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From the Vice-Chancellor Desk



Agriculture around the world is vulnerable to climate change. Therefore, adaptation measures are required to sustain agricultural productivity, to reduce vulnerability, and to enhance the resilience of the agricultural system to climate change. Climate change impact is well known worldwide and it is the biggest challenge facing the global society at present and It has become a great necessity at the present time. Statistics show that the average temperature of the Earth's surface has increased by about 1.62 °F since the late 19th century. Apart from this, sea level has also increased by about 8 inches since last century.

Global climate change comprising changing surface solar radiation, accelerate the warming temperature, variable precipitation and increasing CO₂ concentration is projected to have a significant influence on crop production and their development. It affects agriculture in a various ways, including through temperatures, heat waves, changes in sea level, average rainfall, atmospheric CO₂, and ground-level ozone concentrations. Due to the insufficient regular record of climate data like temperature, daily radiation, precipitation, etc., on the future circumstances, it is hard to conclusively establish site-specific impact assessments of future climate variation on crop productivity. The impact of drastic changes in climatic conditions is an important scenario. At one time all climate change was natural. Mechanical conflict came around 220 years back because of which tremendous amounts of products were produced by machines. Energy is required to run the machines. During the last 200 years, due to our activities, huge quantities of greenhouse winds have been emitted in the atmosphere. It is now clear that in today's time, humans are responsible for climate change. Earth is the only planet on which life is possible. The presence of favourable temperature on the surface of the Earth is an important factor in the presence of life, the average surface temperature of the Earth is 14.4 °C. Climate change is a very slow change process but at present the rate of changes is very fast and as a result of these changes the earth is warming rapidly. Due to global warming, temperature is increasing and many parts of the country are witnessing changes in climate change such as rain, temperature, weather, etc.

Arvind Kumar
Vice-Chancellor



Enhancing Drought and Heat Tolerance in Rapeseed-Mustard through Microbes

This experiment was conducted in campus, during *Rabi* 2021-22 under AICRP-Rapeseed-Mustard to evaluate the effect of irrigation, microbes and their combination on the growth and seed yield of mustard. The experiment comprising 18 treatments was conducted following a split-plot design with 3 replications (Fig. 1). The variety 'Giriraj' was sown following standard row and plant spacing. The post-harvest data is being recorded. (Artika Singh Kushwah).



Fig. 1: Field trial of Rapeseed-Mustard

Effect of Planting dates on Growth and Flowering of African Marigold Cultivars

This study was conducted to find a relationship between different planting dates on the regulation of flowering time in African marigold cultivars 'PusaNarangiGainda (V1)' and 'PusaBasantiGainda (V2)' for commercial production in the Bundelkhand region. It was observed that minimum number of days for visible flower bud formation and flowering was recorded when planting was done on 21st December. Among cultivars 'Pusa Narangi Gainda' performed better than 'Pusa Basanti Gainda' and can be taken for commercial production in Bundelkhand region. It was observed that among cultivars 'Pusa Narangi Gainda' performed better than 'Pusa Basanti Gainda' and can be taken for commercial production in Bundelkhand region. (Priyanka Sharma, Gaurav Sharma, Ranjit Pal and Ghanshyam Abrol).

Effect of Nitrogen, Phosphorus and Potassium on Growth and Flowering of Marigold

This experiment was carried out to study the effect of N, P, and K on growth and flowering of African marigold cv. 'Pusa Narangi Gainda'. It was observed that tallest plants (55.56 cm) were recorded with application of 150 kg/ha each of nitrogen, phosphorus and potassium (Fig. 2). As regards plant spread and stems per plant, these were recorded maximum (53.33 cm and 7.67 respectively) with application of 150 kg/ha nitrogen and 100 kg/ha each of phosphorus and potassium. Flowers per stem were recorded maximum (7.62) with application of 150 kg/ha nitrogen and 50 kg/ha each of phosphorus and potassium. It was found

that flowers per plant (47.95) were maximum with application of 150 kg/ha nitrogen and 100 kg/ha each of phosphorus and potassium (Figure 1). Similarly, flower yield per plant and flower yield per hectare (556.06 g and 15.87 t/ha) were also recorded maximum with application of 150 kg/ha nitrogen and 100 kg/ha each of phosphorus and potassium. (Priyanka Sharma, Gaurav Sharma & Y. Bijilaxmi Devi).



Fig. 2: Flowering of African marigold cv. 'Pusa Narangi Gainda'

Pomegranate Nectar

A recipe for the development of pomegranate nectar was standardized for commercial sale in the department of Postharvest Technology. As per FSSAI specification, nectar is a beverage that contains not less than 20 % fruit juice or pulp, 15% total soluble solids and not more than 1.5 % titratable acidity as citric acid (Fig. 3). White and red fleshed pomegranate varieties were procured from the Fruit Science demonstration farm of the university. The white-fleshed varieties were high in TSS (sweetness) and the red-fleshed varieties had an attractive deep red colour. The blend of juices from these varieties had the desired sweetness, colour, flavour and Overall acceptability on a 9-point Hedonic scale (Ghan Shyam Abrol, Ashwani Kumar and Gaurav Sharma).



Fig. 3: Pomegranate nectar without artificial colours & flavours

World Earth Day 2022

World Earth Day was celebrated on 22 April 2022 under the chairmanship of Prof. Arvind Kumar, Hon'ble Vice Chancellor. With the chief guest Sunil Tiwari, PS, IGRI, Jhansi. On this occasion Director Education, Anil Kumar stressed on environmental balance, Sustainable Development Goals (SDGs) and mitigation of climate change. In this program students presented their views on the theme 'Invest in the Earth', followed by a poster competition (Fig. 4). (M. J. Dobriyal, R. P. Yadav, Prince Kumar and Bijilakshmi).



Fig. 4: Celebration of World Earth Day

English Language Promotion and Celebration Week-23rd to 29th April 2022

The COHF organized a One-Week English Language Promotion and Celebration Event to promote multilingualism and develop students' communication and English language skills. The event aligned with the United Nations celebration of 23rd April as English Language Day. In all, about 40 students from both the COA and COHF participated in various events like poem recitation, vocabulary building, creative writing event, and poster making (M. Dobriyal, Alka Jain, B.S. Pavithra).

First Meeting of University level NSS Advisory Committee

This meeting was held in hybrid mode (offline and online) on 24th June 2022 under the chairmanship of Prof. Arvind Kumar, Hon'ble Vice Chancellor at the VC Committee room of RLBCAU, Jhansi (Fig. 5). The esteemed members extend their suggestions on various activities viz., for taking up the agriculture-based activities, natural farming, tree plantation and to reach out the farmers through mobile plant health van especially for Bundelkhand region, free medical/blood donation camps with the support of Medical Officer and many more for the proper planning and development of the NSS units of RLBCAU. The chairman advised that each student should be asked to plant one tree at the time of admission in University and take the

responsibility of its maintenance during the degree programme.



Fig. 5: Meeting of NSS Advisory Committee

International Day for Biological Diversity

To emblaze the importance of wetlands, University has celebrated Biodiversity Day on 21st May 2022. The programme was followed by address on 'Importance of Biodiversity' by S.S. Singh, DEE, RLBCAU. Shri Arindam Ghosh, Editor, ToI Group, Shri Bansidhar Mishra, Editor at Independent Mail, Bhopal, M.P. also addressed the students. Distribution of certificates for slogan writing competition was organized where Akanksha, Shruti Lata, secured first and second position. (M.J. Dobriyal, Y. Bijilaxmi Devi, Garima Gupta)

International Labour Day & "Kisan Bhagidari and Prathmikta Hamari" Program

This programme was organized on 30th April, 2022 where Sh. Nadeem Ahmad, Labour Commissioner (U.P), was the chief guest. 'Kisan Bhagidari Prathmikta Hamari' program was also organized as indicated by MoA & FW, GoI, in which more than 35 farmers from different villages participated (Fig. 6). Different policies for farmers and labour were emphasised. (S.S. Singh, Gunjan Guleria, Ashutosh Sharma, Anil Rai, Sanjeev Kumar)



Fig. 6: Momento to Sh. Nadeem Ahmad, Labour Commissioner

Peer Mentorship Programme for B.Sc. Forestry Final Year Students

A three-month Peer Mentorship Programme for students with a series of lectures from professors across the country, and in campus examinations was conducted during April to June, 2022. This programme was conceptualized by Anil Kumar, Director Education, A. K. Pandey, Dean CoH&F and M. J. Dobriyal, Student Welfare Officer. Toshika Tamrakar, Pawas Sharma, Ranu Sharma and Savad K. received good ranking in many National level examinations.

Front Line Demonstrations

FLD-Kharif-Urd (SCSP)

FLDs among 121 farmers of Schedule Caste from village-Simardha & Khaikheda of district Lalitpur Uttar Pradesh were organized where inputs like Urd seed (IPU13-1) and Fertilizer (Single Super Phosphate-one bag) were distributed for demonstration purpose on one acre of land (Kharif-2022) sponsored from ICAR-IIPR, Kanpur on 22 June 2022 (Fig. 7) (Meenakshi Arya, Anshuman Singh, Arpit Suryawanshi and Sanjeev Kumar).



Fig. 7: Distribution of Seed and Fertilizers

FLD- Aerobic rice (SCSP)

FLDs is being conducted in the fields of a total of 12 farmers in village Naykheda of Babina block, Jhansi district under the Scheduled Caste Sub-Plan funded by ICAR-IIPR, Kanpur on 25th June 2022 (Fig. 8). Information about improved cultivation practices of aerobic rice that can perform well under less water along with seeds of aerobic rice variety D.R.R. 42 and D.R.R. 44 and nano-urea and herbicides such as pendimethylene and bispyribac sodium were distributed. (Gunjan Guleria, Nishant Bhanu and M. K Singh).



Fig. 8: Distribution of critical inputs among farmers

FLDs-Sesame (AICRP)

Under NFSM-AICRP-oilseeds project, 50 Sesame FLDs are demonstrated in the 2 districts each of Madhya Pradesh and Uttar Pradesh. Under this programme all the agri-inputs (seed, fertilizer, nano-urea, Emamectin benzoate and Mancozeb + Carbendazim) were given to 50 farmers of

Jhansi (25) and Datia (25) district (Fig. 9). The training on Crop production technology of Sesame was also conducted on 30 June 2022 in the villages in which lectures were delivered by the scientists on various aspects (Artika Singh, Vaibhav Singh, Bharat Lal and Ashutosh Kumar)



Fig. 9: Distribution of seed & agri-inputs among farmers

Training

Online National Workshop on Application of ICT & Agriculture Development:

This workshop was held during during 9-10th March, 2022 in collaboration with MANAGE, Hyderabad for agri professionals, extension functionaries, students and field level extension workers. An e-book was also launched entitled “Agricultural Marketing in India-Reforms for a Liberal and Competitive System” with the chief editors V. David Chella Baskar and Shalendra. More than 80 participants successfully participated in this workshop (Baskar, Sanjeev Kumar, Tanuj Misra & Shailendra Kumar).

Virtual Training on “Agroforestry for promotion of Climate Smart Diversified Farming System in Bundelkhand:

This training programme on was conducted during 17-20th May 2020 in collaboration with MANAGE, Hyderabad (Fig. 10). More than 85 trainees participated in the training. Many learned speakers delivered lectures in their area of expertise on agroforestry (Manmohan Dobriyal, Ram Prakash Yadav, Prabhat Tiwari, Tanuj & Shailendra Kumar).

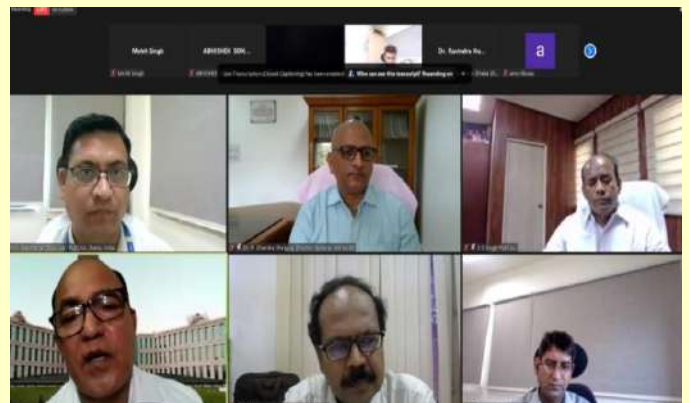


Fig. 10: Experts shairing experiences on Zoom meeting

Training on Honey Bee Keeping

This training along with World Bee Day was celebrated on 20th May, 2022 at the campus where more than 40 farmers and honey bee growers from different villages i.e. PaliPahadi, Chirgaon, Pal Colony of the Jhansi district attended the programme (Fig. 11). It was aimed at creating awareness about the importance of honey bees and their role in agriculture. Farm literature including folders and informations about honey bee production, management etc. were shared with the participants (Usha, Sonia Maimom, Sunder Pal, VK Mishra, Yogendra Mishra, Sanjeev and Tanuj Mishra)



Fig. 11: Incampus Training of Honeybee growers and farmers

Online Training on Extension Strategies for promotion of Climate Resilient Agriculture:

This online training was organized in collaboration with MANAGE, Hyderabad by virtual mode for agriprofessionals, extension functionaries, students and field level extension workers during 25-28th May, 2022 (Fig. 12). More than 110 trainees from different states registered and e-certificate were sent (Ashutosh Sharma, Sanjeev Kumar, Bharat Lal, Tanuj and Shailendra Kumar).



Fig. 12: Media Coverage by local News Paper

Six-Day farmer training program on Advances in Production Technology of Cucurbitaceous Vegetables:

This training was organized by the Department of Vegetable Science from 23rd to 28th May 2022, under the RKVY project “Hi- Tech Nursery for quality transplants production of vegetables, Flowers and MAPs in Bundelkhd region”. Fifty farmers from different villages participated. Twenty

seven lectures were delivered emphasizing over cultivation of vegetables, seed production, packaging, marketing, processing, IPM , irrigation management, pollination, role of mulch in cucurbitaceous vegetable production, etc (Fig. 13). Certificates and bags were also provided to farmers. (Arjun Lal Ola, SS Singh, A.K. Pandey, M.M. Dobriyal)



Fig. 13: Distribution of Certificate among participants

Training Program on “Sustainable Agroforestry for Rural Livelihood” :

The Training was conducted during 15-20th June, 2022 for the farmers in the campus under RKVY through the project Establishment of Hi-tech Nursery for Quality Planting Material of Agroforestry and Plantation Trees in Bundelkhand Region of U. P. Skilled information on forest trees for agroforestry, nursery raising & plantation methods about the various multipurpose tree species like neem (*Azadirachta indica*), teak (*Tectonagrandis*), Gmelina (*Gmelinaar borea*), kadam (*Neolamarckia cadamba*), etc. including bamboo species available in the region. (Drs. Prabhat Tiwari, Manmohan Dobriyal, Ram Prakash Yadav, Priyanka Sharma, & Garima Gupta).



Fig. 14: Distribution of Certificate

Workshop on on Eco-Friendly Management of Natural Resources using Geospatial Technology workshop

The workshop was organised on 18th June, 2022 where 25 candidates actively participated. The entire event focused on remote sensing and digital image processing of satellite data including application part of forestry, soil, agriculture, climate change along with data collection, analysis and image processing software (Fig. 14). (Pavan Kumar, Manmohan Dobriyal).



Fig. 15: Inaugural session of workshop

Exhibition

Kharif Productivity Ghosthi, 26th June, 2022 at Pd. Deen Dayal Sabhagar, Jhansi

Joint Divisional *Kharif* Productivity Ghosthi (Kanpur, Jhansi, and Chitrakut Dham) organized the *Kharif* Ghosthi. Disease management of crops, fruits etc (Fig. 15). along with the achievement of university in terms of education, research and extension, different improved package of practices and modern techniques were showcased during the exhibition. (Yogeshwar Singh, P.P. Jhambhulkar, Ashutosh Sharma, Nishant Bhanu, Anil Rai, Sanjeev Kumar and Govind Vishwakarma) .



Fig. 16: University participation in the exhibition, Jhansi

Extension Project Inauguration: NABARD funded project entitled “Integrated Platform for Agri-preneur A Force multiplier forum of Farmers-Consumers-Entrepreneur” was inauguration of by G.R. Chintala (Chairman, NABARD) on 27th March 2022 (Fig. 16). This project aims at providing visibility to the products of SHGs, FPOs and agripreneurs with the technical backup of ICT enabled platform i.e. Android app where each stakeholders can showcase their products and other details. The period of the project is two years and will be operative in three districts of Bundelkhand. (Tanuj Mishra, Sanjeev Kumar, Shailendra Kumar & Arpit Suryawanshi).



Fig. 17: Innauguration of the Project

Second Extension Education Council Meet, 26th March 2022

Second meeting was convened under the chairmanship of Prof. Arvind Kumar, Hon’ble Vice-Chancellor, attended by S.R.K. Singh, Director, ICAR-ATARI, Jabalpur; S.S. Chauhan, JDA, Jhansi ; Suman Kumar Das, Chhatarpur; Sri. Kunj Bihari Sharma, Jhansi; Smt. Sunita Pujari, Datia; Anil Kumar, Director Education; A.R Sharma, Director Research; S.K. Chaturvedi, Dean, CoA; A.K. Pandey, Dean, CoH& F; S.S. Singh, DEE & Member Secretary. Action Taken Report and the proceeding of First EEC meeting was presented along with detail of various extension activities carried out by the University during last year over which council expressed satisfaction. Around 720 FLDs on Wheat, *Kharif*-Maize, Chickpea, Pea, Lentil, Sesame, Groundnut, Mung, Arhar, Mustard, Aerobic Rice, Quality Rice, Millets and Marigold have been conducted in different districts of Bundelkhand Region. The adoption of ICT, GPS, AI in the applied field of extension for the benefits of farmers along with extension strategies to be developed with the International Collaboration were emphasized (Fig. 17).



Fig. 18: Second Extension Education Council Meeting

Radio Talk

Name	Topic	Centre
Prabhat Tiwari	Gramin Ajivika Hetu Krishivaniki	Akashwani, Jhansi)

Farm Advisories published in Newspaper

Name/Title of Advisory	Author Name
किसान अमरूद लगाकर करें कमाई	गोविंद विश्वकर्मा, रंजीत पाल
खेतों में न जलाएं गेहूं की पराली	संजीव कुमार, आशुतोष शर्मा
एक टन पराली जलाने से जलते 31 कि.ग्रा. पोषक तत्व	निशांत भानु, संजीव कुमार
बुंदेलखण्ड के किसान एरोबिक विधि से करें खेती	गुंजन गुलेरिया, योगेश्वर सिंह
भीषण गर्मी में पशुओं पर खतरा	संजीव कुमार, आशुतोष शर्मा
अच्छी पैदावार के लिये तीन साल में कराये मिट्टी की जांच	संदीप उपाध्याय, अर्पित सूर्यवंशी
अनाजों का वैज्ञानिक तरीके से करें भण्डारण	मनोज कुमार, अंशुमान सिंह
गर्मी के मौसम में मधुमक्खियों की सुरक्षा के करें उपाय	सुंदर पाल, योगेन्द्र मिश्रा
खुरपका-मुंहपका रोग को बचाएं जानवरों को	संजीव कुमार , आशुतोष शर्मा
गहरी जुताई से हानिकारक कीट खेत में ही मर जाएंगे	वैभव सिंह, पी.पी. जाम्भुलकर
बुंदेलखण्ड में फसलों के लिये बड़े खतरा बने 12 कीट	ऊषा मौर्या
नवजात पौधों को अधिक तापमान से बचाना जरूरी	पंकज लवानिया, पी.पी. जाम्भुलकर
परम्परागत तरीकों से करें अनाज भण्डारण	विजय मिश्रा , सोनिया देवी
मिट्टी में नमी को करें गहरी जुताई	योगेश्वर सिंह , सुशील सिंह
भेड़ का दूध कई गंभीर बीमारियों में लाभदायक	प्रमोद सोनी
दुधारू पशुओं का रखें ध्यान	प्रमोद सोनी , संजीव कुमार
बुंदेलखण्ड में एरोबिक धान की खेती	गुंजन गुलेरिया , योगेश्वर सिंह
बुंदेलखण्ड के सीमित सिंचाई जल क्षेत्रों में एरोबिक धान की खेती की जरूरत	मनोज कुमार
किसान मूंगफली खेती की तैयारी करें	राकेश चौधरी , अंशुमान सिंह
जिप्सम से ऊसर जमीन को बनाएं उपजाऊ	संदीप उपाध्याय , अर्पित सूर्यवंशी
बुंदेलखण्ड मुफीद है कोदो सांवां जैसे	रूमाना खान

अनाजों के लिये	
बुंदेलखण्ड में जहां पानी कम वहां तिल की करें बुवाई	राकेश चौधरी
ट्राइकोडर्मा बीज शोधन कर के ही फसलों की बुआई करे	शुभा त्रिवेदी , पी.पी. जाम्भुलकर
फलदार पौधों के लिये अनुकूल है जून-जुलाई	गोविंद विश्वकर्मा , गौरव शर्मा
बंजर भूमि पर नीबू घास लगा	उमेश पंकज , विनोद कुमार
एरोबिक धान के साथ ढैंचा की बुआई है फायदेमंद	योगेश्वर सिंह , गुंजन गुलेरिया

Publications

Book

- ❖ Kumar, A., Kumar, P., Singh, S. S., Trisasongko, B. H., & Rani, M. (2022). Agriculture, Livestock Production and Aquaculture Advances for Smallholder Farming Systems. Volume 1, Springer Publication.
- ❖ Kumar, A., Kumar, P., Singh, S. S., Trisasongko, B. H., & Rani, M. (2022). Agriculture, Livestock Production and Aquaculture Advances for Smallholder Farming Systems Volume 2, Springer Publication.

Research Articles

- ❖ Kumar, P., Dobriyal, M., Kale, A., Pandey, A. K., Tomar, R. S., & Thounaojam, E. (2022). Calculating forest species diversity with information-theory based indices using sentinel-2A sensor's of Mahavir Swami Wildlife Sanctuary. Plos one, 17(5), e0268018.
- ❖ Srivastava, A. , Shukla, S. K. & Singh, Ashutosh (2022). Crop Ideotype: A science driven approach to develop model plant. *Rashtriya Krishi*, 17(1), 1-3.
- ❖ Singh, A., Kumar, A., Singh, A., Tiwari, P., Kale, A. S., Shedage, S. and Ayate D. (2022). Molecular Marker Systems and Transgenic Approaches for forest Trees Improvement: Needful Strategies and Potential Applications. *Biomolecule Reports* (an international e-newsletter); 3(22-3), 1.
- ❖ Sharma, G., Sharma, P. & Pandey, A.K. (2022). Floriculture for increasing Indian farmers income: Fitting in the present cropping system. *International Journal of Global Science and Research*, 9(1): 1746-1754.
- ❖ Sharma, G. and Sharma, P. (2022). Protected cultivation of liliun cut flowers in the non-traditional regions. *Acta Scientific Agriculture*, 6 (6): 6-12.
- ❖ Kumar, A., Komal, Kumar, R., Abrol, G., Kumari, P., and P. Nirmal. (2022). A review on the nutritional composition, phytochemicals, and health benefits of

barberry: An insight into culinary applications and future prospects. *Journal of Food Processing and Preservation*: e16906.

Book Chapter

- ❖ Kumar, A., Rani, M., & Kumar, P. (2022). Drone Technology in Sustainable Agriculture: The Future of Farming Is Precision Agriculture and Mapping. In *Agriculture, Livestock Production and Aquaculture* (pp. 3-12). Springer, Cham.
- ❖ Kumar, A., & Kumar, P. (2022). Impact of Future Climate Change on Agriculture, Livestock Production and Aquaculture: Challenges and Policy. In *Agriculture, Livestock Production and Aquaculture* (pp. 3-17). Springer, Cham.
- ❖ Mandal, V. P., & Kumar, P. (2022). Characterization and Appraisal of Crop-Based Farming System for Sustainable Development of Agriculture. In *Agriculture, Livestock Production and Aquaculture* (pp. 99-112). Springer, Cham.
- ❖ Lal, B., Nayak, V., Kumar, A., & Kumar, P. (2022). A Perspective View of Nitrogen: Soil, Plants and Water. In *Agriculture, Livestock Production and Aquaculture* (pp. 113-135). Springer, Cham.
- ❖ Singh, A., Singh, A.K. (2022). Resilience Against Salt Tolerance in Rice Cultivars, Using Various Strategies of Conventional Breeding, Molecular Breeding and Transgenic Approaches. In: Kumar, A., Kumar, P., Singh, S.S., Trisasongko, B.H., Rani, M. (eds) *Agriculture, Livestock Production and Aquaculture*. Springer, Cham. Pp- 139-153.
- ❖ Kumar, A., Singh, A., Singh, A. (2022). Plant Molecular Farming: A Marvelous Biotechnological Approach in Agricultural Production. In: Kumar, A., Kumar, P., Singh, S.S., Trisasongko, B.H., Rani, M. (eds) *Agriculture, Livestock Production and Aquaculture*. Springer, Cham. Pp-91-111.
- ❖ Singh, A. K., Pandey, A., Kumar, D., Chaudhary, R., Sengar, R. S., Singh, A., Malik, N., Singh, N., Chatterjee, A., & Dwivedi, D. K. (2022). Green Biotechnology: Potential and Prospects to Tackle Future Challenges. In: *Handbook of Research on Green Technologies for Sustainable Management of Agricultural Resources*. Pp.215-226. IGI Global Publisher.
- ❖ Ashutosh Singh, Sharwan Kumar Shukla, Abhishek Kumar, Susheel Kumar Singh, Anshuman Singh, Ramsewak Tomar, Gaurav Sharma, Yogeshwar Singh (2022). Inter-Connectivity Between Climate Resilience, Climate Change, and Adaptability. IN: *Agro-*

biodiversity and Agri-ecosystem Management. ISBN:978-981-19-0927-6, Chapter No-7. Pages-13.

Popular Articles

- ❖ Sharma, P. (2022). Sajavati evam gamliya paudhon ka pravardhanavam nursery uttpadan. *Krishak Vandana*. March: 15-16.
- ❖ Sharma, P., Gaurav, S. & Kholia, A. (2022). Guldaudi ki vyavsayik kheti. *Phal Phool*. May-June, 2022: 46-47.
- ❖ Kumar, R., Singh, A. K. and Sharma, P.. (2022). Efficacy of landscape plants in indoor air pollution abatement. *Indian Farmers' Digest*, 22 (01): 34-37.
- ❖ Sharma, P., Dhiman, S.R., Sharma, P. & Sanghmesh, P.. (2021). Post-harvest handling of flowers. In: Yadav PK and Singh RP (eds.) *Flower production and gardening*. New India Publishing Agency, New Delhi. pp. 427-440.
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- ❖ *Agricultural Marketing in India-Reforms for a Liberal and Competitive System*: V. David Chella Baskar and Shalendra.

Compendium

- ❖ Technical Bulletin on “Advances in production technology of Cucurbitaceous vegetables” by Pandey, A.K., Ola, A. L., Tiwari, D., Singh, S., and Sharma, G.

Awards

- ❖ Ghan Shyam Abrol got Young Achiever Award-2021 by Agricultural Technology Development Society (ATDS), Ghaziabad, UP on the occasion of 5th International Conference “Advances in Smart Agriculture and Biodiversity Conservation for Sustainable Development (SABCD-2022)” during 4 to 6 March 2022 at Conference Hall, Jaipur National University, Jaipur Rajasthan, India.’
- ❖ Priyanka Sharma received “Best Scientist Award in International Conference on “Agricultural Development: Its Challenges and Future Needs” held from 9-11th April, 2022 at KVK, Madhubani, Bihar.