- Research Achievements
- Human Resource Development
- Awards and Recognitions
- Panorama of Activities
- Publications
- Lectures Delivered
- Participation
- Consultancy/Advisory Services
- Personnel

From Director's Desk . . .

This newsletter highlights salient research achievements, training programs conducted, workshops organized and other significant activities performed at the Institute during the period under report.

Academic Management System CIFE (AMS-CIFE), a web enabled system and second system in line with Management System: PG School IARI was launched by the DDG (Education), ICAR, on December 18, 2015 in a launch workshop of the joint project of ICAR-CIFE, Mumbai and ICAR-IASRI, New Delhi. The system will enhance the overall efficiency of the academic system and facilitate e-learning for the students. It is accessible online at http://amscife.icar.gov.in from ICAR Data Center at IASRI.

The multimedia enabled end user interface, Dog Health Management Trainer (DHMT), was developed to disseminate stepwise information on various aspects of dog health. It has four modules, namely breed database, general information, breeding health care and vaccination deworming.

Seven training programmes, three sponsored by National Statistical System Training Academy (NSSTA), CSO; two sponsored by Education Division of ICAR; one sponsored by PG School, IARI and one sponsored by ICAR-IASRI, New Delhi were organized. Besides, six national workshops and one Hindi workshop have also been organized.

Scientists of the Institute have received various awards & recognitions. It is matter of pride for the institute that Dr. Seema Jaggi received INSA Teacher Award 2015, Dr. Arpan Bhowmik received Dr. GR Seth Young Scientist Award, Dr. Sarika received Distinguished Scientist Award, Dr. MA Iqebal received "Young Scientist Award" and Dr. Alka Arora received Active participation Award Women Member 2014-15.

During the period, three new projects were initiated. Scientists of the Institute have published 18 research papers, 01 book, 14 book chapters, 01 popular article, 04 training manuals and 01 workshop document. Besides, 15 invited lectures were delivered by the scientists. Further, scientists have participated in different conferences/ symposia/ workshops, etc.

It is hoped that the contents of this document would be informative and useful to scientists in NARES. Any suggestions for improving the contents of the newsletter further would be highly appreciated.

(UC Sud)

RESEARCH ACHIEVEMENTS

- **Academic Management System CIFE (AMS-CIFE):** Academic Management System CIFE (AMS-CIFE) was launched by Dr. NS Rathore, DDG(Education), ICAR on 18 December 2015 in the launch workshop of the joint project of ICAR-CIFE, Mumbai and ICAR-IASRI, New Delhi. Dr. Gopal Krishna, Director, CIFE along with Dr. S Jahageerdar, PI of the project and Dr. Sudeep Marwaha, CCPI from ICAR-IASRI released the brochure of the system. The system was made accessible online at http://amscife.icar.gov.in from ICAR Data Center at IASRI. AMS-CIFE is the second system launched in line with Management System: PG School IARI. Both these systems are based on the Management System for Post Graduate Education (MS-PGE) which is used as the base technology for these systems.

  AMS-CIFE is a web enabled system for management of various academic activities of the University. The system caters to the requirements of different users: Dean, Registrar, Heads, Guides, Faculty, Teachers, Students, Administrators and Officials for performing their assigned tasks. All the faculty members and students of CIFE were registered in the system. Various courses offered by CIFE were also entered along with the credit details as well as faculty allocated to the respective courses. Students also filled the Roaster Form online for 2nd semester registration and respective Course Leaders and Guides approved the registered courses online. Faculty has also started uploading the detailed course schedule of their respective courses online. The system once completely implemented will enhance the overall efficiency of the academic system. At the same time it will facilitate e-learning for the students.

- **Development and Application of electronic learning and diagnostic modules for health management of dogs:** Dog Health Management Trainer (DHMT) has been developed to disseminate information on various aspects of dog health. The multimedia enabled end user interface has been categorized into four modules *i.e.,* breed database, general information, breeding & health care and vaccination & deworming. The system provides stepwise information to end users regarding important aspects related to dog health.

The system was evaluated in the IVRI Polyclinic though a survey by interviewing 100 users. The System was demonstrated to users for evaluating their perception on four parameters viz completeness, utility, user friendliness and interestingness of the system (Fig.1) and the results indicated that 81% replied that the system was 'complete'; 57% found that the system will be of 'utility" and useful; 67% answered that the system was 'user friendly' and 60% observed that the system was 'interesting'. Regarding the purchase of the system, 87% dog owners showed keen interest to procure the system. However they wanted to procure on a modest cost of less than 250/=.
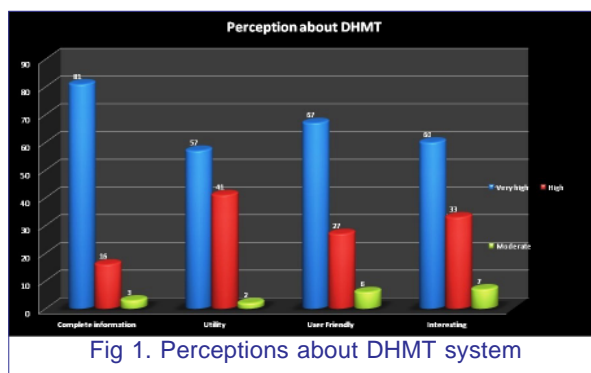
Fig 1. Perceptions about DHMT system

This is the first version of expert system for dog health. Detailed information on 48 diseases of dogs is available in the system. The user will login to the system and select the symptoms from the drop down list for different diseases and for their control and prevention (Fig 2). Based on the selected symptom, the system identifies the disease tentatively. It provides detailed information about the disease i.e. epidemiology, clinical symptoms, diagnosis, prevention and control. If the system is unable to identify a disease then system advises to consult the doctor.

The modules have been evolved using latest web technologies including JSON, CSS3 and JavaScript. The database was created using IndexedDB.

Fig 2. Drop down list for different diseases and for their control and prevention

AWARDS AND RECOGNITIONS

- Dr. Seema Jaggi received the INSA TEACHERS AWARD 2015 in the Anniversary General Meeting of the Academy held during December 28-30, 2015 at Indian Institute of Science, Education and Research (IISER), Bhopal.

- Dr. Alka Arora received Active participation Award Women Member 2014-15 from Computer Society of India, Delhi Chapter in recognition of significant contribution to the CSI Chapter activities on 05 December 2015.
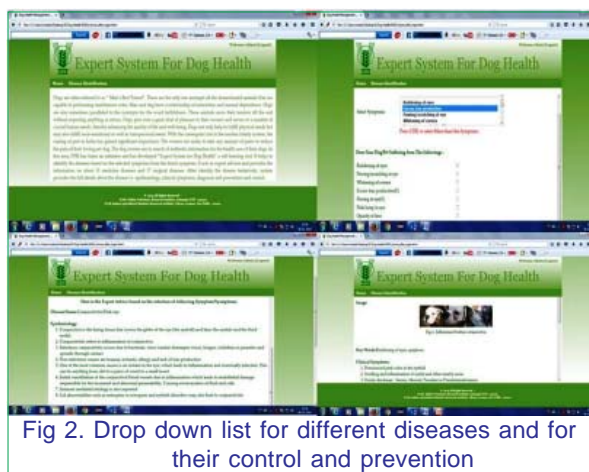
- The following scientists received awards by the Society for Bioinformatics and Biological Sciences, Allahabad in the National Conference on Bioinformatics Panorama in Agriculture and Health (NCBPAH 2015) at SHIATS, Allahabad organized during October 05-06, 2015:
  1. Dr. Sarika received Individual Award as "Distinguished Scientist Award" in recognition of her meritorious and outstanding scientific contribution in the field of Bioinformatics.
  2. Dr. MA Iquebal received Individual Award as "Young Scientist Award" in recognition of his outstanding scientific contribution in the field of Bioinformatics.
  3. Dr.Sarika and Dr. MA Iquebal received Team Award as 3rd Prize for the research paper entitled "In silico gene prediction and their promoter analysis for the genes related to biotic stress in tomato (*Solanum lycopersicum*)" authored by Tandon, G, Jaiswal, S, Iquebal, MA, Singh, S, Rai, A and Kumar, D.

- Dr. Arpan Bhowmik received Dr. GR Seth Memorial Young Scientist Award in 69th Annual Conference of Indian Society of Agricultural Statistics at University of Kota, Kota, Rajasthan during December 14-16, 2015 for the following paper:

  Bhowmik, A, Varghese, E, Jaggi, S and Varghese, C (2015). Factorial Experiments with Minimum Changes in Run Sequences.

- Dr. Anil Rai was invited as Technical Expert by Tea Board of India for development of methodology for estimation of cost of production of tea in Coimbatore.

- Dr. Dinesh Kumar Co-Chaired one session in National Conference on Bioinformatics Panorama in Agriculture and Health (NCBPAH 2015) at SHIATS, Allahabad during October 05-06, 2015 organized by Department of Computational Biology and Bioinformatics, JSBB, SHIATS, Allahabad in collaboration with Society for Bioinformatics and Biological Sciences and Indian Institute of Information Technology, Allahabad.

- Dr. KN Singh chaired the session of working group of Statistical Methodology for Crop Yield Forecasting at University of Agricultural Sciences, Dharwad, Karnataka.

- Dr. AK Choubey worked as Coordinator to conduct the classes and examination for PG Diploma in Technology Management in Agricultural (PG-TMA), ICAR-NAARM, Hyderabad during December 07-13, 2015 at ICAR-IASRI, New Delhi.

- 69th Annual Conference of the Indian Society of Agricultural Statistics was organized at University of Kota, Kota, Rajasthan during December 14-16, 2015. The Scientists of the Institute were involved in various capacities as given below:

  - **Session on "Emerging Issues in Basic Research in Statistics"**
    Convener: Dr. Rajender Parsad
  - **Session on "Issues in Collection and Analysis of Large Scale Agricultural Data"**
    Convener: Dr Kaustav Aditya
  - **Session on "Statistical Issues in Technology Foresight"**
    Convener: Dr. KN Singh
    Rapporteur: Dr. RK Paul
  - **Session on "New Challenges in Teaching and Training in Agricultural Statistics and Informatics"**
    Convener: Dr. Seema Jaggi
    Rapporteur: Dr. Arpan Bhowmik
  - **Session on "Advances in Agricultural Informatics"**
    Chairman: Dr. AK Choubey
    Convener: Dr. Anil Rai
    Rapporteur: Sh. Prakash Kumar
  - **Session on "Statistical Modelling"**
    Rapporteur: Sh. Samrender Das
  - **Session on "Sampling Surveys and Applications"**
    Rapporteur: Dr. AK Gupta
  - **Session on "Design of Experiments"**
    Chairman: Dr. Amrit Kumar Paul
    Rapporteur: Dr. BN Mandal
  - **Session on "Statistical Genetics/ Informatics/ Bioinformatics"**
    Chairman: Dr. Anil Rai
    Convener: Dr. AK Paul
    Rapporteur: Dr. Susheel Kumar Sarkar

- Dr. Hukum Chandra Convened the Technical Session entitled "Recent Advances in Small Area Estimation" in the International Indian Statistical Association Conference 2015 (IISA 2015) at Pune during December 20-22, 2015.
- Dr. Tauqueer Ahmad was appointed as External Examiner by the Department of Interdisciplinary Mathematics, AMU, Aligarh for conducting Practical/Viva voce examination for M.Sc. (Remote Sensing & GIS) students on December 28, 2015.
- Dr. Tauqueer Ahmad was appointed as Eminent Scientist in the Committee for conducting interview for the award of UGC BSR fellowship to Ph.D. Statistics and Operations Research students on December 28, 2015 by the Department of Statistics & Operations Research, AMU, Aligarh.
- Dr. Anil Rai has been appointed as Member of Editorial Board of Indian Journal of Agricultural Sciences, ICAR, Delhi.
- Dr. Rajender Parsad organized workshop on Big Data Analytics in Agriculture during Seventh Workshop on Big Data Benchmarking held at India Habitat Centre, New Delhi during December 14-15, 2015 (Co-Chairs: Sanjay Chaudhary, Rajender Parsad and Karmeshu).

Best Paper Award

- Panwar, S, Kumar, A, Singh, KN, Gurung, B and Rathore, A (2015). Use of weather indices approach in wheat yield crop forecast. Awarded as Best Paper in the 2nd International Conference on Agriculture, Horticulture and Plant Science held at Shimla during December 26-27, 2015.

VISIT ABROAD

- Dr. UC Sud and Dr. Tauqueer Ahmad visited Jakarta, Indonesia as Resource Person for imparting training to Enumerators and Supervisors for primary data collection and to supervise live data collection under the project "Research on improving methods for estimating crop area, yield and production under mixed, repeated and continuous cropping" during 18-23 December, 2015.

NEW PROJECTS INITIATED

- Gene selection for classification of crop gene expression data. (AGENIASRISIL201503000067). Samrendra Das, Prabina Kumar Meher, RK Paul, UK Pradhan. (20.10.2015 - 19.10.2018)
- On construction of orthogonal and nested orthogonal latin hypercube designs. (AGENIASRISIL201503200069). Sukant Dash, Rajendra Parsad, BN Mandal, Susheel Kumar Sarkar. (16.11.2015-15.11.2018)
- Stochastic differential equation models and their applications to agriculture. (Funded by SERB, New Delhi) (AGENIASRICOP201603400071). Ex. Emeritus Scientist, ICAR: Prajneshu, IASRI, New Delhi: Himadri Ghosh, LM Bhar. (06.11.2015-05.11.2018)

HUMAN RESOURCE DEVELOPMENT
Training Programmes/ Workshops Organised

S.No.	Title	Venue	Date	Sponsored by	No. of Participants
	Training Programmes				
1.	Finance Module of MIS-FMS Cordinators: Dr. Mukesh Kumar Dr. NS Rao	ICAR-IASRI New Delhi	05-07 October and 12-14 October 2015	ICAR-IASRI New Delhi	36
2.	International training programme on Use of Models in Crop Yield Estimation Course Director: Dr. Hukum Chandra Co-Course Director: Sh Raju Kumar	ICAR-IASRI New Delhi	02-06 November 2015	NSSTA, CSO* MOS&PI, GOI, New Delhi	08
3.	A refresher training programme on Small Area Estimation Techniques and Applications Course Director: Dr. Hukum Chandra Co-Course Director: Dr. Kaustav Aditya	ICAR-IASRI New Delhi	16-20 November 2015	NSSTA, CSO* MOS&PI, GOI, New Delhi	18
4.	Winter School on Bioinformatics and High Dimensional Genome Data Analysis Course Director: Dr. AR Rao Co-Course Director: Dr. PK Meher	ICAR-IASRI New Delhi	25 November to 15 December 2015	ICAR, New Delhi	20
5.	Five day training programme on Experimental Data Analysis for Ph.D. Students from various disciplines of P.G. School, IARI Cordinators: Dr. Seema Jaggi Dr. Eldho Varghese	ICAR-IASRI New Delhi	07-11 December 2015	PG School IARI, New Delhi	20
6.	Training programme on Application of Computer Algorithms and Statistical Software Packages in Agriculture under CAFT Course Director: Dr. Sangeeta Ahuja	ICAR-IASRI New Delhi	18 December 2015 to 07 January 2016	Education Division, ICAR, New Delhi	25

S.No.	Title	Venue	Date	Sponsored by	No. of Participants
7.	Training programme on Functions and Activities of IASRI for the participants of 69th regular term course-2015 on Official Statistics and Related Methodology of International Statistical Education Centre (ISEC) Kolkata conducted by National Statistical System Training Academy (NSSTA). Cordinator: Dr. Seema Jaggi	ICAR-IASRI New Delhi	31 December 2015	NSSTA, CSO* MOS&PI, GOI, New Delhi	17

Workshops

S.No.	Title	Venue	Date	Sponsored by	No. of Participants
8.	Joint Workshop of ICAR-IASRI and ICAR- IIFSR under AICRP-IFS on Statistical Issues in Farming Systems Research for finalizing the On-Station and ON-FARM data analysis methodology Cordinator: Dr. Anil Kumar	ICAR-IASRI New Delhi	24 November 2015	AICRP-IFS	31
9.	Workshop of Agricultural Field Experiments Information System (AFEIS) project Cordinator: Dr. Susheel Kumar Sarkar	ICAR-IASRI New Delhi	05-06 November 2015	ICAR-IASRI New Delhi	26
10.	Workshop on Unified Communications for the personnel of various SMD's of ICAR Cordinators: Dr. Alka Arora Dr. N Srinivasa Rao	ICAR-IASRI New Delhi	06 November 2015	ICAR-IASRI New Delhi	26
11.	Zonal training workshops on Unified Communication Solution at four locations Cordinators:			ICAR-IASRI New Delhi	
	Dr. Mukesh Kumar Sh. Subhash Chand	NAARM Hyderabad	05 December 2015		30
	Dr. Sudeep Sh. Rakesh Saini	CIFE, Mumbai	16 December 2015		86
	Dr. Alka Arora Sh. Subhash Chand	CIFRI, Kolkata	18 December 2015		35
	Sh. Rakesh Saini Sh. Subhash Chand	IVRI, Bareilly	22 December 2015		102
12.	Workshop in Hindi on Testing of Hypothesis for the technical staff of ICAR-IASRI Cordinators: Dr. Eldo Varghese Dr. Sunil Yadav	ICAR-IASRI New Delhi	14 December 2015		16

*National Statistical System Training Academy (NSSTA), Central Statistics Office, Ministry of Statistics & Programme Implementation, Government of India, New Delhi

PANORAMA OF ACTIVITIES

- **Seminars Delivered**

  Seminars in different areas of Agricultural Statistics, Computer Application and Bioinformatics were delivered by the scientists and students of the Institute. The seminars included presentations on salient findings of the completed research projects and new project proposal by the scientists, thesis/ORW/course seminars of students of M.Sc. and Ph.D. (Agricultural Statistics), M.Sc. (Computer Application) and M.Sc. (Bioinformatics).

  Two Guest Seminars one by Dr. Dulal K. Bhowmick, Director, BRC, University of Illinois on "Statistical methodologies in neuro-connectivity analysis using fMRI data in autism" was delivered on 21.12.2015 and the other by Dr. Balgobin Nandram, Professor of Statistics, Worcester Polytechnic Institute, USA on "My association with USDA's NASS" was delivered on 26.12.2015.

The Details of Seminars Delivered		
Category	**Type of seminar**	**Number**
Student	Course	21
	ORW	07
	Thesis	07
Guest		02
Miscellaneous		01
Total		**38**

PUBLICATIONS

Research Papers

- Ahmad, T, Bathla, HVL, Rai, A and Sahoo, PM (2015). Estimation of area and production of horticultural crops in Himachal Pradesh. *Adv. Appl. Res.,* **7(1)**, 1-8.
- Ahmad, T, Sahoo, PM and Jally, SK (2015). Estimation of area under agroforestry using high resolution satellite data. *Agroforest. Syst.,* DOI 10.1007/s10457-015-9854-2.
- Bardhan, SR, Rao, AR, Meher, PK, Marwaha, S, Wahi, SD (2015). Identification of a suitable clustering method and allocation strategy for core set development in salt stress tolerant rice (*Oryza sativa*) germplasm. *Ind. J. Agril. Sci., 85(12)*, 1560-1564.
- Das, S, Pandey, P, Rai, A and Mohapatra, C (2015). A computational systems biology approach to construct gene regulatory networks for salinity response in rice (*Oryza sativa*). *Ind. J. Agril. Sci.*, **85(12),** 1546–1552.
- Datta, A, Jaggi, S, Varghese, C and Varghese, E (2015). Some series of row-column designs with multiple units per cell. *Cal. Statist. Asso. Bull.*, **67 (265-266)**, 89-99.
- Ghosh, H, Chowdhury, S and Prajneshu (2015). An improved fuzzy time-series method of forecasting based on L–R fuzzy sets and its application. *J. Appl. Statist. (Online)*
- Kumar, A, Varghese, C, Varghese, E and Jaggi, S (2015). Irregular Sudoku-type designs for animal experiments. *Ind. J. Anim. Sci.*, **85(9)**, 1046–1050.
- Kumar, RR, Goswami, S, Sharma, SK, Kala, YK, Rai, GK, Mishra, DC, Grover, M, Singh, GP, Pathak, H, Rai, A, Chinnusamy, V, Rai, RD (2015). Harnessing next generation sequencing in climate change: RNA-Seq analysis of heat stress-responsive genes in wheat (*Triticum aestivum L*.). *Omics: J. Integrative Bio.,* DOI:10.1089/omi.2015.0097.
- Pal, S and Mazumdar, D (2015). Stochastic modelling of monthly rainfall volume during monsoon season over Gangetic West Bengal, India*. Nature Environ. Pollution Tech.*, **14(4)**, 951-956.
- Pal, S, Mazumdar, D and Chakraborty, PK (2015). District-wise trend analysis of rainfall pattern in last century (1901-2000) over Gangetic region in West Bengal, India. *J. Appl. Natu. Sci.*, **7(2),** 750-757.
- Paul, RK, Birthal, PS, Paul, AK and Gurung, B (2015). Temperature trend in different agro-climatic zones in India. *Mausam,* **66(4)**, 841-846.
- Paul, RK, Gurung, B, Samanta, S and Paul, AK (2015). Modeling long memory in volatility for spot price of lentil with multi-step ahead out-of-sample forecast using AR-FIGARCH Model. *Eco. Affairs,* **60(3)**, 457-466.
- Paul, RK, Saxena, R, Chaurasia, S, Zeeshan and Rana, S (2015). Examining export volatility, structural breaks in price volatility and linkages between domestic and export prices of onion in India. *Agril. Eco. Res. Rev.*, **28**, 101-116.
- Rudra, SG, Jakhar, N, Nishad, J, Saini, N, Sen, S, Bhardhwaj, R, Jaiswal, S, Suneja, P, Singh, S and Kaur, C (2015). Extrusion conditions and antioxidant properties of sorghum, barley and horse gram based snack. *Int. J. Plant Res.*, **28(2)**, 171-182.
- Som, S, Burman, RR, Sharma, JP, Sangeetha, V, Lenin, V and Iquebal, MA (2015). Assessing information need of the stakeholders on good agricultural practices (GAP) for grapes. *Ind. J. Extn. Edu.,* **51(3 & 4)**, 8-12.
- Thakre, M, Verma, MK, Singh, K, Awasthi, OP, Varghese, E and Sharma, VK (2015). Effect of nutrition, harvesting date and fruit canopy position on yield and quality of kinnow mandarin (*Citrus nobilis* × *Citrus deliciosa*). *Ind. J. Agril. Sci.,* **85(11)**, 1455-1460.

- Wani, MH, Bazaz, NH, Paul, RK, Showkat, AI and Bhat, A (2015). Inter-sectoral linkages in Jammu and Kashmir economy - An econometric analysis. *Agril. Eco. Res. Rev.*, **28**, 11-24.
- भौमिक, अर्पण, वर्गीस, एल्दो, जग्गी, सीमा, वर्गीस, सिनी, गहलौत, बी.जे. एवं बिन्दल, विजय (2015). उपचारों के प्रभाव के सही आकलन हेतु उच्च क्रम नेबर सन्तुलित चक्रीय ब्लॉक अभिकल्पनाऐं *भारतीय कृषि अनुसंधान पत्रिका*, **30(3),** 155-158.

Book

- Statistics and Informatics in Agricultural Research. Excel Publishers, New Delhi (2015, Eds. Sud, UC, Chandra, H, Bhar, LM and Sarkar, SK).

Book Chapters

- Statistical and Mathematical Sciences and their Applications, edited by Neeraj Tiwari. Narosa Publishing House, New Delhi, 2015 (ISBN: 978-8487-520-1).
  - Chandra, H. Small area estimation under transformation, 22-34.
  - Jambhulkar, NN, Lal, K, Parsad, R and Gupta, VK (2015). Minimum aberration fractional factorial plans for multi-level experiments, 41-73.
  - Mandal, BN, Gupta, VK and Parsad, R. Distance balanced sampling plans: An overview. 74-81.
- Statistics and Informatics in Agricultural Research (Eds. UC Sud, H Chandra, LM Bhar, and S Sarkar, (2015), Excel India Publication, New Delhi.
  - Aditya, K and Sud, UC. Higher order calibration estimators under two stage sampling, 141-149.
  - Chandra, H, Aditya, K, Maheshwari, S and Panna, NR. Micro level crop yield estimation - An application of small area estimation technique, 150-161.
  - Guha, S, Chandra, H and Sud, UC. Outliers robust generalized regression estimators for finite population total, 183-193.
  - Lal, K, Parsad, R and Gupta, VK. Trend free block designs under hetroscedastic model, 215-226.
  - Lama, A, Jha, GK, Paul, RK. Modeling agricultural commodity price volatility using GARCH model with structural break, 227-233.
  - Gurung, B, Paul, RK, Singh, KN and Panwar, S. Use of particle swarm optimization technique in time-series analysis, 240-243.
  - Pal, S and Mazumdar, D. Long term trend analysis of temperature over India, 244-259.
  - Bhardwaj, SP. Study of price volatility in pulse crops-A case study of masoor grain, 260-275.
  - Choubey, AK, Arora, A, Marwaha, S, Kumar, M, Rao, NS, Dahiya, S, Bhardwaj, A, Islam, SN, Singh, P and Ahuja, S. E-governance through enterprise resource planning system in ICAR, 306-320.
  - Kumar, M, Choubey, AK, Arora, A, Marwaha, S, Dahiya, S, Bhardwaj, A, Rao, NS, Islam, SN and Ahuja, S. E-human resources management system in ICAR, 321-337.
  - Arora, A, Marwah, S, and Alam, AKMS. Decision support system for effective management of ICAR sponsored trining programms, 338-347.

Popular Article

- Saha, ND, Saha, P, Gurung, B and Bhowmik, A (2015). Application of plant growth promoting rhizobacteria (PGPR) for enhanced crop growth. *Krishisewa: Agriculture Information Hub of Indian Farmers*. Available at http://www.krishisewa.com/articles/soil-fertility/636-pgpr-crop-growth.html.

Training Mannuals/ e-mannuals

- Small Area Estimation Techniques and Applications (2015, Eds. H Chandra and K Aditya).
- Use of Models in Crop Yield Estimation (2015, Eds. H Chandra and Raju Kumar).
- Experimental Data Analysis (2015, Eds. Seema Jaggi and Eldho Varghese).
- प्राकल्पना का परीक्षण (Testing of Hypothesis) (2015, Eds. एल्दो वर्गीस एवं सुनील कुमार यादव).

Workshop Document

- Varghese, C, Dash, S, Bhowmik, A and Sarkar, SK (2015). Farmer Participatory Farming Systems Research under AICRP on IFS: Methodology & Statistical Tools. IASRI Publication.

INVITED LECTURES DELIVERED

- Department of Agriculture and Food Engineering, IIT-Kharagpur on 13 October 2015.
  - Paul, RK. Statistical models for forecasting volatile crop yield.
- Training Programme on Tillage and Nutrient Dynamics for Better Crop Production held under the aegis of Centre of Advanced Faculty Training, Department of Agronomy, Pantnagar during 10-30 October 2015.
  - Parsad, Rajender. (i) Advancement in statistical tools and techniques for effective data analysis and (ii) Web resources on experimental designs including Indian NARS Statistical Computing portal.
- Training Programme on SAS for Statistical Procedures on 17 October 2015 at ICAR-IARI, New Delhi.
  - Parsad, Rajender. (i) Basics of SAS and descriptive statistics using SAS and (ii) Tests of significance and analysis of variance using SAS.
- FAO sponsored Study tour on Use of Remote Sensing Technology for Producing Better Quality Crop Statistics for the officials of Ministry of Agriculture, Irrigation and Livestock (MAIL), Afghanistan held at Mahalonobis National Crop Forecasting Centre (MNCFC), Govt. of India, Ministry of Agriculture & Cooperation during 26-31 October 2015.
  - Sahoo, Prachi Misra. Hill area crop assessment.
- Training Programme on Quantitative Techniques for Analysis of Breeding Experiments held at National Acaedmy of Agricultural Research Management, Hyderabad during 02-07 November 2015.
  - Parsad, Rajender. Design and analysis of diallel cross experiments. (Invited lecture delivered through google hangouts)
- Training Programme on Role of Agroforestry in Increasing Tree Cover for the IFS Officers held at the Amity University, Noida during 16-20 November 2015.
  - Ahmad, Tauqueer. Area estimation under agroforestry using remote sensing and GIS.
- SAARC Regional Training on Smart Practices for Climate Resilient Agriculture: Agroforestry Options organized by ICAR, IFPRI and SAC at New Delhi during 16-20 November 2015.
  - Parsad, Rajender. Design Resources Server and other web resources on statistical sciences.
- Training Programme on Geo-informatics in Natural Resource Management and Climate Change Mitigation held at ICAR-Indian Institute of Soil Science, Bhopal during 20-29 November 2015.
  - Sahoo, Prachi Misra. i) Fundamentals of geographic information system and ii) Statistics for spatial data analysis.

- Training Programme on Genomics and Proteomics Analysis using High Throughput Computing Software organized at NBFGR, Lucknow on 24 November 2015.
  - Dash, Sukanta. JMP Genomics an overview.
- Training Programme on SAS for Statistical Procedures at Agricultural Economics, ICAR-IARI, New Delhi on 28 November 2015.
  - Parsad, Rajender. Design Resources Server and Indian NARS Statistical Computing Portal.
- Training-cum-Workshop on Biological Data Analysis through Computational Approach organized at CSIR-North East Institute of Science and Technology, Jorhat, Assam during 08-10 December 2015.
  - Iquebal, MA i) Data cleaning and pre-processing, ii) Genome assembly, iii) Transcriptome sequence analysis and v) miRNA prediction and its target identification (lecture and hands-on training)
  - Kumar, Dinesh. i) Molecular marker discovery, ii) Genome annotation and iii) Metagenome analysis. (lectures and hands-on training)
- Training Programme on Research and Technology, Statistical Analysis and Use of SPSS for Analyzing Statistical Data at Jagannath International Management School (JIMS), Vasant Kunj, New Delhi on 18 December 2015
  - Jaggi, Seema i) Testing of hypothesis and ii) Testing of hypothesis using SPSS
  - Varghese, Eldho i) SPSS: An overview and ii) Descriptive statistics and exploratory data analysis using SPSS.
- Training Programme held at Division of Agricultural Economics, ICAR-IARI, New Delhi on 19 December 2015.
  - Sinha, Kanchan. Time series analysis using SAS.

PAPERS PRESENTED

- National Conference on Bioinformatics Panorama in Agriculture and Health (NCBPAH 2015) at SHIATS, Allahabad during 05-06 October 2015.
  - Kumar, Dinesh. Global status of agricultural bioinformatics: Challenges and issues.
- 6th World Congress on Biotechnology organized at New Delhi during 05-07 October 2015.
  - Meher, PK. A hybrid approach for identifying 5' splicing junction with higher accuracy.
- International Conference on Statistics and Related Areas for Equity Sustainability and Development held at University of Lucknow, Lucknow during 28-30 November 2015.
  - Alam, Wasi. Hybrid univariate time series approach for forecasting rice yield.
- 23rd Annual Conference of Agricultural Economics Research Association held at CIFE, Mumbai during December 02-04, 2015.
  - Paul, RK*, Saxena, R, Chaurasia, S, Zeeshan and Rana, S. Examining export volatility, structural breaks in price volatility and linkages between domestic and export prices of onion in India.
  - Ray, Mrinmoy . Quantifying the impact of climate change of Kharif Rice yield in India employing ARIMA-Intervention model.
- 50th Golden Jubilee Annual Convention on "Digital Life" of Computer Society of India (CSI) 2015 held at Bharthi Vidyapeeth, New Delhi during December 02-05, 2015.
  - Chaturvedi, KK*, Khatri, S, Sharma, M, Srivastava, RC and Singh, VB. Mining software engineering repositories: Issues and challenges.
  - Deb, Chandan Kumar, Sudeep*, Arora, Alka and Das, Madhurima. A framework for ontology learning from taxonomic data.

- Seventh International Workshop on BIG DATA BENCHMARKING held at India Habitat Centre, New Delhi during December 14-15, 2015.
  - Parsad, Rajender, Dhandapani, A*, Obi Reddy, GP, Sehgal, VK, Kumar, Mukesh and Choubey, AK. ICAR research data repository for knowledge management.
  - Rai, A, Farooqi, MS, Lal, SB and Angadi, UB. Big data initiatives in agricultutral bioinformatics. (Invited Talk)
- 69th Annual Conference of Indian Society of Agricultural Statistics, New Delhi held at University of Kota, Kota, Rajasthan during December 14-16, 2015.
  - Angadi, UB. Feed informatics: Application information technology on animal feed resources.
  - Arpan Bhowmik*, Eldho Varghese, Seema Jaggi, and Cini Varghese. Factorial Experiments with Minimum Changes in Run Sequences.
  - Bhardwaj, SP*, Gurung, Bishal and Singh, KN. Study of market behaviour and price transmission in agricultural commodities.
  - Chandra, H. Estimation of poverty and social exclusion indicators at small area level.
  - Choubey, AK. New Challenges in the field of bioinformatics.
  - Gupta, AK*, Sud, UC, Chandra, Hukum, Ahmad, Tauqueer, Sahoo, Prachi Misra, Aditya, Kaustav and Biswas, Ankur. Estimation of seed, feed and wastage ratios of major food grains crops.
  - Gurung, Bishal and Singh, KN. Modeling and simulation aspect of technology forecasting.
  - Gurung, Bishal* and Singh, KN. Estimating hedge ratio using time varying approach.
  - Jaggi, Seema. Challenges in training and post graduate teaching in agricultural statistics.
  - Kumar, Mukesh*, Bhardwaj, Anshu, Arora, Alka, Marwaha, Sudeep, Rao, N. Srinivasa, Islam, SN, Ahuja, Sangeeta and Choubey, AK. Implementation of supply chain management in ICAR.
  - Kumar, Prakash*, Lal, Krishan, Parsad, Rajender and Gupta, VK. Construction of confounded asymmetrical factorial nested row column designs
  - Lal, SB. Using mobile cloud computing in agriculture.
  - Mandal, BN*, Gupta, VK and Parsad, Rajender. Algorithmic construction of A-optimal balanced treatment incomplete block designs.
  - Mandal, BN. L1 regularized multiplicative iterative path algorithm for non-negative generalized linear models.
  - Paul, RK. Long memory stochastic volatility model: An application.
  - Rao, N. Srinivasa, Marwaha, Sudeep, Ravisankar, H.and Sivaraju, K. Knowledge base and disease identification system in tobacco
  - Ray, Mrinmoy, Rai, Anil, Singh, KN, V, Ramasubramanian, Kumar, Amrender and Rathod, Santosh. A novel approach to technology forecasting using time series intervention based trend impact analysis.
  - Sinha, Kanchan* and Gurung, Bishal. An approach to assess price volatility spillover in Indian onion markets
  - Sud, UC and Gupta, VK. Determination of optimum sample size for crop yield estimation at GP level.
  - Sud, UC and Gupta, VK. On the calibration approach in sample survey estimation.

- International Indian Statistical Association Conference on Celebrating Statistical Innovation and Impact in a World of Big & Small Data jointly organized at Yashwantrao Chavan Academy of Development Administration (YASHADA) Pune, Maharashtra by Department of Statistics, Savitribai Phule Pune University during December 20-24, 2015:
    - Chandra, H*, Salvati, N and Chambers, R. (2015). Small area estimation for discrete data under area level spatial models (Invited Talk)
    - Varghese, Cini*, Kumar, Arvind, Varghese, Eldho and Jaggi, Seema. Statistical designs under three-way blocking structure where experimental units form clumps.
- 9th International Triennial Calcutta Symposium on Probability and Statistics organized by Department of Statistics, University of Calcutta during December 28-31, 2015.
    - Bhowmik, Arpan, Varghese, Eldho, Jaggi, Seema and Varghese, Cini. Symmetric factorial experiments with minimally changed run sequences.
    - Mandal, BN, Parsad, Rajender* and Gupta, VK. Construction of incomplete block designs through integer programming. (Invited talk delivered on 29.12.2015)
    - Pal, Soumen. Neural network auto-regression approach for modeling and forecasting of monthly rainfall volume during monsoon.
    - Paul, RK. Long memory in maximum and minimum temperature series in India.

PARTICIPATION

Conferences/ Workshops/ Trainings/ Seminars/ Symposia etc.

- National Conference on Bioinformatics Panorama in Agriculture and Health (NCBPAH 2015) at SHIATS, Allahabad during 05-06 October 2015. (Dr. MA Iquebal)
- 15th National IT Seminar on Cyber Security: Issues and Challenges organized by Management Education and Research Institute (MERI) and Computer Society of India(CSI), Delhi Chapter on 10 October 2015. (Dr. Alka Arora and Dr. Sudeep)
- International Conference on Extension Research Interface - Promoting Exportable Rice Varieties and Evolving a Sustainable Development Model held at New Delhi during 16-18 October 2015. (Dr. KN Singh)
- Professional Attachment Training at Department of Statistics, Calcutta University, Kolkata from 03 August to 02 November 2015. (Mr. Sunil Kumar Yadav)
- Review workshop of Network project on Market Intelligence at ICAR-NIAP, New Delhi during 30-31 October 2015. ((Dr. RK Paul)
- 42nd Foundation Day Function of ASRB on 03 November, 2015 at Dr BP Pal Auditorium, IARI, New Delhi. (Dr. UC Sud, Dr. AK Gupta and Dr. Mukesh Kumar)
- Workshop on Foresight Mehodologies - Theory and Practices organized by TIFAC at Vigyan Bhavan Annex, New Delhi on 27 November 2015. (Mr. Mrinmoy Ray and Mr. Santosha Rathod)

Meetings

- Meeting organized by Tea Board of India for development of methodology for estimation of cost of production of tea in Coimbatore, Tamil Nadu on 06 October 2015. (Dr. Anil Rai)
- Meeting related to progress review and planning of the future work of the subproject title "Computational Identification and Modelling of Genetic Variation in Relation to Performance Traits in Buffaloes" under CABin Scheme held at CIRB, Hisar on 16 October 2015. (Dr. DC Mishra)
- Meeting of NPTC project (Horticulture) held at ICAR-IIHR on 29 October 2015. (Dr. Anil Rai)

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- Talk on "Policies for the next stage of agricultural development" delivered by Professor Ramesh Chand, Member, NITI Ayog at CC Maji Auditorium, NIAP on 31 October 2015. (Dr. AK Gupta)

- Review meeting at IARI, New Delhi on 04 November 2015. (Dr. AK Choubey)

- Skype meeting with Officials of Ministry of Agriculture and Fisheries, Kingston, Jamaica, FAO Jamaica and FAO Rome on 04 November 2015 for discussion on developed methodology under FAO funded project "Study on improving methods for estimating crop area, yield, production of mixed crops, repeated and continuous cropping". (Dr. UC Sud, Dr. Tauqueer Ahmad and Dr Ankur Biswas)

- Sensitization Session of the "Mera Gaon Mera Gaurav" programme by ICAR held on 06 November 2015 at BP Pal Auditorium under the Chairmanship of Director ICAR-IARI. (Dr. Prawin Arya and Dr Ankur Biswas)

- Skype meeting with Officials of FAO, Rome on 12 November 2015 for discussion on Revised Budget and Letter of Agreement between IASRI and FAO under FAO funded project. (Dr. UC Sud, Dr. Tauqueer Ahmad)

- Skype meeting with Officials of National Institute of Statistics of Rwanda (NISR), Kigali, Rwanda, FAO Rwanda and FAO Rome on 13 November 2015 for discussion on developed methodology under FAO funded project. (Dr. UC Sud and Dr Tauqueer Ahmad)

- Second Review Committee meeting of the CHAMAN project under the Chairmanship of Additional Secretary (A&C) held at Mahalanobis National Crop Forecast Centre (MNCFC), Pusa Campus, New Delhi on 18 November 2015. (Dr Tauqueer Ahmad)

- 6th Meeting of the Executive Committee of ITRA on 24-25 November 2015. (Dr. Sudeep)

- Meeting with the Director, DES and District Officials, DES at Directorate of Economics and Statistics, Guwahati, Govt. of Assam regarding discussion about data collection work for the Kharif season 2015-16 under the project "Pilot study for Developing State Level Estimates of Crop Area and Production on the basis of Sample Sizes Recommended by Professor Vaidyanathan Committee Report" during 25-27 November 2015. (Dr. Anshu Bharadwaj)

- Reviewed meeting on FASAL and delivered lecture on "Recent advances in crop yield forecasting" at Dharwad on 26 November 2015. (Dr. KN Singh)

- Meeting of Academic Council of P.G. School ICAR-IARI, New Delhi at ICAR-IARI, New Delhi on 28 November 2015. (Dr. Anil Rai)

- 55th Meeting of School Board of the School of Sciences, IGNOU, New Delhi held on 03 December 2015. (Dr. Rajender Parsad)

- First Review meeting of ICAR Research Data Repository for Knowledge Management on 05 December 2015. (Ms. Vandita K. Choudhary and Sh. Raju Kumar)

- Third meeting of the Technical Committee of 20th Livestock Census 2017 held at Krishi Bhawan, New Delhi on 09 December 2015. (Dr. AK Gupta)

- Meeting with the officials of DES, Govt of Odisha, Bhubaneshwar to discuss the progress of data collection work under the project entitled "Pilot Study for Developing State Estimates of Crop Area and Production on the Basis of Sample Sizes Recommended by Professor Vaidyanathan Committee Report" at DES, Bhubaneswar on 09 December 2015. (Dr. Hukum Chandra and Dr. Kaustav Aditya)

- Meeting of Mera Gaon Mera Gaurav (MGMG) with IARI colleagues on 10 December 2015. (Ms. Vandita K. Choudhary)

- Project Management Committee (PMC) meeting under the project entitled "Pilot Study for Developing State Estimates of Crop Area and Production on the Basis of Sample Sizes Recommended by Professor Vaidyanathan Committee Report" to discuss about various administrative issues related to project and

future plan and presentation on small area estimation methodology being used by DES Odisha for poverty estimation, Bhubaneshwar. on 11 December 2015. (Dr. Hukum Chandra and Dr. Kaustav Aditya)

- High Level Co-ordination Committee (HLCC) meeting on Crop Estimation Surveys in Haryana state on 22 December 2015 at Chandigarh. (Dr. AK Gupta)

CONSULTANCY /ADVISORY SERVICES PROVIDED

- Dr. Rajender Parsad advised Dr. D Ramajayam, Senior Scientist (Fruit Science), ICAR-Indian Institute of Oil Palm Research, Pedavegi on the use of confounded factorial in a single replication for a 3^4 factorial experiment {with factors as varieties(V), Nitrogen(N), Phosphorus(P) and Potassium(K) each at three levels} in 33 plots per block. The design was obtained after confounding VNPK. This design allows estimation of all main effects, two factor interactions and three factor interactions. Two degrees of freedom of 4-factor interaction are confounded with blocks and remaining 14 df are treated as error degrees of freedom assuming the absence of 4-factor interaction. He was also suggested the SAS steps for analyzing the data generated from this design.

- Sh. UK Pradhan advised Sh. A Maity, Scientist, IGFRI, Jhansi to analyze the data for 24 varieties with 9 traits and calculate the character to character interaction, D-square, MANOVA, genotypic and phenotypic correlation, heritability, genetic advance and path analysis.

- Dr. Wasi Alam advised i) Dr. Hemant Kumar, Scientist, IIPR, Kanpur for analysis of multivariate data using cluster analysis and ii) Ms. Archana Sanyal, Ph.D. Scholar, Division of Seed Science and Technology, IARI, New Delhi, for multivariate analysis of ordinal data.

- Dr. Eldho Varghese advised Dr. Shailendra Jha, Scientist, Division of Genetics, ICAR-IARI, New Delhi to use α-design for comparing 270 genotypes in two replications with 27 blocks each of size 10. The layout of the design was also given. He also suggested Alpha designs with parameters $v = 100$, $b = 20$, $r = 2$, $k = 10$, AE = 0.9308, DE = 0.9698 to phenotype reference set of wheat germplasm for phosphorus use efficiency in low P soil and hydroponics to Ms. Soumya, M.Sc. student, Division of Genetics, ICAR-IARI, New Delhi. The layout was generated from Design Resources Server deployed at ICAR-IASRI web site (http://iasri.res.in/design/)

- Sh. PK Meher adviced Dr. Rahul Kumar, Assitant Professor, Eternal University, Himachal Pradesh for analyzing the data using R-software. RBD analysis was done for iron and zinc content by 20 varieties of wheat with three replications. Also, the linear logistic regression analysis was performed by taking zinc (iron) content at grain stage as dependent variable and zinc (iron) content at nine different stages of plants as independent variables. Further, trend of zinc (iron) content at different stages of plants was studied.

- Sh. Prakash Kumar adviced Vijay Parjapati, Ph. D. student IARI, New Delhi to analyze data using PCA.

- Dr. Arpan Bhowmik advised Dr. Namita Das Saha, Scientist, Centre for Environment Science and Climate Resilient Agriculture (CESCRA), ICAR-IARI, New Delhi on the use of factorial experiments to study the effect of climate change variables (six different combinations of elevated CO_2 and elevated temperature as different treatment combinations) on Quorum sensing mediated bacterial pathogenesis of soft rot in tomato. The experiment was conducted in National Phytotron Facility lab,ICAR- IARI, New Delhi.

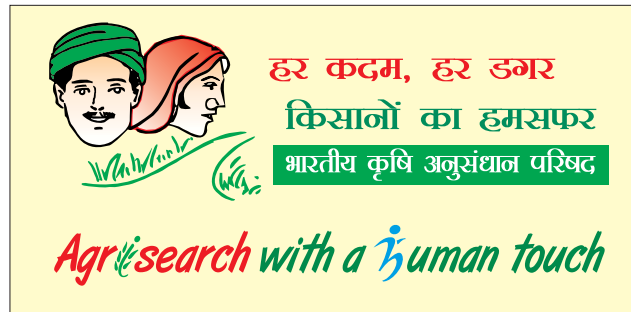## PERSONNEL

Congratulations on your Appointment

Name	Designation	Effective Date
Sh. Ravinder Singh Shekhawat	Scientist	12.10.2015

Congratulations on your Promotion

Name	Designation	Effective Date
Dr. Anshu Bhardwaj	Scientist (Next Higher RGP)	17.11.2010
Sh. Sanjeev Kumar	Scientist (Next Higher RGP)	21.08.2011
Dr. BN Mandal	Scientist (Next Higher RGP)	10.02.2013
Sh. Raghuvar Datt	AAO	26.11.2015
Smt. Chander Kala Bakolia	Assistant	28.11.2015
Sh. Khushiyal	Assistant (3rd MACP)	20.12.2015

Wish you Happy Retired Life

Name	Designation	Effective Date
Smt. Sushma Gupta	AAO	31.10.2015

हर कदम, हर डगर
किसानों का हमसफर
भारतीय कृषि अनुसंधान परिषद

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