

# “Rishi Parashara Scientific Study Circle”- An open platform for sharing in-house knowledge

The study circle in the name of one of the great ancient agriculturist Rishi Parashara (500-1000 AD) who documented the agricultural practices in the form of Krishi Sangraha named as Parashar Samhita explaining about ancient Indian agricultural practices. The circle provides an open discussion forum to all our stakeholders including students, scientists, teachers and university officials to discuss and share their novel thoughts, naïve ideas and innovations, fruitful, timely and thought provoking discussion on recent topics as well as provides opportunities to develop general awareness amongst all stakeholders including farmers and consumers. Every week, students are discussing, putting the thoughts of the day, Today’s word in Hindi and English every day on display board to understand the values of such activities for quality of life through development of positive thoughts and high morals.

## My Social Responsibility (MSR):

The university recognizes its social and national responsibilities by including in the ventures of all stakeholders of the community. Just like the CORPORATE SOCIAL RESPONSIBILITY (CSR), MY SOCIAL RESPONSIBILITY (MSR) is a mission with a motto of ‘Self building led to Nation’s building’ has been initiated to develop sense of sensitivity and responsibility.





### **Invitation to grace the various functions at Jhansi**

- Special Guest during Annual Function of Bundelkhand Seva Mandal (VSM) held at Laxmi Vyamshala, Jhansi on Sept, 2018
- Chief Guest during Foundation, Oath ceremony and Award function of Bharat Vikas Parishad, Main Bransh Jhansi held at Hotel Bundelkhand Pride on May 4, 2019

### **New proposals for research and development of the university**

For the sustainable growth and development of university necessitates the creation of world class infrastructure for pro-active research and commercialization of leads obtained in to valuable products and technologies through translational mode. Keeping in view, university is aspiring to develop and to fetch the financial assistance through submission of following proposals:

1. “Haldigram”: Turmeric based rural development of Bundelkhand through convergence of traditional wisdom with science and technology (Concept proposal submitted to Dept. of Biotechnology, New Delhi)
2. Establishment of Bioinformatics & Computational Biology Centre as Bundelkhand Agri-Bioinformatics Grid (B BiG) on “OMICS approaches for searching and creating values in potential bioresources of Bundelkhand (Pre-proposal submitted Dept. of Biotechnology, New Delhi)
3. Establishment of Nutri-Innovation & Agri–Technology Incubation Center for promotion of Agri-Start Ups in Bundelkhand (Submitted application for New Agribusiness Incubator under RKVY-RAFTAAR Scheme, DARE, New Delhi)
4. Creation a Center for Nutri – Innovation” (Proposal submitted under innovation grant of NAHEP, Education division, ICAR, New Delhi)
5. Experiential learning on Agri-processing and value addition of crops grown in Bundelkhand Region: a venture to develop entrepreneurship among the students and generate novel innovative products to the food industry (submitted experiential module for Agri-processing & Value addition to Education division, ICAR, New Delhi)

6. Experiential learning on mushroom cultivation, spawn production and value addition (submitted experiential module for Agri-processing & Value addition to Education division, ICAR, New Delhi)

#### **As Programme Coordinator (On-going)**

- North-Western Himalayan Bioinformatics Grid Rs 99.98 lakhs

#### **As Principal Investigator**

- *De novo* genome sequencing of Karnal bunt (*Tilletia indica*) pathogen of Wheat: Characterization of pathogenicity genes/proteins for development of diagnostics, DBT project Rs. 64.0 lacs, Department of Biotechnology (Government of India), New Delhi (Ongoing).
- Modulation of the root architecture for making the climate resilient and biofortified rice through different modes of the application of nano zinc particles. IRRI-STRASA project Rs. 6 lakhs (Ongoing).
- Sequencing and re-sequencing of adapted Amaranth genotypes for identification of hidden superiority and values in the important genomic resources of Himalayan region DBT project Rs 33.0 lacs, Department of Biotechnology (Government of India), New Delhi (Ongoing).

### **Memorandum of Understanding with neighboring institutions for quality education**

The memorandum of understanding with our neighboring sister organizations of Indian Council of Agricultural Research, New Delhi viz. ICAR-IGFRI and ICAR-CAFRI has been signed for bilateral, fruitful and productive collaboration in teaching, research and extension activities.

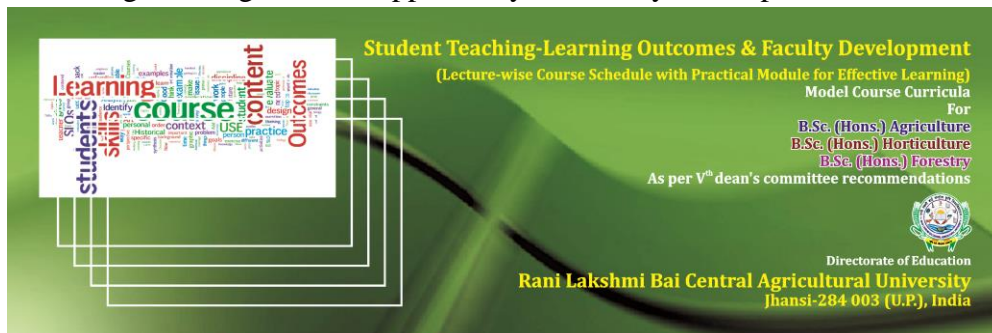
### **Constitution of Board of Studies in Agriculture, Horticulture & Forestry**

Board of Studies for the College of Agriculture and College of Horticulture & Forestry are now in place and renowned scientists like Dr. A. K. Singh & Dr Rashmi Agarwal from IARI, New Delhi and Dr Rajan Bawa from Solan and Dr Ranjan Srivastava from Pantnagar having wide experiences in teaching, research and extension have been included in BOS (Agriculture) and BOS (Horticulture & Forestry) for a period of two years.

### **Preparation of course outlines for effective student-teaching learning**

The course outline indicating the relevance and scope of the course with sequential flow of knowledge is the base of imparting quality education. Accordingly, the emphasis was given to

develop the elaborated course outlines of all 225 courses proposed as per Vth Dean's Committee recommendations for undergraduate programmes of Agriculture, Horticulture and Forestry. It include objectives, overview, scope & prospects, student-teaching learning outcomes, break-up of lecture wise schedule & practical modules, suggested readings and diagrammatic representation of course with punch line for better appreciation by the students, promoting effective teaching-learning and also opportunity for faculty development.



### **Academic Achievements:**

- First batch of B.Sc. (Hon) Agriculture students admitted during academic session 2014-15 successfully completed their degree course in 2018
- First batch of the students (60%) selected for Junior Research Fellow of ICAR and remaining students strived for job in public funded institutions reflecting the quality of education being ensured by the University since inception
- University started post graduate programmes in gradual manner and to begin with Genetics and Plant Breeding, Plant Pathology and Agronomy;
- Initiation of transparent recruitment process for teaching/non-teaching staff through open competition

### **Participation in Seminar/ Conference/ Workshop etc.**

1. "Integrated approaches of nano-bio-information technology and Agri-processing for scientific rationalization of values and development of value added products" during CAFT training on Synergistic approaches for bio processing of foods and by-products for nutritional and Industrial use held on Aug 31 to September 20, 2018 at CIAE, Bhopal

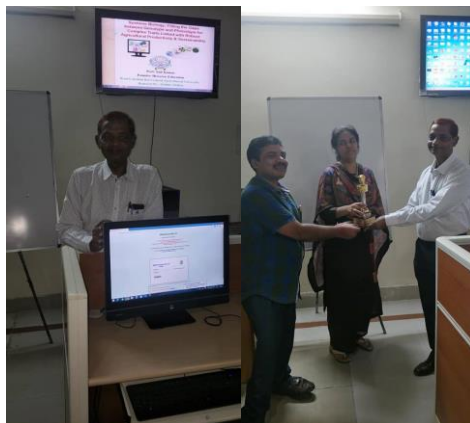


2. “Deriving innovations and values from potential bio-resources of Bundelkhand for agri-food-nutrition and health: integration of nano-biotechnology and agri-processing technologies” during one day Seminar on DNA Technology & Nanotechnology: Will it change the medical science in future held on Oct. 1, 2018 at Bundelkhand University, Jhansi



3. “Scientific rationalization of values hidden in nutri-cereals: From nutri-genomics to nutraceuticals development” during ICAR Winter School Training on “Maintenance breeding and assured seed quality production in dual purpose crops and grasses held on Sept 11- Oct 1, 2018 at IGFRI, Jhansi

4. Systems Biology: Filling the Gaps between Genotype and Phenotype for Complex Traits Linked with Robust Agricultural Productivity & Sustainability during Bioinformatics Training held on Oct 21, 2018 at IGFRI, Jhansi



5. OMICS approaches for searching and creating values in potential bioresources and their application in Agri-Food-Nutrition and health sectors. Lecture delivered on April 19, 2019 at Jaypee University of Information Technology, Noida



6. Searching and creating values in Bundelkhand's specific bioresources through Nano-Bio-Information technology and its application in Agri-Food-Nutrition and health sectors. Lecture delivered on May 11, 2019 at Rani Lakshmi Bai Central Agricultural University, Jhansi under Rishi Parashar Scientific Study Circle
7. Nutri-Innovations through Nutri-genomics to Nutraceuticals development using Nutri-dense crops for nutritional security. Keynote Lecture delivered on May 29, 2019 during International Conference on Innovative Horticulture and Value Chain Management-Shaping Future Horticulture held on 28-31 May 2019 at GB Pant University of Agriculture & Technology, Pantnagar, Uttarakhand



## Recognition & Honors

1. Core Committee Member of BSMA on Biotechnology and Bioinformatics for up-gradation and modification of syllabi for Master's and PhD course curricula
2. Expert Member for promotion of Assoc. Professors and Professors at N D University of Agriculture & Technology, Faizabad-UP
3. Expert Member as Governor's nominee in the selection committee of Faculty members in Biochemistry at Narendra Deo University of Agriculture & Technology, Faizabad (UP)
4. Expert member in the screening committee of Assistant Professors in Agricultural Biotechnology at Rajendra Prasad Central Agricultural University, Samastipur (Bihar)
5. Attended a meeting on E-RAFTAAR organized by DAC&FW on 22<sup>nd</sup> Nov.2018 held at Krishi Bhawan, New Delhi.

## Publications

- **Research Papers**

1. Gupta S, Pathak RK, Gupta SM, Gaur VS, Singh NK, Kumar A. (2018) Identification and molecular characterization of Dof transcription factor gene family preferentially expressed in developing spikes of *Eleusine coracana* L. 3 Biotech.; 8(2):82.
2. Kumar A, Jaiswal JP, Sharma N, Gupta S, Kumar A. (2018) Understanding the molecular basis of differential grain protein accumulation in wheat (*Triticum aestivum* L.) through expression profiling of transcription factors related to seed nutrients storage. 3 Biotech. 2018; 8(2):112.
3. Akbar N, Gupta S, Tiwari A, Singh K.P, Kumar A. (2018) Characterization of metabolic network of oxalic acid biosynthesis through RNA seq data analysis of developing spikes of finger millet (*Eleusine coracana*): Deciphering the role of key genes involved in oxalate formation in relation to grain calcium accumulation. Gene; 649, 40-49.
4. Vikram S. Gaur, Lalan Kumar, Supriya Gupta, J. P. Jaiswal, Dinesh Pandey Anil Kumar (2018). Identification and characterization of finger millet OPAQUE2 transcription factor gene under different nitrogen inputs for understanding their role during accumulation of prolamin seed storage protein. 3 Biotech; DOI: 10.1007/s13205-018-1150-1 ID 8001024208.
5. Vishakha Pandey, Manoj Singh, Dinesh Pandey, Soma S. Marla and Anil Kumar (2018). Secretome analysis identifies potential pathogenicity/virulence factors of *Tilletia indica*, a quarantined fungal pathogen inciting Karnal bunt disease in wheat. Proteomics. 10.1002/pmic.201700473.
6. S.B. Kokane, Rajesh Kumar Pathak, Manoj Singh, and Anil Kumar (2018). The role of tripartite interaction of calcium sensors and transporters in the accumulation of calcium in finger millet grain. Biologia Plantarum. DOI10.1007/s10535-018-0776-5.
7. Vineeta Singh, S. P. Singh, Manoj Singh and Anil Kumar (2018). Evaluation of Antioxidant, Hypoglycemic and Hypolipidemic Effects of the Phytoconstituents of *Cinnamomum tamala* in Rats. Indian J Pharm Sci 80(1):161-172.
8. Lalan Kumar, Dinesh Pandey and Anil Kumar (2018). Isolation, characterization and expression analysis of a nutritionally enhanced  $\alpha$ -prolamin gene and protein during developing spikes of finger millet (*Eleusine coracana*). Seed Science Research. 27(4), 262-272.
9. Vishakha Pandey, Manoj Singh, Dinesh Pandey, Anil Kumar (2018). Integrated proteomics, genomics, metabolomics approaches reveal oxalic acid as pathogenicity factor in *Tilletia indica* inciting Karnal bunt disease of wheat. Scientific Reports. DOI: 10.1038/s41598-018-26257-z.
10. Gaur M, Tiwari A, Chauhan R P, Pandey D, Kumar A (2018) Molecular modeling, docking and protein-protein interaction analysis of MAPK signalling cascade involved in Camalexin biosynthesis in Brassica rapa - Bioinformation, 14 (4)-145-150.
11. Sharma, D., Tiwari, A., Sood, S., Jamra, G., Singh, N. K., Meher, P. K., & Kumar, A. (2018). Genome wide association mapping of agro-morphological traits among a diverse collection of finger millet (*Eleusine coracana* L.) genotypes using SNP markers. PloS one, 13(8), e0199444. doi:10.1371/journal.pone.0199444.
12. Shah, P., Singh, S.P., Gupta, A.K. et al. (2018). Combined Hepatoprotective Activity of *Murraya koenigii* and *Phyllanthus niruri* Extracts against Paracetamol Induced

- Hepatotoxicity in Alcoholic Rats. Proc. Natl. Acad. Sci., India, Sect. B Biol. Sci. 88: 655.
13. D.C . Joshi, S. Sood, R. Hosahati, L. Kant, A. Kumar, Yadav, D. And M.G. Stetter (2018) From zero to hero: the past, present and future of grain amaranth breeding. Theoretical and Applied Genetics Volume 131 (9), 1807–1823| DOI: [10.1007/s00122-018-3138-y](https://doi.org/10.1007/s00122-018-3138-y)
  14. Rajeev Kumar, S. P. Singh, Mahesh Kumar and Anil Kumar (2019) Determination of Low Molecular weight Immunogenic Omp28 Protein and Gene of Salmonella typhimurium. South Asian J Exp Biol; 8 (5): 172-177; 2018.

### **Patents filed**

1. A new process of iron biofortification in wheat through priming of seeds with iron oxide nanoparticles (2018) Naveen Sundaria, Manoj Singh, Prateek Upreti, Ravendra P. Chauhan, J. P. Jaiswal and Anil Kumar, Application no.-201711027240
2. Seed storage prolamin gene (fimP2) of Finger millet (Eleusine coracana) encoding a protein enriched with methionine-an essential amino acid (2018) Jadhav Roshankumar Namdeo, Aparna Agrawal, Supriya Gupta, Dinesh Pandey and Anil Kumar Application no.-201811033469
3. Use of Iron oxide nanoparticles synthesis by green technology for biofortification of wheat grains and wheat seedling used for making wheat powder (2019) Anil Kumar, Ruchika Chauhan, Himani Bisht, Divya Sharma and Supriya Gupta (Application under process)
4. Promoter of alpha prolamin gene from Finger millet for regulation of seed storage protein gene(s) (2019) Dinesh Pandey, Lalan Kumar, Vikram Singh Gaur, Sanjay Mohan Gupta, Supriya Gupta and Anil Kumar
5. Anil Kumar, Waseem. R.,Manoj Singh, Pallavi Shah and S. P Singh A processed turmeric powder with enhanced recovery of nano-curcumin inducing mesenchymal stem cells derived osteoblast differentiation and mineralization (Application under process)
6. Anil Kumar, Pallavi Shah and Manoj Singh (2019)Green synthesis of iron rich nanoformulation derived from agriproduces as nutraceutical remedy for iron homeostasis disorders (Application under process)
- 7.

- **Manuals**

Techniques in Immunology & Serology (Ed. Anil Kumar and Dinesh Pandey) Panima Publishing Corporation, New Delhi, 2019

Techniques in Animal Cell Culture (Ed. Anil Kumar, Sonu Ambwani, Partha Roy & Sameer Srivastava) Panima Publishing Corporation, New Delhi, 2019

- **Gen Bank Submission** Genbank accessions numbers 70
- **Popular articles** : 02
- **Book Chapters**: 02
- **Submission of Master's & PhD theses**



- Proteomics approaches for assessing functionality of seed proteins of Horse gram (*Macrotyloma uniflorum*) for their anti-microbial, anti-oxidant and anti-lithiasis potential, Shradha (2018)
- Functional validation of the potential EcCAM, EcCAX1 and EcCAX3 genes in grain calcium accumulation through over-expression studies in *Arabidopsis thaliana*: Development of an efficient plant regeneration protocol towards calcium biofortification in finger millet Gautam Jamra (2019)

## Awards/Honors

1. Received “Krishi Shiksha Samman” for best technology award on ‘Development of technology of Nano-iron Pro-booster technology for iron bio-fortification in wheat for curtailing iron deficiency anemia received from Hon’ble Union Agriculture Minister Sri Radh Mohan Singh ji by Mahindra & Mahindra on March 6, 2018 at Ashok Hotel, New Delhi.

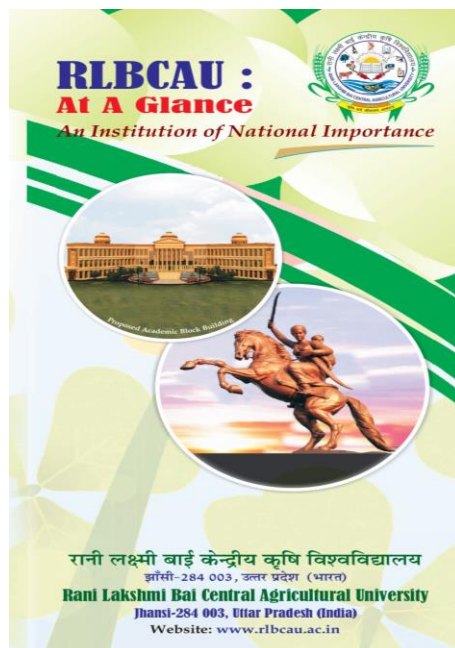


2. Received third time “Governor’s Award-2018 for best research in the year 2018 from Hon’ble Governor of Uttarakhand Smt. Baby Rani Maurya at Governor’s House, Dehradun on April 25, 2019



## **Publication of brochure having first-hand information about the university**

In order to provide first-hand information about the university, a brochure in the name of “RLBCAU-An Institution of National Importance: At A Glance has been published covering the salient features, vision, goals, mission, mandate and all the activities of teaching, research and extension, University Mission Mode programmes, new initiatives and future prospects in a very crisp and depictive form.



**Launching of University’s popular magazines in Hindi & English for dissemination of newer knowledge to farmers, consumers and processors**

The university has successfully launched biannually popular magazines in Hindi & English in the name of 'Krishi Jeevan' and 'Agri-Life' considering the development of agriculture and its intimate relationship with life. Since Agri-Life has profound impact on national growth and human survival, thus understanding of such intricacy of agriculture and life requires quick dissemination of newer knowledge, newer technologies, newer processes and newer products to all the stakeholders. Institution of National Importance in this direction imparts its role in bringing relevant publications in various forms including the university magazines as regular features.

