



- Research Achievements
- Papers presented/Lectures Delivered
- Consultancy/Advisory Services
- Copyrights/MOUs
- Panorama of Activities
- Participation in Conferences
- Awards and Recognitions
- Personnel
- Publications
- Human Resource Development
- Projects Initiated/Completed

From the Director's desk ...

This Newsletter brings to you the key research achievements, awards and recognitions received, training programmes conducted, workshops and conferences organized/ attended, advisory services provided and significant publications of ICAR-IASRI during the period under report.



The Institute has developed (i) Efficient asymmetric response surface designs for mixed quantitative and qualitative factors; (ii) An in-silico approach for identification of natural compounds as inhibitors of clumping factor *a* in *staphylococcus aureus* to combat bovine mastitis and (iii) Naturepred: a tool for revolutionizing natural product classification with artificial intelligence. The Virtual Center for Excellence in Artificial Intelligence in Agriculture marking a major milestone in advancing AI-driven research and innovation in agriculture. The Institute has also made a modest beginning towards establishment of IoT and sensor Lab.

A total of 47 Research Papers; 07 Book Chapters; 03 Popular Articles; 01 Policy Paper, 02 R Packages and 02 Web Resources were published. Initiated 03 new research projects and 05 research projects completed. The Institute received 03 copyrights and signed an MoU (Memorandum of Understanding) and Work Plan with Dr Rajendra Prasad Central Agricultural University, Pusa (RPCAU) Samastipur to promote teaching, research, training and exchange of information and technology in related to agriculture, statistics and bioinformatics. Through four training programmes, 118 personnel were trained, and 19 participated in Hindi Workshop.

The Institute also celebrated Republic Day; National Science Day; International Women Day; exposure and awareness campaigns under Schedule Caste Sub-Plan. The products/technologies/methodologies developed by the Institute were displayed during Pusa Krishi Mela 2025 and at ICAR-Central Institute of Women in Agriculture, Bhubaneswar. Organized XXVIII Meeting of ICAR Regional Committee–V, first QRT meeting and two technical sessions on the Theme Digital Agriculture during XVII Agricultural Science Congress.

ICAR-IASRI family congratulates its 32 students {11 Ph.D. and 21 M.Sc.) degree recipients during 63rd Convocation of the Graduate School, IARI.

The scientists of the Institute brought recognition by way of serving as Expert Members in various high-level committees, presenting research work in prestigious conferences/workshops.

I earnestly hope that the contents of this Newsletter would be useful and informative to you all. Any constructive comments for better presentation of this newsletter are most welcome.

(Rajender Parsad)

RESEARCH ACHIEVEMENTS

NaturePred: A Tool for Revolutionizing Natural Product Classification with Artificial Intelligence

The identification and classification of natural products are vital in drug discovery and bioactive compound exploration. The Institute developed **NaturePred**, a user-friendly tool designed to predict different class of natural products and calculate eight physicochemical properties of protein sequences. It also addresses reliability in multi-class classification with a 90% confidence score threshold. NaturePred-a tool for revolutionizing natural product classification with Artificial Intelligence integrated features, including versatile input options, accurate predictions, and physicochemical property calculations, make it an indispensable tool in natural product research. By addressing classification challenges, NaturePred facilitates drug discovery and bioactive compound exploration, advancing the field.

Identification of Natural Compounds as Inhibitors of Clumping Factor A in *Staphylococcus Aureus* to Combat Bovine Mastitis: An In-Silico Approach

Bovine mastitis is a significant and economically impactful disease affecting dairy cattle globally, leading to decreased milk production, higher treatment costs, compromised genetic potential, animal mortality, and substantial economic losses. Mastitis is a major bovine disease caused by various organisms, with *Staphylococcus aureus* being one of the most virulent and prevalent pathogens responsible for bovine mastitis. The overuse of antibiotics has led to antimicrobial resistance and potential adverse effects on human health, necessitating the exploration of novel antibacterial therapeutics. Computational methodologies, including structure-based virtual screening, molecular docking, ADMET (Absorption, Distribution, Metabolism, Excretion, and Toxicity) prediction, and molecular dynamics (MD) simulations have been used to identify potential ClfA inhibitors of *Staphylococcus aureus*. A library of fifty-two natural compounds was screened, all exhibiting promising binding affinities (≤ -8.0 kcal/mol). The top ten compounds underwent ADMET predictions, with seven satisfying Lipinski's rule of five and displaying pharmacokinetic properties. Further analysis using MD simulations was conducted on three compounds-Diaporthalasin, Oridonin, and Salvianolic acid A. Notably, Oridonin and Salvianolic acid exhibited strong stability in MD simulations, with RMSD values below 2.5 Å and consistent hydrogen bonding interactions with ClfA. Additionally, binding free energy calculations using MM-PBSA/MM-GBSA confirmed favorable interactions, with Oridonin exhibiting binding free energy of -30.4 kcal/mol and Salvianolic acid A at -28.7 kcal/mol. These findings suggest that Oridonin and Salvianolic Acid A can be considered for preclinical trials as potential candidates for veterinary drugs targeting mastitis caused by *S. aureus*.

Efficient Asymmetric Response Surface Designs for Mixed Quantitative and Qualitative Factors

Response Surface Methodology (RSM) is a powerful tool for analysing how multiple factors affect a product's or process's performance. It's particularly useful in agriculture, where both quantitative factors (like the amount of fertilizer) and qualitative factors (like the application method) influence outcomes such as crop yield. The institute have developed a systematic method to create response surface designs (RSDs) that can handle both symmetric and asymmetric levels of these quantitative factors. Also developed a list of highly efficient designs for 3 to 10 factors, evaluating their effectiveness using G- and D-efficiency. The methodology for constructing a third-order design with v-1 quantitative factors and one qualitative factor is outlined.

R-Packages Developed: 02

1. **TREDesigns:** Ternary Residual Effect Designs. version 1.0.0. Available at <https://CRAN.R-project.org/package=TREDesigns>
2. **MEDesigns:** Mating Environmental Designs. Version 1.0.0. Available at <https://CRAN.R-project.org/package=MEDesigns>

Web Resources/Web Servers/Databases Developed

1. **DOOFA:** Developed a web application named DOOFA for construction of designs for order-of-addition experiments available at <https://drs.icar.gov.in/DooFA/Home.html>.
2. **SLR:** Web application named “Generation of Designs for Semi Latin Rectangles” available at <https://drs.icar.gov.in/SLR/index.html>.

Launch of the Virtual Centre for Excellence in AI

The Virtual Center for Excellence in AI (<https://ai.icar.gov.in>) was launched on February 10, 2025 by Dr. R.C. Agrawal, DDG (Agricultural Education), ICAR in presence of Dr. Rajender Parsad, Director, ICAR-IASRI. This initiative marked a major milestone in advancing AI-driven research and innovation in agriculture.



PANORAMA OF ACTIVITIES

Celebration of Republic Day

The Institute celebrated 76th Republic Day on the theme *Swarnim Bharat-Virasat evam Vikas* with active participation from Staff and students. Dr. Rajender Parsad, Director, ICAR-IASRI, unfurled the national flag and presided over the celebrations. M.Sc. first year students presented a fabulous cultural programme on this occasion. Everyone at the event resolved to take pride in their past achievements and committed to striving for greater progress in the future.



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National Science Day

- Institute celebrated National Science Day on February 28, 2025 on the theme **Empowering Indian youth for Global Leadership in Science and Innovation for Viksit Bharat**. Distinguished Speaker Dr. Ravinder Singh, Associate Professor, Molecular, Cellular and Developmental Biology, University of Colorado delivered a lecture on My Journey on Biological Research. Students made several presentations on the day. The celebrations were presided over by Dr. Rajender Parsad, Director, ICAR-IASRI, New Delhi.



Programmes organized under SCSP Scheme

- Organized 10 days Training programme on Stitching Clothes for the SC beneficiaries January 29 – February 07, 2025. On the 07 February, the valedictory function of the training programme was organized at KVK, Rewari and 25 Stitching Machines have been distributed among the SC beneficiaries. (Coordinators: Sapna Nigam, Madhu and Mukesh Kumar)
- One-day training programme was organized on Management of Rabi Crops at Khatawali Village of Rewari District on February 13, 2025. At this occasion, the flok Jeli were also distributed among the 100 SC beneficiaries.

- iii. Exposure visit of Farmers at Pusa Krishi Vigyan Mela: Institute organized a one-day exposure visit of 110 farmers of scheduled caste category at Pusa Krishi Vigyan Mela on February 24, 2025 under the SCSP scheme. Farmers from i) 4 villages (40 farmers) in Dharuhera Block of Rewari district of Haryana and ii) 2 villages (70 farmers) in Khurja Block of Bulandshahr district of Uttar Pradesh joined in this programme. Farmers were provided kit consisting of seasonal vegetable seeds for kitchen garden, khurpi and spade. The farmers visited the mela and the campus of ICAR-IASRI. At ICAR-IASRI campus, the Director of the institute, Dr. Rajender Parsad, addressed the beneficiaries. He appraised the visitors about the institute and various farmer-centric initiatives viz. Kisan Sarathi, AI-DISC etc. which are presently being running at ICAR-IASRI. (Coordinators: Soumen Pal, Md. Yeasin and Jai Bhagwan)



- iv. Three days training programme was organized on Goat Farming for income enhancement and entrepreneurship of Scheduled Caste beneficiaries in collaboration with ICAR-CIRG, Makhdoom Mathura during March 19-21, 2025.
- v. One-day Awareness Camp on Animal Husbandry: Institute in collaboration with Pashu Vigyan Kendra, Palwal (Haryana) organized one day awareness camp on 'Animal Husbandry' for animal owners (of Scheduled Caste) under SCSP Scheme on March 27, 2025 at Mohna, District Faridabad (Haryana) and distributed Mineral Mixture among the beneficiaries (5kg per beneficiary). A total of around 200 beneficiaries attended the event. Dr. Mukesh Kumar briefed the participants about the programme, SCSP scheme and also highlighted the importance of ICT in agriculture and animal husbandry. Dr. Soumen Pal provided insights about the Dairy-SHRIA and Sheep-Goat SHRIA mobile apps which have been developed by Institute in collaboration with ICAR-IVRI. The beneficiaries were also apprised about various ICT initiatives viz. AI-DISC, KRISHI Portal, Kisan SARATHI etc. Dr. Rekha Dahiya, I/c Pashu Vigyan Kendra, Palwal (under Lala Lajpat Rai University of Veterinary and Animal Sciences, Hisar, Haryana) described elaborately the benefits of the mineral mixture and how to feed it to the animals. He also explained various management practices for common diseases of the animals viz. cow, buffalo, goat, hen etc. (Coordinators: Mukesh Kumar, Soumen Pal and Ritwika Das)



Participation in Pusa Krishi Mela 2025

Institute participated in the Pusa Krishi Mela organized by ICAR-IARI, New Delhi during February 22-24, 2025. Digital initiatives such as KISAN SARATHI, AI-DISC, KRISHI Portal, Virtual Classrooms, KVK Portal, CCE, KCC-CHAKSHU were displayed.



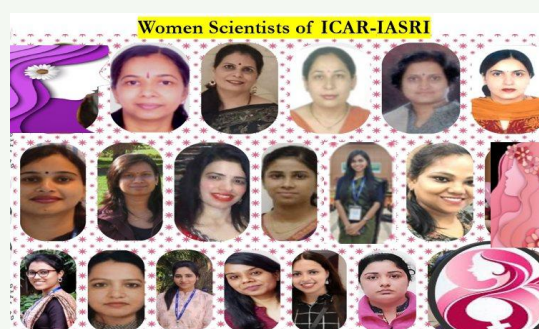
Participation in Exhibition at ICAR-CIWA

The Institute displaying products/methodologies developed in exhibition organized by ICAR-CIWA Bhubaneswar on March 08-09, 2025.



International Women's Day Celebration

The Institute Celebrated International Women's Day on March 11, 2025 by gathering at the Selfie Point to honour and recognize the incredible women in our professional lives. IASRIans actively participated, sharing thoughtful remarks that made the occasion memorable. The message board was adorned with warm tributes to the inspiring women around us. This celebration reinforced the commitment to support and empower women every day, not just today!



CONFERENCES/WORKSHOPS/WEBINARS/MEETINGS ETC. ORGANIZED

Meeting

Steering Committee Meeting of ICAR Research Data Repository for Knowledge Management (KRISHI Portal) was held on January 28, 2025 at ICAR-IASRI, New Delhi under the Chairmanship of Dr. S.K. Chaudhari, DDG (NRM), ICAR. The meeting was Co-chaired by Dr. R.C. Agrawal, DDG (Agricultural Education), ICAR.



XXVIII Meeting of ICAR Regional Committee –V

The XXVIII Meeting of ICAR Regional Committee-V (henceforth referred as RC-V) was organized by Technical Coordination Unit, ICAR and ICAR-Indian Agricultural Statistics Research Institute (ICAR-IASRI), New Delhi at AP Shinde Symposium Hall, National Agricultural Science Complex, New Delhi on February 18, 2025 under the chairmanship of Dr. Himanshu Pathak, Secretary, DARE & Director General (DG), ICAR, New Delhi for discussing the Centre-State relations in the domain of agricultural and allied sciences pertaining to the constituent states viz., Punjab, Haryana and Delhi.

The Meeting started with ICAR song. The light from the lamp is seen as a metaphor for the illumination of the mind and the eradication of ignorance. Dignitaries lit the lamp and this started the formal meeting. Dr. R.C. Agrawal, Deputy Director General (Agricultural Education), ICAR, delivered the welcome

address. Smt. Alka Arora, Additional Secretary & Financial Advisor to ICAR, Director, gave her remarks on the event of ICAR Regional Committee –V meeting and its importance. On the occasion, the Action Taken Report, Agenda Notes and Status Report, which was compiled and published by the organisers, was released by the distinguished dignitaries.

Dr. Himanshu Pathak, Secretary, DARE and Director General, ICAR, New Delhi delivered the introductory remarks. On behalf of the Indian Council of Agricultural Research and also Ministry of Agriculture and Farmers Welfare, he welcomed, all the dignitaries on and off the stage including all Governing Body members of RC-V, Vice Chancellors of State Agricultural/ Veterinary/Horticultural Universities in the region, Agricultural Commissioners, Deputy Director Generals (DDGs) of ICAR; Assistant Director Generals (ADGs) of ICAR, Directors of ICAR institutes, Senior Govt. officials of the states of Punjab, Haryana and Delhi Scientific, Technical, Administrative, Financial and Supporting staff of the ICAR institutes and all those present via online mode (more than 100 delegates were present virtually).

Dr. Pathak emphasized that ICAR continues to work in tandem with the states on the aspects of research, education and extension in agriculture and as agriculture is a state subject, as per Indian constitution, even agricultural higher education and extension also falls under the purview of state. ICAR coordinates with the states in solving the problems that are faced in the field of agriculture via research, extension and education through Regional Committees (RCs) of 8 different zones. This Zone No. V of ICAR consists of the specific states (Punjab, Haryana and Delhi). Every region has its own unique localized situations, climate, environment, water, soil, requirements, aspirations, food habits etc. We all also know that particularly Punjab and Haryana have contributed significantly for Indian agriculture in promoting Green revolution and also in White revolution over the past five six decades and the Delhi state also needs a special mention in terms of its contribution. Today India is self-sufficient in food grains and is ranked number one in milk production, this can be attributed to the immense contributions from these states. The productivity and production of crops, particularly wheat and rice from the two states are on the higher side and for this, Dr. Pathak thanked the officials and also the farmers for achieving this feat and desired that the contributions will continue for the years to come as well. He shared that the soil carbon degradation either have stopped or rate of depletion has decreased. He also expressed his satisfaction that as per various studies conducted the paddy residue burning has reduced in these states. He also emphasized on the need of developing technologies/techniques for growing with less water, less fertilizer and less use of chemicals. He also stressed the need of developing new technologies/varieties with high yield potential. He also emphasized the importance of diversification to livestock and fisheries sector.

Dr. P.S. BIRTHAL, Director, ICAR-NIAP, New Delhi presented a comprehensive and exhaustive overview of Agriculture in Region-V. He included the advantages different states have with respect to the agricultural situation, he also talked about the subsidies and other government beneficial schemes for these states of Punjab, Haryana and Delhi. Dr. BIRTHAL presented a lot of agricultural statistics for these states.

Dr. Rajender Parsad, Director, ICAR-IASRI, New Delhi and Member Secretary, RCV presented the Action Taken Report on the Action points of the last RC-V Meeting (i.e. XXVI Meeting held on December 07, 2020). Secretary, DARE and Director General, ICAR appreciated the way the consolidated presentation has been made. He expressed his satisfaction that, out of the 42 action points, 41 have been completed and ATR has been received and only for one point the ATR received were partially completed.

Some of the most significant achievements from the actionable points of the previous regional committee meeting are delineated as under:

- **ICAR-CIPHET:** Developed On-Farm Cold Room for storage of horticultural crops. ~Used for short term storage of fruits

and vegetables by maintaining moderate low temperature and sufficiently high relative humidity. This cold storage unit uses wetted pad as cooling medium and operates within a 2-10°C temperature range and cost ₹3.5 lakh for 3T and ₹5.0 lakh for 5T capacity, with 50% government subsidy.

- **ICAR-CSSRI:** Prepared a brochure for SSD: Guidelines and Costs of Sub Surface Drainage Technology for Large Scale Reclamation of Waterlogged Saline soils.
- **ICAR-NRCE:** in collaboration with ICAR-IVRI, Izatnagar developed a homologous live-attenuated LSD vaccine, named Lumpi-ProVacInd. Lumpi-ProVacInd is safe in animals and induces LSDV-specific antibody- and cell-mediated immune response, besides providing a complete protection against lethal LSDV challenge. A single dose of the vaccine provides immunity for one year. The vaccine is stored at 4°C. The vaccine must be shipped on ice and must be used within few hours after reconstitution. The vaccine technology has been transferred to four manufacturers; Biovet Private Ltd., Bangalore, Karnataka; Indian Immunologicals Ltd, Hyderabad, Telangana; Institute of Hester Biosciences Limited, Ahmedabad, Gujarat & Institute of Veterinary Biological Products, Pune Maharashtra.
- **ICAR-CPRI:** 22nd meeting of the Central Seed Certification Board (CSCB) approved proposal of Seed Certification Standards for Hi-tech Seed Potatoes on 05.11.2024 under the Chairmanship of Secretary, DoA&FW, Govt. of India. Issue of notification is under process. As per the approval, a total of 5 field multiplications are involved for the production of certified seed potatoes and the number of field exposures under hi-tech system are reduced to five and thus, the seed stocks produced under this system are considered to be healthier over the conventional system.
- **ICAR-CPRI:** Climate resilient and heat stress tolerant varieties of potatoes particularly having High temperature tolerance in terms of tuberization above 200 C. One variety Kufri Surya is already popular since several years amongst the farmers and in recent past, two more varieties viz. Kufri Kiran and Kufri Bhaskar have been released.
- **ICAR-NRC on Pig:** developed PCR based ASF diagnosis kit “Piggyplex (D) ASF, PCV2&PPV”, that can be used for concurrent detection of African Swine Fever (ASF), porcine circovirus type 2 (PCV2), and porcine parvovirus (PPV).
- **ICAR-DOGR:** Pune in collaboration with Kala Biotech Pvt. Ltd., Pune developed controlled onion storage structures for reducing storage losses in onion. This storage structure designed to maintain temperature of 27±2°C and RH of 60-65% with air circulation system that are optimum for storage of onion along with continuous and uniform air circulation system.
- **ICAR-CIAE, Bhopal:** developed machines for inter-culture operations in onion and garlic and are ready for commercialization. Onion weeder is self-propelled, while the garlic weeder is tractor operated. The garlic weeder can be used for carrot as well.
- **ICAR-IARI:** Crop Residue Management: For crop stubble/residue management, ICAR-IARI, New Delhi has developed improved version of the Bio-decomposer that is “Wettable Powder Technology” or Ready to use wettable powder (WP). This powder is completely dissolvable in water and can be used easily with mechanical sprayers. It does not require jaggery and besan for conversion to liquid. It does not require 12 days for upscaling to 10 litres. It is ready to use powder and the user has to mix the powder (750gm in 250-300 litres of water for one acre of paddy field). The Product is toxicologically free and certified from GLP laboratory. It is now a commercial product ~ available to users through ICAR-IARI and few licensee companies

(M/s Agrella Crop Science Pvt. Ltd, Haryana; M/s Ankur Organics Biofertilizer, UP; M/s Vijay Sales Corporation, New Delhi; M/s M. D. Biocoals Pvt. Ltd., Haryana; M/s Parashar Agrotech Bio. Pvt. Ltd., UP; M/s Microplex India, Maharashtra).

- **ICAR-IARI; ICAR-IIPR:** Seven short duration Pigeon pea varieties developed and released for this region viz. Pusa Arhar 16, Pant Arhar 6, IPH 15-3, Pusa Arhar 18-4, IPH 09-5, Pusa Arhar 2017-1, Pusa Arhar 2018-2
- **ICAR-IIMaizeR:** On-station and on-farm, research in Haryana showed that maize-mustard-mungbean and maize-wheat-mungbean system are better alternative to conventional rice-wheat system. Also developed HYVs under drought/less water conditions & released for commercial cultivation in Punjab:
 - **Maize:** KMH-7148 Hybrid, Candy (KSCH-333) Hybrid, GK 3150 Hybrid, DRONA (KMH-2589) Hybrid
 - **Moth bean:** RMO-2251 (MARUDHAR) RMO-225-1-6-3
 - **Fodder:** Forage Pearl Millet: IGPM 5-2
 - **Fodder maize variety:** HQPM 28
- **ICAR-NBAGR:** After registration of these breeds, total indigenous animal breeds were reached to 219 in the country by 2023-24. including 53 for cattle, 20 for buffalo, 39 for goat, 45 for sheep, 8 for horses & ponies, 9 for camel, 14 for pig, 3 for donkey, 3 for dog, 1 for yak, 20 for chicken, 3 for duck, 1 for geese.
- **ICAR-IASRI:** Developed (i) AI DISC: identifies 73 diseases of 23 crops and 39 insects for 8 crops using photograph in natural background; (ii) AI DISA: identifies the Foot and Mouth Disease, Mastitis and Lumpy Skin Disease in Bovines and Canine Distemper, Canine Parvo Virus, Rickets, Mange and Mammary Tumour in Canines using RGB vision and (iii) based on Kisan Call Centre Data developed AgriResponse: Query-Response Generation System; AgriMine: Deep Learning-based query-count forecasting; AgriIntel: Query Hotspot Identification.
- **ICAR-CIRC:** Nagpur developed an AI-based smart pheromone trap to monitor pink bollworms (PBW) in real-time. PBW, which has developed resistance to Bt-cotton, has caused significant yield losses across India's cotton-growing regions.

More than 250 persons participated in-person and online mode in the daylong meeting. The participants besides senior officers from ICAR Headquarters, included Vice Chancellors of the State Agricultural Universities of the region, Directors of ICAR Institutes, Senior Officials (Principal Secretaries/Secretaries/Directors) of the State Departments of Agriculture, Horticulture, Animal Husbandry, Dairy and Fisheries and Members of Governing Body of ICAR participated in the discussions to prepare a roadmap for the development of agriculture including horticulture, animal husbandry, dairy, fisheries, natural resource management and human resource development in the region. Several important issues from member states viz., Punjab, Haryana and Delhi were discussed, and the important actionable points were decided. It was decided that the action points may be periodically reviewed with respect to the status of their implementation and the rigorous follow-up action may be taken by the nodal DDGs. The time frame for targeted completion of all the unresolved issues was also re-emphasized.

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Technical Sessions during XVII Agricultural Science Congress

Organized two technical sessions on the theme **Digital Agriculture** on February 21, 2025 during XVII Agricultural Science Congress held at GBPUAT, Pantnagar. (Convener: Rajender Parsad)



First QRT Meeting

First meeting of QRT was held on February 25, 2025. The meeting was attended by Professor Bimal Roy, Chairman of QRT, and Former Director Indian Statistical Institute and Former Chairman National Statistical Commission and; Members: Dr. PR Mesham, Director General(Data Governance), Ministry of Statistics and Programme Implementation; Dr. Shalabh Srivastava, Professor, IIT Kanpur; Dr. Ashish Das, Professor, IIT, Mumbai; Dr. AK Vashishta, Former Assistant Director General (PIM); Member Secretary: Dr. Cini Varghese. Dr. RC Agrawal, Deputy Director General (Agricultural Education), ICAR and Dr. SK Sharma, Assistant Director General (HRM), ICAR interacted with QRT regarding terms of reference and shared expectations from QRT. Dr. Rajender Parsad, Director, ICAR-IASRI extended a warm welcome to all and presented the achievements of the Institute for the review period and also presented the future directors. The Action Taken Report on the last QRT was also shared with all members.

Welcome New PhD Students!

ICAR-IASRI family warmly welcomed the newly admitted Ph.D. students during the Orientation Program held on February 28, 2025. A total of 17 students embarked on their Ph.D.

journey in the following disciplines at Graduate School, IARI: (i) Agricultural Statistics - 08 students; (ii) Bioinformatics - 06 students and (iii) Computer Applications - 03 students.



Interaction of Students with Visitors

Dr. Dharmendra Saraswat, a distinguished Purdue University Faculty Member and Proud Alumnus of IARI! During his visit, Dr. Saraswat guided students on the SERB Overseas Visiting Doctoral Fellowship and its immense opportunities for budding researchers. Master's and Ph.D. students had the chance to present their research work, and Dr. Saraswat provided valuable inputs to help refine their projects further. His interaction and encouragement enlightened everyone, leaving a lasting impact on the path to academic excellence. (January 13, 2025)

Seminars Delivered

A total of 17 seminars on different areas of Agricultural Statistics, Computer Application and Bioinformatics which include presentations on new project proposals, salient findings of the completed research projects and Training undertaken at International level by the Scientists, Course/ Thesis/ ORW Seminars of students of M.Sc. and Ph.D. disciplines of Agricultural Statistics, Computer Application and Bioinformatics. The category-wise break-up is given below.

Category	Type of Seminar	Number
Scientist	Project Completion	01
	New Project Proposal	02
	Foreign Visit	0
	General	0
Student	Course	11
	ORW	01
	Thesis	02
	Guest Seminar	0
Total		17

63rd Convocation of Graduate School of IARI

The Institute congratulates its degree (M.Sc. and Ph.D.) recipients in 63rd Convocation of the Graduate School IARI on March 22, 2025. The family wish and pray for all success of its brand ambassadors in all their professional endeavors.

A total of 32 students have been awarded degrees in Agricultural Statistics (07 Ph.D., 10 M.Sc.), Computer Applications (01 Ph.D., 06 M.Sc.), and Bioinformatics (03 Ph.D., 05 M.Sc.).



PUBLICATIONS

Research Papers

1. Ahmad SF, Gangwar M, Kumar A, Kumar A, Dige MS, Jha GK, Gaur GK and Dutt T (2025). Dissecting genomes of multiple yak populations: unveiling ancestry and high-altitude adaptation through whole-genome resequencing analysis. *BMC Genomics*, **26**, 214. <https://doi.org/10.1186/s12864-025-11387-2>
2. Bashir L, Budhlakoti N, Pradhan AK, Mehmood A, Haque M, Jacob SR, Bhardwaj R, Gaikwad K, Mishra DC, Kaur S, Bhati PK, Singh GP and Kumar S (2025). Unravelling the genetic basis of heat tolerance and yield in bread wheat: QTN discovery and Its KASP-assisted validation. *BMC Plant Biology*, **25**(1), 1-27.

3. Bashir L, Budhlakoti N, Pradhan AK, Sharma D, Jain A, Rehman SS, Kondal V, Jacob SR, Bhardwaj R, Gaikwad K, Mishra DC, Pandey A, Kaur S, Bhati PK, Singh R, Singh GP and Kumar S (2025). Identification of quantitative trait nucleotides for grain quality in bread wheat under heat stress. *Scientific Reports*, **15**, 6641. <https://doi.org/10.1038/s41598-025-91199-2>
4. Bijarnia A, Tatarwal JP, Yadav RK, Bijrania AL, Singh D and Saini Y (2025). Effect of fertility levels and stress-mitigating chemicals on nutrient content, uptake, intercropping advantage, and competition effect in cowpea-baby corn intercropping. *Heliyon*, **10(19)**, e38194. <https://doi.org/10.1016/j.heliyon.2024.e38194>
5. Chandra T, Dey S, Sunder S, Iquebal MA, Kumar D and Patel VB (2025). Artificial intelligence-assisted technologies in horticultural crop management. *Indian Horticulture*, **69(6)**, 54-57.
6. Chaurasia H, Arora A, Marwaha S, Jain R, Chinnusamy V, Raju D, Ray M and Sahoo RN (2025). Artificial Intelligence based web tool for classification of rice panicle stages. *Journal of Community Mobilization and Sustainable Development*, **20(1)**, 291-295. DOI: 10.5958/2231-6736.2025.00046.2
7. Choudhary K, Jha GK, Jaiswal R, Kumar RR (2025). A Genetic algorithm optimized hybrid model for agricultural price forecasting based on VMD and LSTM network. *Scientific Reports*, **15**. <https://doi.org/10.1038/s41598-025-94173-0>
8. Chowdhury M, Khura TK, Parray RA, Upadhyay PK, Kushwah HL, Lama A, Kushwah A (2024). Multi-vegetation indices based handheld device for precise nitrogen assessment and prescription in direct-seeded rice. *Computers and Electronics in Agriculture*, **229**, 109886. <https://doi.org/10.1016/j.compag.2024.109886>
9. Dagar P, Arora A, Ray M, Kumar S, Chourasia H, Kumar M, Marwaha S, Jain R, Chinnusamy V (2024). High-resolution reconstruction of images for estimation of plant height in wheat using RGB-D camera and machine learning approaches. *Current Science*, **127(12)**, 1440-1446. DOI: 10.18520/cs/v127/i12/1440-1446
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Book Chapters

- Adhikary T, Sinha A and Das P (2025). Physiology of Flowering. In *Advances in Growth Regulation of Fruit Crops*. Eds. Vishal Singh Rana, Neerja Rana, Sunny Sharma CRC Press. ISBN 978-1-83634-397-4; (eBook) ISBN9781003354055; <https://doi.org/10.1201/9781003354055>.
- Arora A, Deb CK, Misra T, Chaurasia H, Marwaha S and Parsad Rajender (2025). Advancing Toward Sustainable Agriculture Through Artificial Intelligence: Case Studies in Indian Agriculture. In *Advances in Agri-Food Systems*, Volume I. Eds. Himanshu Pathak, W. S. Lakra, A. Gopalakrishnan and K.C. Bansal. pp. 273-286. Springer Nature Singapore. ISBN 978-981-96-0758-7. https://doi.org/10.1007/978-981-96-0759-4_15

- Das M, Kumar M, Deb CK, Taria S, Singh B, Kumar S, Haque MA, Arora A, Marwaha S, Dhadaani R and Chinnusamy V (2024). Automated and Non-destructive YOLOv5 Siliqua Count Software MuSiC v 1.0 Aided Selection of Drought Tolerant Mustard Genotypes. In International Conference on Systems and Technologies for Smart Agriculture. CISCON 2023. Eds. Saha, H.N., Ray, H., Bradford, P.G. pp. 579-588. Springer Proceedings in Information and Communication Technologies. Springer, Singapore. ISBN 978-981-97-5156-3. https://doi.org/10.1007/978-981-97-5157-0_48
- Das P and Barman S (2025). An overview of time series decomposition and its applications in applied and theoretical econometrics. In *IntechOpen, applied and Theoretical Econometrics and Financial Crises*. Eds. Brian William Sloboda, Chee Heong Quah, Taufiq Choudhary. eBook (PDF) ISBN 978-1-83634-399-8. <https://doi.org/10.5772/intechopen.1009268>
- Das P, Bharti and Adhikary T (2025). Statistics and Statistical Analysis. In *Insect Pathology Volume 3*. Eds. K.L. Srivastava and Rangeshwaran, B.T. Today and Tomorrow's Printers and Publishers. ISBN-9789348596888
- Deb CK, Marwaha S, Haque MA, Pal C, Shukla A, Trivedi A, Dutta S, Shah K, Shah MUD and Prasanna Kumar M K (2024). Leveraging Autoencoders for Accurate Plant Disease Diagnosis in the Face of Unbalanced Data. In *International Conference on Systems and Technologies for Smart Agriculture*. Eds. Saha, H.N., Ray, H., Bradford, P.G. pp. 383-390. Springer Proceedings in Information and Communication Technologies. Springer, Singapore. ISBN 978-981-97-5156-3. https://doi.org/10.1007/978-981-97-5157-0_31
- Dheeraj A, Chand S and Raj A (2025). Comparative Study of Pruned CNN Models for Tomato and Potato Disease Classification. In *Emerging Electronics and Automation*. E2A 2023. Lecture Notes in Electrical Engineering, Vol 1202. Springer, Singapore, pp 209-221. ISBN 978-981-97-3089-6. https://doi.org/10.1007/978-981-97-3090-2_18
- Haque MA, Deb CK, Dheeraj A, Marwaha S and Shah MUD (2024). Swin Transformer-based Disease Identification Model for Apple Plants. In *International Conference on Systems and Technologies for Smart Agriculture*. CISCON 2023. Eds. Saha, H.N., Ray, H., Bradford, P.G. pp. 417-427. Springer Proceedings in Information and Communication Technologies. Springer, Singapore. ISBN 978-981-97-5156-3. https://doi.org/10.1007/978-981-97-5157-0_34

Policy Papers

- Birthal P, Srivastava SK, Saxena R, Godara S, Chand P, Kishore P, Jumrani J, Kandpal A, Sharma P and Pant DK (2025). Indian Agriculture to 2047: Reshaping Policies for Sustainable Development. Policy Paper 50. ICAR-National Institute of Agricultural Economics and Policy Research. https://www.researchgate.net/publication/390442131_Indian_Agriculture_to_2047_Reshaping_Policies_for_Sustainable_Development

Popular Articles

- Iyyappan Y, Naha S, and Begam S (2024). Artificial Intelligence in Soil Management. Trends in Agriculture Science, **3(12)**, 2338-2340.
- Das R, Rakshit D, Jha GK, Murmu S and Kumar S (2025). Harnessing Metagenomics for Decoding Antibiotic Resistance Genes in Bovine Resistome. *Krishi Science*, **6(1)**, 45-49.

- बिसेन जे, तिवारी उ, प्रियदर्शनी स एवं सिंह के.एन. (2025). 5G प्रौद्योगिकी: भारत में आधुनिक कृषि के भविष्य की अग्रदूत. स्मारिका, क्षेत्रीय कृषि मेला -2025, भा.कृ.अनु.प.-केंद्रीय चावल अनुसंधान संस्थान, कटक.

PAPERS PRESENTED/LECTURES DELIVERED

Paper presented /Invited talk delivered in Conferences

- National Conference on Digital Interventions & Sustainable Livelihoods in Hill-Ecosystem: Towards Vision Viksit Bharat@2047 organized by Department of Agricultural Economics, Palli Siksha Bhavana (Institute of Agriculture) Visva-Bharati, Sriniketan, Birbhum West Bengal during 10-11 January, 2025
 - Ranjit Kumar Paul. Ensemble Learning for Time Series Data in Agriculture.
- National Seminar on Methodological Challenges and Terminological issues for the Application of Statistics organized by Department of Statistics, Institute of Sciences, BHU, Varanasi during February 11-12, 2025
 - Rajender Parsad. Significance of Statistics and Need of Statistical Literacy.
- XXVII Meeting of the ICAR Regional Committee No. V at NASC Complex, New Delhi on February 18, 2025.
 - Rajender Parsad. Action taken report of XXVI meeting of ICAR Regional Committee No. V.
 - Rajender Parsad. Overview of Research Activities of Institute and Future Road Map.
- 27th Conference of Society of Statistics Computer and Application and International Conference on Advances of Interdisciplinary Statistics and Applications in AI & ML” at Department of Statistics, North-Eastern Hill University (NEHU), Shillong, Meghalaya on February 21-23, 2025.
 - Med Ram Verma. Sample allocation for development programme under joint effect of geometric and exponential phases.
 - Mukesh Kumar. Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH) from Research Data Repositories: Role and Challenges.
 - Sukanta Dash. Application of Semi-Latin Rectangles Designs in Agriculture.
 - Soumya Sharma. NutTraitDB: A Comprehensive Database for Nutritional Trait Genes in Flowering Plants.
 - Ritwika Das. Deep learning-based methodology for prediction of carbon fixing microbial enzymes.
- START Annual conference organized by START Society and SKNAU Jaipur at RARI Jaipur during February 23-25, 2025.
 - K.K. Chaturvedi. Precision Farming in India: Challenges and Opportunities
 - Anu Sharma. An AI Based approaches for LncRNA Classification
- Second International Conference on Biological Control: Biocontrol Contributions to One Health from February 25-28, 2025, Bengaluru.
 - Anu Sharma. Leucinodes orbonalis database: a genomic and transcriptomics web data resource
- 75th Annual Conference of Indian Society of Agricultural Statistics organized at Dr. Rajendra Prasad Central Agricultural University, Pusa, Bihar during March 20-22, 2025.
 - Rajender Parsad. Higher Agricultural Education in the Field of Statistical Science.
 - Surapuram Aswini. Integrating Genome Wide association studies module with HtP-DAP for SNP-trait associations mining (Poster).

- Mohd Harun. Experimental designs for multi-session sensory trials involving simultaneous evaluation of attributes.
- Anindita Datta. Mixed level multifactor experimental designs for factor prioritization.
- Med Ram Verma. Sample Allocation Methodology for Assessment of Impact of Development Programmes under Cost Constraints.
- Prakash Kumar. NPStability: A Non-Parametric Stability Analysis Web-server for Unequal Replication.
- Jaiprakash Bisen. More Food or More Nutritious Food? A Policy Dilemma for India's Future Food Security. A Multi-Market and Multi-Regional Analysis of Important Cereals in India: A Partial Equilibrium Approach.
- Rajeev Ranjan Kumar. Leveraging Artificial Intelligence for Meteorological Drought Modelling and Forecasting. Hybrid Markov Switching GARCH-ELM model for forecasting Agricultural price volatility
- Mrinmoy Ray. Spatio Temporal Neural Networks for Time Series Forecasting.
- SB Lal. ARMS 2.0: An E-Governance initiative for collating scientific achievements of ICAR.
- Girish Kumar Jha. Towards More Accurate Agricultural Price Forecasting: The AI-Driven Revolution
- Sudhir Srivastava. Web Application for Differential Expression Analysis of RNA-Seq Data Considering Heterogeneity and Confounding Covariates. Statistical Approaches for Addressing Missing Values and Data Heterogeneity in Proteomics Data Analysis.
- Sunil Kumar. Data Revolution in Agriculture: Innovative Statistical and Computational Methods for Viksit Bharat @ 2047.
- Shashi Dahiya. Digital Initiatives for Agricultural Higher Education in India.
- Chandan Kumar Deb. Hybrid Auto Encoder for Precise Canine Disease Diagnosis in the Presence of Imbalanced Data
- DC Mishra. Genomic Prediction: A Way Forward to Molecular Breeding. Optimizing Gene Selection: Statistical and Machine Learning Approaches for Genomic Insights.
- Sarika Sahu. Data Revolution in Agriculture: Innovative Statistical and Computational Methods for Viksit Bharat@2047.
- Global Conference on 'Innovations to Impact: A Gender-Transformative Approach for Sustainable Agri-Food Systems' held during March 08-10, 2025 at ICAR-CIWA, Bhubaneswar
 - Sapna Nigam. Deep Learning for Sustainable Rice Farming: EfficientNetV2B0-Based Nitrogen Deficiency Identification.
 - Chandan Kumar Deb. Enhanced Bovine Disease Detection with YOLOv5: Optimizing AI-DISA for Improved Diagnosis.
- National Conference on Emerging Innovations in Biochemistry and Biotechnology for Holistic Development of Agriculture organized by SKUAST, Jammu held during 06-07 March, 2025.
 - D.C. Mishra. AI-Powered Insights: From Genes to Genomic Selection.
- International Conference, AgriTech-2025: Advancing Innovation for a Sustainable Tomorrow organized by Galgotias University, Greater Noida during March 06-08, 2025.
 - Pankaj Das. Crop Yield Prediction using Machine Learning Techniques.
- National conference on Emerging Trends in Biology & Biotechnology (NCETBB-2025), held at Berhampur University during January 30-31, 2025.
 - Divya Chauhan, Priyanka Balley, Mayank Rashmi and Sunil Kumar* (2024). Comprehensive Transcriptomic Analysis of *Moringa oleifera* Provides Insights into Gene Regulation, Non-Coding RNAs and Protein Interactions (Poster Presentation).

Lecture Delivered (Outside institute)

- Training program 'Bioinformatics Tools and its Application in Predictive Ecology and Fisheries' organized by the ICAR-CIFRI, Kolkata during January 27-31, 2025.
 - Applications of artificial intelligence in Bioinformatics on January 31, 2025. (Girish Kumar Jha)
 - Computational Tools for Exploring Microbiome Using Metagenomics Data on January 30, 2025. (Anu Sharma)
- Short Term Programme for University/College Teachers organized at MMTC, CUH, Mahendragarh, Haryana during January 13-18, 2025
 - (i) Testing of Hypothesis and (ii) Design of Experiments MANOVA on January 15, 2025. (Susheel Kumar Sarkar)
- 10-day short course on 'Application of Proteomics in Plant Research' organized by ICAR-Indian Institute of Rapeseed Mustard Research (ICAR-IIRMR), Bharatpur during January 20–29, 2025
 - Computational Techniques for Identification of Functional Elements in Proteomic and Genomic Data on January 22, 2025. (U.K. Pradhan)
- CAFT training program on 'Agriculture 5.0: Embracing AI & ICT for Next-Generation Agriculture' organized at Bihar Agricultural University, Sabour, Bhagalpur during February 01- 21, 2025
 - Fundamentals of AI and Machine Learning in Agriculture on February 14, 2025. (Alka Arora)
 - Digital Interventions in Agriculture on February 14, 2025. (Sudeep Marwaha)
- Short course National hands-on Training programme on 'Use of Genome Editing Technology for Production of Animals with Desired Traits' organized by Animal Physiology and Reproduction Division, ICAR-CIRB, Hisar, held from February 04-13, 2025 at ICAR-CIRB, Hisar.
 - Genomic and proteomic data analysis: An overview on February 11, 2025 ((Sunil Kumar)
- Short course on 'Exploiting Bioinformatics Tool to Accelerate the Crop Improvement' at Division of Genetics, ICAR-IARI, New Delhi during February 17–26, 2025
 - Ameliorating quality and productivity of oilseeds and pulses through classical, modern and disruptive technologies on February 25, 2025. (Mir Asif Iquebal)
 - Hands on experience with important bioinformatics tools Uses of statistical software - NTSYS, MAPMAKER, QTL cartographer, etc. on February 18, 2025. (Sarika)
- CSIR sponsored Workshop 'Proteomics for Crop Improvement' organized by ICAR-IARI - Rice Breeding & Genetics Research Centre (IARI-RBGRC), Aduthurai, Tamil Nadu during February 24 – March 01, 2025.
 - Proteomics Data Analysis on February 28, 2025 in (Sudhir Srivastava)
- National Training Programme on 'Biological Control in Plant Disease Ecology: Mechanisms, Interactions, and Applications' organized by ICAR-National Bureau of Agriculturally Important Microorganisms (NBAIM), Kushmaur, Mau, U.P. on February 18-25, 2025.
 - Role of bioinformatics in understanding pathogen effectors and host defense mechanisms" on February 21, 2025. (Neeraj Budhlakoti)

- Training programme on 'Handling of Unit Level Data of NSS' organized by NSSTA, Ministry of Statistics & Programme Implementation, Government of India for in-service ISS officers during March 03–06, 2025.
 - Unit level data extraction and analysis using R on March 05, 2025. (Raju Kumar)
- Training programme on 'Excel in MS Excel', organized by Department of Basic Sciences, Dr. YSP UHF, Nauni, Solan during February 24-March 9, 2025.
 - (i) Testing of Hypothesis in Excel and SPSS on March 06, 2025; (ii) Testing of Hypothesis in SPSS on March 07, 2025. (Bharti)
- Workshop on 'Intellectual Property Right Awareness' organized by Chaudhary Charan Singh University, Meerut, UP which was sponsored by Council of Science and Technology, Govt. of UP on March 28, 2025.
 - Patentability in era of Artificial Intelligence: Global Status and Challenges. (Dinesh Kumar)

PARTICIPATION

International Conference/ Workshop/Symposium etc.

- International Conference on "Integrated Approaches for Sustainable Crop Science Innovation (IASCSI)" organised by IIT Ropar on January 31, 2025 (online). (Alka Arora)
- International Conference on "Advances of Interdisciplinary Statistics and Applications in AI & ML (AISAAM-2025)" at NEHU, Shillong, India during February 21-23, 2025. (Ritwika Das, Soumya Sharma and D.C. Mishra)
- International Conference on "Pharmaceutical and Biomedical Sciences-2025 (ICI-PBS-2025)" at NIPER Ahmedabad on March 22, 2025. (Sunil Kumar)

National Conference/ Workshop/ Seminar/ Symposia/Training /Foundation Course/ Annual Day/ Lectures, etc.

- National Conference on Digital Interventions & Sustainable Livelihoods in Hill-Ecosystem: Towards Vision Viksit Bharat@2047 organized by Department of Agricultural Economics, Palli Siksha Bhavana (Institute of Agriculture) Visva-Bharati, Sriniketan, Birbhum West Bengal during January 10-11, 2025. (Soumen Paul, Ranjit Kumar Paul)
- Workshop on "Harnessing the Potential of Solar-Powered Micro Irrigation for Accelerating Sustainable Agriculture" at The Lalit, Barakhamba Road, New Delhi on January 22, 2024. (Ranjit Kumar Paul)
- XVII Agricultural Science Congress and ASC Expo organized at G.B. Pant University of Agriculture and Technology, Pantnagar during February 20-22, 2025. (Rajender Parsad, Ranjit Paul)
- XXVIII Annual Workshop of the ICAR-AICRP on the EAAI Project on February 27, 2025. (Bharti)
- 27th Annual Conference on 'Advances of Interdisciplinary Statistics and Applications in AI and ML (AISAAM 2025)' in conjunction with the Society of Statistics, Computer and Applications (SSCA) organized by Department of Statistics, North-Eastern Hill University (NEHU), Shillong, Meghalaya during February 21-23, 2025. (Sukanta Dash, Med Ram Verma, Mukesh Kumar, Soumya Sharma and Ritwika Das)

- START Annual conference “Current Trends in Agriculture Research and Extension Services” organized by START Society and SKNAU Jaipur at RARI Jaipur during February 23-25, 2025. (KK Chaturvedi)
- 75th Platinum Jubilee Annual Conference of Indian Society of Agricultural Statistics (ISAS) on "Data Revolution in Agriculture: Innovative Statistical and Computational Methods for Viksit Bharat@2047", organized by Dr. Rajendra Prasad Central Agricultural University, Pusa Samastipur, Bihar during March 20-22, 2025. (Rajender Parsad, KN Singh, Amrit Kumar Paul, Med Ram Verma, SB Lal, Prawin Arya, KK Chaturvedi, DC Mishra, Shashi Dahiya, Md. Samir Farooqi, Ranjit Kumar Paul, Prabina Meher, Sukanta Dash, Susheel Kumar Sarkar, Prakash Kumar, Md. Yeasin, Sudhir Srivastava, Sarika Sahu, Sunil Kumar, Mohd Harun, Anindita Datta, Jaiprakash Bisen, Mrinmoy Ray and Rajeev Ranjan Kumar)
- Global Conference on 'Innovations to Impact: A Gender-Transformative Approach for Sustainable Agri-Food Systems' organized at ICAR-CIWA, Bhubaneswar during March 08-10, 2025. (Chandan Kumar Deb and Sapna Nigam)

HUMAN RESOURCE DEVELOPMENT

Training Programmes/Workshops Organized: 04 (118 Participants)

S.No.	Title	Venue	Period	No. of Participants
1.	AI in Agriculture (Coordinators: Anshu Bharadwaj, Chandan Kumar Deb and Md. Ashraful Haque)	ICAR-IASRI, New Delhi Online	January 06-10, 2025	50
2.	Winter School on Applications of Deep Learning in Agriculture using Python (Course Director: Alka Arora, Course Co-Directors: Sapna Nigam and Madhu)	ICAR-IASRI, New Delhi	January 21-February 10, 2025	25
3.	CAFT Training on Modern Data Analytics Techniques for Agricultural Survey (Course Director: Kaustav Aditya; Co-Coordinator: Ankur Biswas and Pankaj Das)	ICAR-IASRI, New Delhi	February 11-March 03, 2025	19
4.	CAFT Training on Tools and Techniques for Artificial Intelligence-Based Web Application Development in Agriculture (Coordinators: Shashi Dahiya, Co-Coordinators: Sanchita Naha and Md. Ashraful Haque)	ICAR-IASRI, New Delhi	March 04-24, 2025	24
हिन्दी कार्यशाला				
4.	सांख्यिकीय सॉफ्टवेयर के माध्यम से कृषि सांख्यिकी एवं सर्वेक्षण आँकड़ों का विश्लेषण	भा.कृ.अनु.प-भा.कृ.सां.अ.सं, नई दिल्ली (ऑन-लाइन)	मार्च 10-12, 2025	19

	(समन्वयक: डॉ. दीपक सिंह, डॉ. राजू कुमार एवं डॉ. भारती)			
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Dr. DK Yadav, DDG (Crop Science), ICAR with participants of Centre for Advanced Faculty Training (CAFT) on Modern Data Analytics Techniques for Agricultural Surveys during February 11-March 03, 2025 (March 03, 2025)



Dr. Rajbir Singh, DDG (Agricultural Extension), ICAR with participants of Centre for Advanced Faculty Training (CAFT) Tools and Techniques for Artificial Intelligence-Based Web Application Development in Agriculture during March 04-24, 2025 (March 04, 2025)

Internship Training Programmes

- Ms. Harshita, student B.Tech.(Biotechnology), Department of Biotechnology and Molecular Biology, College of Basic Sciences and Humanities, Dr Rajendra Prasad Central Agricultural University, Samastipur during December 26, 2024 to February 25, 2025. Topic: Bioinformatics

Analysis of Genes involved in the Pathway for Enrichment of Vitamin D3 in Plants. (Guide: Dr DC Mishra)

Training Programmes Attended

- 8th Batch of Pedagogy Development Programme on Enhancing Pedagogical Competencies for Agricultural Education at National Academy of Agricultural Sciences during January 28-February 01, 2025. (Anindita Datta)
- Winter School on Applications of Deep Learning in Agriculture using Python during January 21-February 10, 2025 at ICAR-IASRI, New Delhi. (Susheel Kumar Sarkar)
- Workshop on Biological Perspective of Coding with AI Tools/ Paradigms by Dr. Ravinder Singh on March 20, 2025. (Sneha Murmu and Ritwika Das)

CONSULTANCY/ADVISORY SERVICES PROVIDED

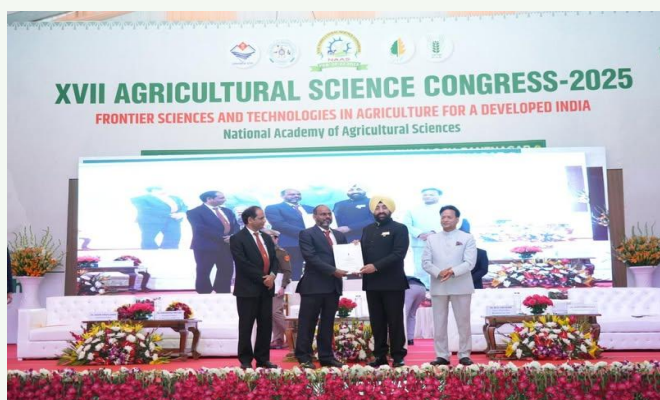
- Kaustav Aditya advised Dr. Shirila Das, Division of Soil Science for analysis of data using SEM and CART.
- Prakash Kumar advised Dr. P. Lavanya Kumari (Statistics & Computer Applications), S.V. Agricultural College, Acharya N.G. Ranga Agricultural University, Tirupati in developing Web server and statistical modeling work to develop “Rice Pest Early Warning System”.
- Sarika Sahu advised (i) Ms. Ayantika, Ph.D. student, PG School IARI, New Delhi; (ii) Mr. Pranneshraj V K, Ph.D. student, PG School IARI, New Delhi, and (iii) Ms. Pooja, Ph.D. student for Bioinformatics work. She advised One student from Sardar Vallabh Bhai Patel Agriculture and Tech. University Meerut for 03 months intership program.
- Bharti advised (i) Deepak Sharma, Student of Dr. YSP UHF, Nauni-Solan on Stability Analysis and (ii) Meera Thakur, Assistant Professor, Dr. YSP UHF, Nauni-Solan on plotting of box plot.
- Prakash Kumar advised Dr. P. Lavanya Kumari (Statistics & Computer Applications), S.V. Agricultural College, Acharya N.G. Ranga Agricultural University, Tirupati in developing Web server and statistical modeling work to develop “Rice Pest Early Warning System”.
- Sneha Murmu guided (i) Ms. Priya, Ph.D. (working under the chairmanship of Dr. Manjusha Verma, Principal Scientist, ICAR-NBPGR, New Delhi) on protein-ligand interaction study and (ii) Ms. Mehulee (Ph.D., Division of Plant Pathology, ICAR-IARI) regarding protein-ligand interaction.
- Pankaj Das assisted Dr. Trina Adhikary, Assistant Professor (PAU) in multivariate data analysis.

AWARDS AND RECOGNITIONS

Awards

Ranjit Kumar Paul

- NAAS Recognition Award in the XVII Agricultural Science Congress -2025 at NAAS during February 20-22, 2025.



Recognitions

Best Oral presentation Award

Soumen Pal

- National Conference on 'Digital Interventions & Sustainable Livelihoods in Hill-Ecosystem: Towards Vision Viksit Bharat@2047' at Department of Agricultural Economics, Palli Siksha Bhavana (Institute of Agriculture), VISVA-BHARATI, Sriniketan, Birbhum, West Bengal during January 10-11, 2025 for paper
 - Pal, S*, Arora A, Marwaha S, Malik RK, Sumar S, Yadav US, Paul RK, Gupta A, Parsad Rajender, Burman RR and Gautam US. Analytics Dashboard on Landscape Diagnostic Survey Data of Wheat Crop in Four States of India for Strengthening Agricultural Extension Services.

Anu Sharma

- STAR National Conference-2025 by Science and Technology Application Remodel (STAR) Society from February 23-25, 2025
 - Bhavesh Kumar Choubisa, Anu Sharma*, K. K. Chaturvedi, Mohammad Samir Farooqi, D.C. Mishra, Shashi Bhushan Lal, Sudhir Srivastava and Amol Kumar U.Solanke (2025). An AI Based approaches for LncRNA Classification. (Best Oral Presentation Award).

Sudhir Srivastava

- Computational Biology Conference held at the Indian Biological Data Centre, Faridabad during February 19-21, 2025.
 - Kabilan S, Shashi Bhushan Lal, Sudhir Srivastava*, Krishna Kumar Chaturvedi, Yasin Jeshima Khan, Dwijesh Chandra Mishra, Sharanbasappa D Madival, Ramasubramanian V and Girish Kumar Jha (2025). Statistical Approach for Quality Control and Standardizing Normalization and Imputation Methods for Proteomics Data.
- 75th Platinum Jubilee Annual Conference of Indian Society of Agricultural Statistics (ISAS) on 'Data Revolution in Agriculture: Innovative Statistical and Computational Methods for Viksit Bharat @ 2047' organized by Dr. Rajendra Prasad Central Agricultural University (RPCAU), Pusa, Samastipur, Bihar
 - Sudhir Srivastava*, Mohammad Samir Farooqi, Dwijesh Chandra Mishra, Kabilan S., Deepa Bhatt, Girish Kumar Jha. Web Application for differential Expression analysis of RNASeq data considering heterogeneity and confounding covariates.
- Global Conference on 'Innovations to Impact: A Gender-Transformative Approach for Sustainable Agri-Food Systems" held during March 08-10, 2025 at ICAR-CIWA, Bhubaneswar.
 - Sapna Nigam. Deep Learning for Sustainable Rice Farming: EfficientNetV2B0-Based Nitrogen Deficiency Identification. **Second prize for the presentation**
 - Chandan Kumar Deb*. Enhanced Bovine Disease Detection with YOLOv5: Optimizing AI-DISA for Improved Diagnosis. **Third prize for the presentation**

Recognitions

Rajender Parsad

- Member, Expert Committee for revision of Economic Classifications (ECREC) for development/updation of National Industrial Classification, NIC and National Product Classification, NPC (F.No. 12018/1/2025-ESD) dated January 17, 2025.

Girish Kumar Jha

- Panelist in the session on “Agricultural Technologies for FPOs and Viksit Bharat @2047” during the International Seminar on Digital Transformation for Growth: Empowering Agro Rural Economies Towards Sustainable Viksit Bharat @2047 jointly organized by IIT, Kharagpur and IIM, Nagpur during March 04-05, 2025.

Tauqueer Ahmad

- Included in FAO’s Roster for working as International Consultant to FAO of the United Nations (Affiliate Workforce).

Ranjit Kumar Paul

- Panelist on “Methodological Aspects of Digital Interventions in Hill Ecosystem” in the National Conference on Digital Interventions & Sustainable Livelihoods in Hill-Ecosystem: Towards Vision Viksit Bharat@2047 organized by Department of Agricultural Economics, Palli Siksha Bhavana (Institute of Agriculture) Visva-Bharati, Sriniketan, Birbhum West Bengal during January 10-11, 2025. (Ranjit Kumar Paul)

**PROJECTS/ SCHEMES/ PROGRAMME/ CENSUS/ SAMPLE
SURVEYS/ EVALUATION STUDIES/ SOFTWARE DEVELOPED/
INITIATED/ COMPLETED**

Initiated

1. Assessing the market outlook for major pulses: A partial equilibrium model analysis w.e.f. 29.01.2025. (ICAR-IASRI: Jaiprakash Bisen, Rajeev Ranjan Kumar, Kanchan Sinha, K.N. Singh)
2. Evaluating bull breeding soundness using machine learning tools w.e.f 01.02.2025. (Central Institute for Research on Cattle, Meerut Cantt: A.S. Sirohi, Naimi Chand, Megha Pandey; K.U. Navsari Campus: Rana Ranjit Singh; ICAR-IASRI: Madhu).
3. Artificial Intelligence enabled solutions in High Throughput Plant Phenotyping for abiotic stress tolerance, w.e.f. 17.02.2025. (ICAR-IASRI: Chandan Kumar, Md. Ashraful Haque, Alka Arora, ICAR-IARI: Madhurima Das, Sudhir Kumar)

Completed

1. Modelling of proportional data for forewarning pest attacks in crops on 20.02.2025. Bishal Gurung (till 18.08.2023), Achal Lama (since 19.08.2023), K.N. Singh (21.05.2022-20.02.2025)
2. Model-assisted estimators using survey weighted artificial neural networks in complex surveys on 31.03.2025. (Deepak Singh, Raju Kumar, Samarth Godara, Bhart)
3. Characterization of genetic resources: germplasm characterization and trait discovery in Wheat using genomics approaches and its integration for improving climate resilience, productivity and nutritional quality on 31.03.2025. (Dinesh Kumar (up to 02.12.2021 and again from 01.03.2023 onwards), M.A. Iquebal (since 03.12.2021-28.02.2023 as a PI and again 01.03.2023 onwards as a Co-PI), U.B. Angadi, Dwijesh Chandra Mishra (till 04.09.2023), Neeraj Budhlakoti, Sarika)
4. Minor oilseeds of Indian origin: Mainstreaming sesame germplasm for productivity enhancement and sustainability through genomics assisted core development and trait discovery. Funded by Department of Biotechnology on 31.03.2025. (U.B. Angadi, Dinesh Kumar (up to 02.12.2021 and again from 01.03.2023 onwards), Dwijesh Chandra Mishra (till 04.09.2023))

5. Cereal Systems Initiative for South Asia (CSISA) integration with KVK portal on 31.03.2025. (Soumen Pal, Alka Arora, Sudeep, S.N. Islam, Ajit, R.K. Paul)

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SN	Copyright Title	Registration number	Copyright Diary no.	Granted/received date
1	CCncRNAdb: A Database of lncRNAs and cirRNAs for Common Carp	SW-20108/2025	26561/2024-CO/SW	Granted on 7.01.2025
2	BPepAMPred: Deep Learning AMP Prediction Server for Black Pepper	SW-20107/2025	26566/2024-CO/SW	Granted on 24.01.2025
3	BPepAMPdb: Black Pepper Antimicrobial Peptide Database	SW-20020/2025	26534/2024-CO/SW	Granted on 24.01.2025

MOU Signed

The Institute signed an MoU (Memorandum of Understanding) and Work Plan with Dr Rajendra Prasad Central Agricultural University, Pusa (RPCAU) Samastipur to promote teaching, research, training and exchange of information and technology in related to agriculture, statistics and bioinformatics on March 20, 2025.

PERSONNEL

Name	Designation	Effective date
Sh. Mukesh Kumar	Assistant	01.10.2025, Promotion
Sh. Vishal	Assistant	10.01.2025, New Joining
Smt. Ekta Rawat	LDC	27.01.2025, Joined on Inter-Institutional Transfer Basis
Ms. Sunita	Deputy Director (OL)	20.03.2025, Joining Institute from ICAR-CPRI, Shimla
Sh. Dharmendra Tanwar	Assistant	10.03.2025, Promotion
Sh. Ranveer Singh	Assistant	10.03.2025, Promotion

Transfer/ Resignation/Deputation

Name	Designation	Effective date
Sh. Vishal Goel	FAO	03.01.2025, Transferred to ICAR-NIPB, New Delhi
Sh. Sanjay Bokolia	CAO(SG)	17.02.2025, Transferred on Promotion at ICAR-CIFE, Mumbai

Obituary

ICAR-IASRI family deeply mourns sad demise of the following personnel and prays the almighty for granting peace to the departed soul and his family.

Name	Designation	Effective date
Sh. Fabian Minz	AAO	23.02.2025

Compiled by:

Rajender Parsad, Ajit and Upendra Kumar Pradhan

Technical and Secretarial Assistance:

Neha Narang, Sunita, Nikita

