, Jhansi, Ashok Tomar, Joint Director, DoAS, Gwalior, Sri Bhupesh Pal, DDM, NABARD, farmers and statutory officers of the University were also present in the meeting. Dr. S S Singh presented a detailed report of extension activities of last year and the future work plan. Dr. Ashutosh Sharma presented an action taken description over the recommendation of the previous extension education council meeting in 2022.



Farmers Visit

❖ Fifty farmers from the Dikoli village (block Babina of Jhansi district) visited the fruit cafeteria of the university on 26 September 2026 with the support of the National Co-operative Union of India (NCUI), Education Field Project, Jhansi. Farmers could gain real-life experience in Dragon fruit and Papaya cultivation and horticultural nursery management. Farmers were also sensitized to using the Bundeli Krishi Mobile Application during the visit. This application is being developed under "Integrated Platform for Agripreneur (Farmers-Consumers-Entrepreneur)"-NABARD funded Project.

❖ 55 farmers from the Pragya Grammotthan Seva Samiti, Fatehpur, Uttar Pradesh visited the university sponsored by the NABARD on 27th September 2023. Farmers visited fruit orchard, vermicomposting unit and crop cafeteria.



❖ Farmers were sensitized on use of *Bundeli Krishi* Mobile Application

Farmers' Sensitization program on Bundeli Krishi Mobile Application and need assessment on FPOs was organized on 7th July 2023 at Magarpur village of Jhansi district with the cooperation of Uldan Agriculture Producer Company Ltd, in which more than 50 farmers participated actively. This application is being developed under a NABARD-funded project titled "Integrated Platform for Agripreneurs (Farmers-Consumers-Entrepreneurs)."



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