



## Papers Presented and Participation of the Institute at the Conferences/Workshops etc.

- Brainstorming National Workshop on Crop Insurance organized by the Department of Agriculture and Cooperation at Mahalanobis National Crop Forecast Centre, Pusa Campus, New Delhi on May 15, 2014.
  - Sud, UC. Relevance of small area estimation techniques in the context of crop insurance.
- XXXII Group Meeting of the All India Coordinated Research Project on Vegetable Crops, Varanasi, June 24-27, 2014
  - Prasad, Rajender\*, Dhandapani, A., Singh, B. and Dash, Sukanta. Information System for Planning and Analysis of Experiments of AICRP on VC.
- Department of Economics and Management, University of Pisa, Pisa, Italy, July 23, 2014.
  - Chandra, H. Estimation of Poverty and Social Exclusion Indicators at the Small Area Level (Invited speaker).
- Department of Statistics, Computer Applications, University of Florence, Florence, Italy on 24 July 2014.
  - Chandra, H. A spatially nonstationary Fay-Herriot model for small area estimation (Invited speaker).
- International Conference on Agriculture, Forestry, Horticulture, Aquaculture, Animal Sciences, Food Technology, Biodiversity and Climate Change Sustainable Approaches (AFHAFBC-2014), at Jawaharlal Nehru University, New Delhi during 30-31 August, 2014.
  - Sarika, Iquebal, MA, Arora, V, Rai, A and Kumar, Dinesh (2014) Development of antimicrobial peptide prediction tool using Support Vector Machine based approach.
- Sixth Workshop on Forging Partnerships in Statistical Training in Asia and the Pacific: Networking for Agricultural and Rural Statistics, 02-04 September 2014, Tsukuba, Ibaraki, Japan.
  - Chandra, H. A curriculum for training on agricultural and rural statistics (Invited speaker).
- International Conference on Innovative Approach in Applied Physical, Mathematical / Statistical, Chemical Sciences and Emerging Energy Technology for Sustainable Development (APMSCSET-2014) at Jawaharlal Nehru University, New Delhi, during September, 27-28, 2014.
  - Alam, Wasi. Sequential testing procedures in a family of lifetime distributions with applications.
- National Workshop on Improvement of Agricultural Statistics organized by Directorate of Economics and Statistics, Ministry of Agriculture, Government of India at NASC Complex, New Delhi on September 30-October 01, 2014.
  - Ahmad, T\*, Sud, UC, Rai, A, Sahoo, PM and Bhatia, VK. Study to develop an alternative methodology for estimation of cotton production.
  - Tyagi KK. Estimation of area and production of food grain crops on the basis of small sample sizes.
- National Conference on Recent Advances in Statistical and Mathematical Sciences and their Applications (RASMSA-2014) at Kumaon University, Nainital during October 04-06, 2014.
  - Bhar, LM. Incomplete block designs for multiple slope ratio assays.

- Bharadwaj, Anshu. Geostatistics in forestry: An overview. (Invited talk)
- Chandra, H. Small area estimation under transformation. (Invited talk)
- Dash, Sukanta\*, Parsad, Rajender and Gupta, VK. Row column designs for factorial experiments in two rows with orthogonal parameterization.
- Lal, SB\*, Sharma, Anu, Chandra, Hukum and Rai, Anil. Software for Survey Data Analysis SSSA Ver 2.0. (Invited talk)
- Paul, Ranjit Kumar. M-estimation and LMS estimation techniques for designed experiments. (Invited talk)
- Pradhan, UK\* and Lal, K. Efficient designs for mixture experiments with process variable in smaller number of runs. (Invited talk)
- Varghese, Eldho\* and Varghese, Cini. MERC designs involving diallel crosses incorporating specific combining abilities for test lines versus control line comparisons. (Invited talk)
- Workshop on Next Generation Sequencing (NGS) Techniques of DNA at Institute of Advanced Study in Science and Technology (IAAST), Guwahati, Assam during October 20-22, 2014.
  - Kumar, Dinesh. How NGS technology can be used for genetic improvement and management of germplasm. (Invited talk)
- 12<sup>th</sup> Asian Maize Conference, Bangkok, Thailand during October 30 – November 1, 2014.
  - Kumar, Bhupender\*, Guleria, SK, Dubey, RB, Khanorkar, SM, Patel, J, Varghese, Eldho, Kumar, Vinod, Abhishek, Alok, Das, Abhijit Kumar, Mukri, Ganapati, Kumar, Ramesh, Singh, Vishal, Yathish KR, Hooda, KS, Singh, SB, Sekhar, JC, Yadav, OP. AMMI analysis for yield stability of elite maize hybrids under rainfed and irrigated conditions.
  - Kumar, Bhupender \*, Chaudhary, Dharam Paul, Parihar, CM, Jat, SL, Sapna, Pradeep, T, Puttaramanaik, Kumar, Vinod, Varghese, Eldho, Abhishek, Alok, Das, Abhijit Kumar, Mukri, Ganapati, Kumar, Ramesh, Singh, Vishal, Yathish KR, Singh, SB, Sekhar, JC, Kaul, Jyoti, Yadav, OP. Study of GEI for quality traits in maize using AMMI and Eberhart and Russell model.
- International Conference on Stem Cell Research, Cancer Biology, Biomedical Sciences, Bioinformatics and Applied Biotechnology which was held at Jawaharlal Nehru University, New Delhi, on November 01-02, 2014.
  - Meher, PK. Eukaryotic donor splice site prediction: A machine learning approach.
- International Conference on Emerging Trends in Biotechnology (ICETB 2014) at Jawaharlal Nehru University, New Delhi during November 6-9, 2014.
  - Iquebal, MA\*, Sarika, Anil Rai and Dinesh Kumar (2014). Computational approach for prediction of cattle antimicrobial peptides using Artificial Neural Network methodology (Invited Lecture).
- 2<sup>nd</sup> Conference on Converging Technologies Beyond 2020 (2CTB-2020) at Institute of Engineering and Technology, Kurukshetra University, Kurukshetra during November 28-29, 2014.
  - Kumar, Dinesh. Genomics approach to enhance Indian agricultural productivity and role of super computer. (Invited talk)
  - Iquebal, MA\*, Sarika, Angadi, UB, Arora, Vasu, Sablok, Gaurav, Kumar, Sunil, Rai, Anil and Kumar, Dinesh (2014). SBMDb: First whole genome based DNA microsatellite database of sugarbeet for bioenergy and industrial application.
- ISPRS Technical Commission VIII Symposium on Operational Remote Sensing Applications: Opportunities, Progress and Challenges and Annual Conventions of ISRS and ISG and Joint Sessions with ISPRS TC IV & VI during December 09-12, 2014 at Hyderabad.
  - Sahoo, PM\*, Ahmad, T, Singh, KN and Gupta, AK. Spatial Imputation techniques for predicting missing information in satellite images.
- International Conference on Innovative Research in Applied Physical, Mathematical/Statistical, Chemical Sciences, Environmental Dynamics, Integration of Life Sciences and Engineering held at Jawaharlal Nehru University, New Delhi, during December 27 – 28, 2014.
  - Alam, Wasi. Sequential probability ratio test for the parameters of limiting form of discrete distributions.
- 102<sup>nd</sup> Indian Science Congress organized at University of Mumbai, Mumbai during January 03-07, 2015.
  - Sud, UC. Calibration approach based estimator of population total for successive sampling in presence of auxiliary.

- Chandra, H and Sud, UC (2015). Disaggregate Level Crop Yield Estimation using Small Area Estimation Techniques (Invited speaker).

#### **Session in Agriculture and Forestry Sciences**

- Rao, AR\*, Sarkar, Rupam Kumar, Meher, Prabina Kumar and Wahi, SD. An approach to the development of a core set of germ plasm using mixture of qualitative and quantitative data. (Invited talk)
- Islam, SN. ICT in agriculture: Foundation for a new revolution. (Invited talk)
- Varghese, Cini\*, Varghese, Eldho, Jaggi, Seema and Bhowmik, Arpan. Experimental designs for open-pollination in polycross trials. (Poster presentation)

#### **Session on Mathematical Sciences (including Statistics)**

- Rao, AR\*, Sarkar, Rupam Kumar, Varghese, Cini, and Meher Prabina Kumar. Incomplete block designs for next generation sequencing experiments.
- Symposium on Accelerating Biology 2015: Catalyzing Evolution” at C-DAC, Pune during January 20-22, 2015.
  - Kumar, Dinesh. NGS data and its applications in agriculture. (Invited talk)
- International Consultation Meeting of Fish Genomics for Development of Roadmap for Fish Molecular Breeding Programme in India, at ICAR-CIFA, Bhubaneshwar on January 23, 2015.
  - Kumar, Dinesh. Bioinformatics in genomic analysis. (Invited talk).
- 68<sup>th</sup> Annual Conference of the Indian Society of Agricultural Statistics organized at ICAR-IASRI, New Delhi during January 29-31, 2015.

#### **a. Invited Papers**

##### **Session on Mountain/ Hill Agriculture**

- Ahmad, Tauqueer\*, Sud, UC and Sahoo, Prachi Misra. Methodological issues relating to estimation of area and production of horticultural crops.
- Ajit\*, Dhyani, SK, Newaj, Ram and Handa, AK. Simulation of carbon sequestered under tree based systems in hilly district of Himachal Pradesh.
- Sahoo, Prachi Misra\*, Rai, Anil, Ahmad, Tauqueer. Generation of agricultural statistics in North Eastern hilly regions using remote sensing and GIS.

#### **Session on Women Empowerment in Agriculture**

- Arora, Alka\*, Sudeep, Choubey, AK, Alam, AKM Samimul, Dahia, Rama. Women participation scenario in agricultural education and research.

#### **Session on Emerging Issues in Design and Analysis of Experiments**

- Bhar, Lalmohan\* and Ojha, Sankalpa. Influence measures in blocked designs of experiments with correlated errors.
- Varghese, Cini\*, Varghese, Eldho, Jaggi, Seema and Bhowmik, Arpan. WebPD: An online software for the generation of polycross designs.
- Susheel Kumar Sarkar and Sukanta Dash\*. Repeated measurements for ordinal data.

#### **Session on New Challenges in Survey Sampling**

- Lal, SB\*, Sharma, Anu, Chandra, Hukum and Rai, Anil. Sample selection software for survey data.

#### **Session on Advances in Agricultural Informatics**

- Choubey, AK\*, Arora, Alka, Sudeep, Dahiya, Shashi, Islam, SN, Bhardwaj, Anshu. E-governance through Enterprise Resource Planning System in ICAR.
- Rao, AR. Agricultural Bioinformatics - A potential avenue for research and development in Indian Agriculture.

#### **Session on Statistical Modelling for Biological and Economic Phenomena**

- Ghosh, Himadri\*. Some fuzzy time-series models and their application to agriculture.
- Gurung, Bishal\*. Stochastic volatility models and their application.

#### **b. Workshop on Methodology for Estimating Crop Area and Yield under Mixed and Continuous Cropping**

- Aditya, Kaustav\* and Singh, Man. Methods for estimation of crop area in different countries.
- Ahmad, Tauqueer\* and Sahoo, Prachi, Misra. Methods for estimation of crop yield in different countries.
- Biswas, Ankur\* and Chandra, Hukum. Use of global positioning system in crop area estimation.

- Sud, UC\* and Gupta, VK. Study on improving methods for estimating crop area, yield and production under mixed, repeated and continuous cropping – An overview.

### c. Contributed Papers

#### Session on Design of Experiments

- Bhowmik, Arpan\*, Varghese, Eldho, Jaggi Seema and Varghese Cini. 2<sup>k</sup> factorial experiment with minimum level changes.
- Dash, Sukanta\*, Parsad, Rajender and Gupta, VK. Efficient row-column designs for mixed level factorial experiments based on baseline parameterization.
- Pradhan, Upendra Kumar\* and Lal, Krishan. Analysis of mixture experiments for optimum response.
- Varghese, Eldho\* and Varghese, Cini. Type III complete diallel cross experiments under row-column setup with specific combining abilities.

#### Session on Sampling Techniques

- Aditya, Kaustav\*. Higher order calibration estimators under two stage sampling design.
- Biswas, Ankur\*, Rai, Anil and Ahmad, Tauqueer. Spatial bootstrap variance estimation technique in presence of missing observations.
- Chandra, H, Maheshwar, Shikha\*, Aditya, Kaustav and Panna, Nupur. Micro level crop yield estimation - An application of small area estimation technique.
- Gupta, AK\*, Sud, UC, Tyagi, KK, Chandra, H, Ahmad, T, Sahoo, PM, Aditya, Kaustav, Biswas, Ankur and Singh, Man. Seed, feed and wastage ratios of major food crops in Uttar Pradesh.
- Yadav, Satish Kumar, Wahi, SD\* and Sud, UC. Calibration estimator in presence of quadratic relationship between study and auxiliary variable.

#### Session on Statistical Modelling

- Gurung, Bishal\*, Singh, KN and Paul, Ranjit Kumar. An alternative approach to capture cyclical and volatile phenomena in time-series data.
- Kumar, Anil\*, Chaturvedi, Ajit, Chaudhary, Alka, Panwar, Sanjeev and Arya, Prawin.

Development of class of 'Accelerated' sequential procedures and associated second-order approximations under reliability model.

- Panwar, Sanjeev\*, Singh, KN, Kumar, Anil and Rathore, Abhishek. Performance evaluation of different crop yield forecasting approaches using weather indices.

#### Session on Informatics

- Ahuja, Sangeeta\*. Kernel density based Bayesian cluster ensemble.
- Arora, Alka\*, Sudeep and Alam, AKM Samimul. Decision support system for effective management of ICAR sponsored training programs.
- Islam, SN\*. Expert system shell for agricultural crops (ShellAg).
- Kumar, Mukesh\*, Choubey, AK, Arora, Alka, Dahiya, Shashi, Bhardwaj, Anshu, Rao, N Srinivasa, Sudeep, Islam, SN and Ahuja, Sangeeta. e-Human resources management system: purposes and uses.
- Kumar, Sumit\*, Nath, Kamalika and Gupta, AK. Data entry software in MS Access 2007.
- Rao, N Srinivasa\*, Kumar, Mukesh and Choubey, AK (2015). Designing of results framework document management system in ICAR: An initiative.
- Singh, KN\*, Bhardwaj, SP, Panotra, Narinder and Sahoo, Prachi Misra. Use of Geographic Information System (GIS) and Remote Sensing (RS) technology to get economic benefit by optimization of resource use in agriculture.

#### Session on Statistical Application

- Bhardwaj, SP\*. Study of price volatility in pulse crops – A case study of masoor grain.
- Pal, Soumen\* and Mazumdar, Debasis. Long term trend analysis of temperature over India.
- Paul, Ranjit Kumar\*, Gurung, Bishal and Paul, Amrit Kumar. Dual long memory in agricultural commodity prices.
- Alam, Wasi\* and Sinha, Kanchan. Comparative study on recent versions of exponential distributions.
- Sahoo, Prachi Misra\*, Rai, Anil, Ahmad, T, Raju, BMK and Osman, M. Development

of Rainfed Areas Prioritization Index (RAPI) for characterization of rainfed areas in India.

- Arya, Prawin\*, Singh, DR, Kumar, Anil and Singh, KN. An econometric study for emergence of ground water markets and its determinants in Hanumangarh district of Rajasthan.

#### **Session on Statistical Genetics/Bioinformatics**

- Das, Samarendra\*, Meher, Prabina Kumar and Rao, AR. Reverse engineering and analysis of gene regulatory networks for salinity stress response in rice.
- Farooqi, Samir\*, Sanjukta, RK, Mishra, DC, Singh, DP, Rai, Anil, Chaturvedi, KK Sharma, Naveen and Prabha, Ratna. Comparative genome analysis of halophilic and non-halophilic bacteria using codon usage bias based tools.
- Grover, Monendra\*, Mishra, DC and Srivastava, Sudhir. Quantum computation and biological stress.
- Kaur, Sukhdeep, Iquebal, MA, Sarika, Tandon, Gitanjali, Rai, Anil and Kumar, Dinesh. Salinity stress responsive candidate gene selection for introgression: A meta-analysis.
- Meher, Prabina Kumar\* and Rao, AR. Evaluating the performance of machine learning classifiers for the prediction of donor splice sites in rice genomes.
- Mishra, DC\*, Rajan, Veena, Srivastava, Sudhir, Kumar, Sanjeev and Rai, Anil. Support Vector Machine (SVM) based prediction model for protein-protein interaction using protein 3D structure and physicochemical properties.
- Paul, AK\*, Paul, Ranjit Kumar, Prabhakaran, VT, Singh, Inder and Dhandapani, A. Comparison of different parametric and non-parametric stability measures for non-normal data.
- Shukla, Shantanu Iquebal, MA, Sarika, Angadi, UB, Rai, Anil and Kumar, Dinesh. The onion genomic resource: A genomics and bioinformatics driven resources for extemporizing onion functional analysis and breeding.
- Srivastava, Sudhir, Mishra, DC, Lal, SB and Angadi, UB. A tool for protein structure comparison using elastic shape analysis.

#### **d. Contributed Papers (Students)**

##### **Session on Design of Experiments**

- Chetan\*, Laxmi, Ratna Raj and Parsad, Rajender. Construction of design for mixture-of-mixture experiments under restricted region using central composite designs.
- Dasgupta, Pratyush\*, Bhar, Lalmohan and Gupta, VK. Robustness of BIB designs for multi-response experiments against the loss of observations as per efficiency criterion.
- Datta, Anindita\*, Jaggi, Seema, Varghese, Cini and Varghese, Eldho. Generalized row-column designs with factorial treatment structure.
- Gopinath, Pratheesh P\*, Parsad, Rajender, Gupta, VK and Mandal, BN. Two dimensional balanced sampling plan excluding adjacent units.
- Harun, Mohd.\*, Varghese, Cini, Varghese, Eldho and Jaggi, Seema. Designs for breeding trials involving three-way crosses. (Mohd. Harun was awarded an appreciation letter from the society for best presentation)
- Roy, Himadri Shekhar\*, Bhar, LM and Gupta, VK. A study on outliers in factorial experiments.

##### **Session on Sampling Techniques**

- Guha, Saurav\*, Chandra, H, Sud, UC, Aditya, Kaustav and Lal, SB. Estimation of finite population total for outlier contaminated survey data. (Saurav Guha was awarded an appreciation letter from the society for best presentation)
- Islam, Sadikul\*, Sud, UC, Ahmad, T, Wahi, SD and Sudeep. An application of calibration approach for estimation of finite population ratio under two-phase sampling design.
- Kumar, Pankaj\*, Kumar, Anil and Tikkiwal, GC. Measures of poverty using small area estimation in India.
- Moury, Pramod Kumar\*, Ahmad, Tauqueer, Sud, UC, Sahoo, Prachi Misra and Lal, SB. Estimation of crop yield at tehsil level using double sampling regression approach under stratified two stage sampling design framework. (Pramod Kumar Moury was awarded an appreciation letter from the society for best presentation)

- Basak Pradip\*, Chandra H and Sud UC. Estimation of finite population total for skewed data using model calibration approach. (Pradip Basak was awarded an appreciation letter from the society for best presentation)

#### Session on Statistical Modelling and Applications

- Banerjee, Rahul\*, Gurung, Bishal, Singh, KN and Panwar, Sanjeev. Dynamics of area substitution of edible oilseeds in India.
- Lall, Shwetank\*, Ghosh, Himadri and Prajneshu. Comparison of compound tweedie distribution and modified gamma distribution for rainfall modelling. (Shwetank Lall was awarded an appreciation letter from the society for best presentation)
- Lama, Achal\*, Jha, Girish K and Paul, Ranjit, Kumar. Forecasting agricultural commodity price volatility using GARCH model with structural break. (Achal Lama was awarded an appreciation letter from the society for best presentation)

#### Session on Statistical Genetics/ Bioinformatics

- Supriya, P\* and Bhat, KV. Assembly, annotation, functional classification of transcriptomes and identification of key genes for moisture stress tolerance in Cucumis melo. (P Supriya was awarded an appreciation letter from the society for best presentation)
  - Choudhary, Ram Kumar\*, Rao, AR and Wahi, SD. Detection and testing of biennial rhythm in Mango.
  - Deb, Chandan Kumar\* and Sudeep. Classification tree based problem identification: Module for Agridaksh. (Chandan Kumar Deb was awarded an appreciation letter from the society for best presentation)
  - Naha, Sanchita\*, Sudeep, Malhotra, PK, Arora, Alka and Wahi, SD. Agent based crop variety selection recommender system. (Sanchita Naha was awarded an appreciation letter from the society for best presentation)
- Workshop on Application of Bioinformatics in Life Sciences during February 18-20, 2015 at

- a) School of Biotechnology, Faculty of Science, BHU, Varanasi
  - Kumar, Dinesh. Digital biology and its applications in agriculture. (Invited talk on February 20, 2015)
- b) Department of Microbiology, Institute of Medical Sciences, BHU, Varanasi.
  - Kumar, Dinesh. Prediction of antimicrobial peptides by machine learning approach. (Invited talk)
- 17<sup>th</sup> Annual Conference on Statistics and Informatics for Smart Decisions in Managing Resources: Issues and Challenges held at BIMTECH, Bhubaneswar, Odisha during February 23-25, 2015.
  - Ahuja, Sangeeta. Robust performance ensemble in agroforestry research.
  - Arora, Alka. Rough set based approach for cluster analysis. (Invited talk in the session of Data Mining)
  - Bhar, LM. Cook-statistic in blocked design of experiments with correlated errors. (Invited talk in the session of Experimental Designs)
  - Chandra, H (2015). Estimation of Poverty and Social Exclusion Indicators at the Small area Level.
  - Das, Samarendra. Gene selection using support vector machines and MRMR filter for time-series gene expression data.
  - Dash, Sukanta. Efficient row column designs for factorial experiments in two rows with orthogonal parameterization.
  - Gurung, Bishal. Combining models to improve forecasting of price volatility.
  - Gurung, Bishal. State space models for forecasting price volatility. (Invited talk in the session of Challenges in Socio Economic Analysis)
  - Mandal, BN. An integer linear programming approach to construction of balanced treatment incomplete block designs.
  - Paul, RK. Application of long memory time series models in agriculture. (Invited talk In the session of Statistical Modeling)
  - Sarkar, Ananta\*, Sarkar, Susheel Kumar and Bhar, LM. Design of experiments: Need of the day. (Invited talk in the session of Experimental Designs)
- 9<sup>th</sup> INDIACom; 2<sup>nd</sup> 2015 international conference on Computing for Sustainable Global Development at Bharti Viyapeeth's Institute

of Computer Applications and Management (BVICAM), New Delhi during March 11-13, 2015.

- Sarkar, Susheel Kumar\* and Khanduri, Om Prakash. Information system of agricultural field experimentation in India.
- Deb, CK, Marwaha, S, Malhotra, PK, Wahi, SD\* and Pandey, RN. Strengthening soil taxonomy ontology software for description and classification of USDA soil taxonomy up to soil series.
- International Symposium on New Perspectives in Modern Biotechnology organized by Society for Applied Biotechnology, at Puducherry from 23 - 25 March 2015.
  - Tandon, G\*, Jaiswal, S, Iquebal, MA, Singh, S, Kumar, S, Rai, A and Kumar, D (2015). In silico study of interaction of EDS1 and PAD4 proteins in tomato using molecular dynamics approach.
  - Kaur, S\*, Iquebal, MA, Jaiswal, S, Singh, S, Rai, ., Kumar, D (2015). In silico prediction and functional characterization of genes related to abiotic and biotic stresses in chickpea (*Cicer arietinum*).
- Workshop on Harnessing and Enhancing Quality of Agricultural Research organized by National Professor Unit at IASRI, New Delhi on March 25, 2015.
  - Bhar, Lalmohan. Outliers in designed experiments
  - Chandra, H. Probability sampling, sample size determination and sample survey resources server.
  - Gupta, VK. Fundamentals of design of experiments.
  - Jaggi, Seema. Experimental designs for indirect effects of treatments and online software.
  - Parsad, Rajender. Applications of designs for factorial experiments in NARES and design resources server.
  - Varghese, Cini. Experimental designs for polycross trials.

## INVITED LECTURES DELIVERED

### Dr UC Sud

- A lecture on System for Collection of Agricultural Statistics in India on August 8, 2014 at National Statistical Systems Training Academy (NSSTA), Noida.

### Dr. Anil Rai

- Lecture on Bioinformatics in Agriculture in one week capacity building program for scientists of NARES at National Institute of Agricultural Economics and Policy Research (NIAP), New Delhi.
- Lecture on Bioinformatics and its Applications in Agriculture in CAFT training on Functional Genomics and Proteomics - Techniques and Tools for Crop Improvements on November 24, 2014 at IARI New Delhi.
- Two lectures on Statistical Data Mining Tools for Strategic Analysis and Spatial Analysis through GIS and Geo-statistics in CAFT training program on Strategies to Enhance Oilseed Brassica Production under Climate and Resource Constraints Scenario on November 28, 2014 at DRMR, Bharatpur, Rajasthan.

### Dr. Seema Jaggi

- Two lectures on Testing of Hypothesis and Analysis of Variance in a training workshop on Research Methodology from September 16-27, 2014 at Council for Social Development, New Delhi.
- A lecture on Functions and Activities of IASRI along with Teaching Programmes in Agricultural Statistics during a one day visit of students of Lady Shri Ram (LSR) College, University of Delhi at IASRI on September 29, 2014.
- A lecture on Functions and Activities of IASRI during a one day visit (December 5, 2014) at IASRI of the participants of six weeks training programme on Official Statistics and Related Methodology of International Statistical Education Centre (ISEC) Kolkata conducted by NASA.

### Dr. Rajender Parsad

- Two lectures using Webinar on Web Resources for Designed Experiments and Indian NARS Statistical Computing Portal in Training programme on Advances in Pest Forecast Models and Decision Support System for Crop Protection in Changing Climate Scenario organized at CRIDA, Hyderabad for plant protection scientists and agro-meteorologist during October 29-November 18, 2014.

- Two lectures using Webinar on Advanced Designs and Pooled Analysis and Response Surface Designs in Training programme on Analysis of Experimental Data organized at NAARM, Hyderabad during November 10-15, 2014.
- Four Lectures on Basic Statistical Concepts and Tests of Significance, Design of experiments (single factor, multiple factor, multi-location, on-station and on-farm), Combined Analysis of Data across Sites, Years, On-station vs On-farm Experiment, Unequal Replication etc. and Site Regression Biplot in Training Workshop on Experimental Techniques and Data Analysis in Agriculture organized by CIMMYT, India at NASC complex, Pusa, New Delhi during February 12-14, 2015.

#### **Dr. KK Tyagi**

- Lecture on Sampling Techniques to a batch of 21 Afghanistan nationals sent by Agronomy Division, IARI on April, 01, 2014.
- One lecture on An Overview of Different Methods of Sampling Used in Sample Surveys and Small Area Estimation Techniques to the participants of a Training Programme on Official Statistics for 19 ISS Probationers at National Statistical Systems Training Academy (NSSTA), MOSPI on July 18, 2014.

#### **Dr. Dinesh Kumar**

- Taught Fish Bioinformatics Courses to M.F.Sc and Ph.D. students during April 29-30, 2014 at Central Institute of Fisheries Education (CIFE).
- Five lectures on i) Global Status of Domestic Animal Bioinformatics: Where do we stand?, ii) DNA Signature based SNP and STR Marker Analysis, iii) Next Generation Sequencing Data and Genome Assembly, iv) RNA Seq/ Differential Gene expression/Transcriptome Analysis and v) IPR issues related to Indigenous Domestic Animal Germplasm in DBT funded training programme on Molecular Tools and Bioinformatics Approaches for Livestock Genome Analysis held during September 10-30, 2014 at Central Institute for Research on Cattle (ICAR-CIRC), Meerut.
- A lecture on Global Status of Agricultural Bioinformatics and Challenges for India in National Training Programme on Recent

Trends on Bioinformatics and its Application in Agriculture held at ICAR-NAARM, Hyderabad during January 02-13, 2015.

- Two lectures on i) Global Status of Domestic Animal Bioinformatics: Where do we stand? and ii) IPR Issues Related to Indigenous Domestic Animal Germplasm in National Training Programme on Advanced Tools for Analysis of Phenomic and Genomic Data organized by Dairy Cattle Breeding Division at ICAR-National Dairy Research Institute, Karnal - 132 001 (Haryana) during March 05-25, 2015.
- Lecture on Applications of Bioinformatics in Increasing Agri-Productivity to 101<sup>st</sup> batch of FOCARS of 239 ARS probationers at ICAR-NAARM, Hyderabad on February 05, 2015.

#### **Dr. Tauqueer Ahmad**

- Lecture on Resampling Techniques for Complex Survey Data at Department of Statistics and Operations Research, Aligarh Muslim University (AMU), Aligarh on June 28, 2014.
- A lecture on Collection of Agricultural Statistics using Remote Sensing and GIS in the National Statistical Systems Training Academy (NSSTA), Noida on July 18, 2014.

#### **Dr. Hukum Chandra**

- A lecture on Statistical Computing using R in Faculty Development Programme 2014 at Ramanujan College, University of Delhi, on November 01, 2014.
- As Resource Person 'Faculty Development Programme 2014' at Ramanujan College, University of Delhi, on November 01, 2014.
- As Resource Person, sessions on 'Statistical Tools and their Applications', Lakshmibai College, University of Delhi, Delhi, January 10, 2015 and February 14, 2015.
- As Resource person, workshop on R and SPSS Software, Department of Statistics, University of Delhi, Delhi, India, February 20, 2015.
- As Resource person, workshop on R, Banasthali University, Banasthali, Rajasthan, January 19-20, 2015.

#### **Dr Prachi Misra Sahoo**

- Lecture on Geostatistics and its Applications using GIS in short course on Remote Sensing



and GIS for Natural Resource Management for M.A./M.Sc. Students of Jamia Millia Islamia, New Delhi held during March 19-21, 2015 at IARI, New Delhi.

**Dr. Sudeep**

- A lecture on IPv6 and Migration from Ipv4 to Ipv6 in DARE/ICAR during a Workshop on IPv6 at CSSRI, Karnal on May 16, 2014.

**Dr. MA Iquebal**

- Two lectures on Genome Assembly (Theory and Practical) and Genome Annotation (Theory) in National Training Programme on Advanced Tools for Analysis of Phenomic and Genomic Data organized by Dairy Cattle Breeding Division at ICAR-National Dairy Research Institute, Karnal during March 05-25, 2015.
- Three lectures on i) DNA Signature based SNP and STR Marker Analysis (P), ii) Genome Annotation (P) and iii) Metagenomics of Rumen microbes (T+P) in DBT funded training programme on Molecular Tools and Bioinformatics Approaches for Livestock Genome Analysis held during September 10-30, 2014 at Central Institute for Research on Cattle (ICAR-CIRC), Meerut.

**Dr. Sarika**

- Three lectures on i) DNA Signature based SNP and STR marker analysis (Theory and Practical), ii) Genome Annotation (Practical) and iii) Metagenomics of Rumen Microbes (Theory and Practical) in National Training Programme on Advanced Tools for Analysis of Phenomic and Genomic Data organized by Dairy Cattle Breeding Division at ICAR-National Dairy Research Institute, Karnal during March 05-25, 2015.
- Three lectures on i) Genome annotation (T), ii) Genome Assembly (P) and iii) RNA Seq/ Differential Gene expression/ Transcriptome Analysis (P) in DBT funded training programme on Molecular Tools and Bioinformatics Approaches for Livestock Genome Analysis held during September 10-30, 2014 at Central Institute for Research on Cattle (ICAR-CIRC), Meerut.

**Dr. Susheel Kumar Sarkar**

- Two lectures on Testing of Hypothesis and Non-Parametric Methods in 2<sup>nd</sup> ICSSR Training

Program on Research Methodology Course in Social Sciences for Ph.D. Students during March 13-24, 2015 at Department of Geography, Jamia Millia Islamia University, New Delhi.

- Three lectures on i) Discriminant Analysis, ii) Factor Analysis and iii) Cluster Analysis in 4<sup>th</sup> one week Research Methodology Course on Applied Research Techniques using SPSS in Social Sciences during December 8-13, 2014 at Centre for Jawaharlal Nehru Studies, Jamia Millia Islamia University, New Delhi.

**Dr. PK Meher**

- A lecture on Biological Sequence Analysis using R-software in a workshop on Recent Trends in Bioinformatics and Its Application in Modern Biotechnology organized by Uttarakhand Council for Biotechnology during February 17-19, 2015 at Camp Office of UCB, Dehradun.

**Participation**

**Conferences / Workshops / Trainings / Seminars / Symposia etc.**

- Workshop on National Crop Insurance Programme: Challenges and Opportunities on April 01, 2014 at New Delhi. (Dr. UC Sud)
- Workshop on 'Ipv6 Road Show cum Hands-on-Workshop' organized by ERNET India at India Habitat Centre, Lodhi Road, New Delhi on April 15, 2014. (Dr. Mukesh Kumar)
- Workshop on PME in NARS: Status, Experiences and Way Forward organized jointly by NAIP, ICAR and IFPRI on May 27, 2014 at National Agricultural Science Centre (NASC) Complex, New Delhi. (Dr. UC Sud and Dr. Seema Jaggi)
- Workshop on All India Coordinated Research Project on Long Term Fertilizer Experiments held at CSK Himachal Pradesh Krishi Viswa Vidyalaya, Palampur during June 02-03, 2014. (Dr. LM Bhar)
- International Workshop sponsored by DST India and National Commission for Scientific and Technological Research CHILE on Big Data Handling from June 04-06, 2014 at BITS Pilani, Goa Campus. (Dr. Anil Rai)
- Workshop on Impact of Capacity Building Programme under NAIP at NASC, New Delhi during June 06-07, 2014. (Dr. UC Sud, Sh. SD Wahi and Dr. AK Paul)

- Refresher Course on Agricultural Research Management at NAARM, Hyderabad during July 14-26, 2014. (Dr. Monendra Grover)
- Workshop on Statistical Computing using R software jointly organized by NIRT (ICMR) and Presidency College, Chennai under the aegis of International Biometric Society (Indian Region) during July 17-19, 2014. (Sh. SD Wahi and Dr. AR Rao)
- 86<sup>th</sup> ICAR Foundation Day and Award Ceremony and Directors/ Vice Chancellors Conference organized by ICAR at NASC during July 29-30, 2014. Sh. Narendra Modi, Hon'ble Prime Minister of India delivered the Foundation Day lecture and Honoured the awardees. (Dr. UC Sud)
- One day workshop on Hindi organized by Krishi Parbandhan Nideshalya on September 26, 2014 at NASC complex, New Delhi. (Dr. SP Bhardwaj, Dr. Cini Varghese, Dr. AK Gupta, Dr. Prawin Arya and Dr. Sanjeev Panwar)
- National Workshop for Launching of CHAMAN Project at NASC Complex, New Delhi on September 16, 2014. (Dr. UC Sud, Dr. AK Gupta, Dr. Tauqueer Ahmad and Dr. Prachi Misra Sahoo)
- 7<sup>th</sup> Agriculture Leadership Summit 2014 organized by Agriculture Today Group at hotel Taj Palace, New Delhi on September 27, 2014. (Dr. KK Tyagi and Dr. Tauqueer Ahmad)
- National Workshop on Improvement on Agricultural Statistics organized by Directorate of Economics and Statistics, Ministry of Agriculture, Govt. of India at NASC, New Delhi during September 30 - October 01, 2014. (Dr. UC Sud, Dr. KK Tyagi, Dr. AK Gupta, Dr. Tauqueer Ahmad, Dr. Hukum Chandra and Dr. Prachi Misra Sahoo)
- Aurovet Knowledge Symposium held at AP Shinde Symposium Hall, NASC Complex, New Delhi during October 08-09, 2014. (Sh. Pal Singh)
- National Seminar on Maximizing Systems for Improving Food and Nutrition Security at AP Shinde Symposium Hall, NASC Complex, New Delhi on October 16, 2014. (Sh. Pal Singh)
- RFD Workshop organized by Engineering Division, ICAR to review the progress of April-September, 2014 related to RFD 2014-15 on October 21, 2014. The Mid-term achievements of the Institute presented in the workshop. (Dr UC Sud and Dr AK Mogha)
- National Workshop on Appraisal cum Data Validation of NISAGENET and Awareness Seminar on e-learning portal on Agricultural Education organized at CS Azad University of Agriculture and Technology, Kanpur, UP from November 11-12, 2014. (Dr. Sudeep and Sh. Pal Singh)
- 8<sup>th</sup> International Conference on Mushroom Biology and Mushroom Products held at NASC Complex, New Delhi during November 19-22, 2014. (Dr. Sudeep Marwah and Sh. Pal Singh)
- Workshop on Smart Infrastructure held at Sanchar Bhawan, New Delhi on November 24, 2014. (Dr. UC Sud)
- International Conference on Innovation in Indian Agriculture: Ways Forward organised at India International Centre, New Delhi during December 04-05, 2014. (Dr. Ranjit Kumar Paul, Dr. Wasi Alam and Dr. Sanjeev Panwar)
- Third Annual Workshop of National Knowledge Network NKN: (Encourage, Empower, Enable, Enrich) NGN during December 15-17, 2014 at IIT, Guwahati. (Dr. AK Choubey and Sh. Rakesh Kumar Saini)
- 31<sup>st</sup> Biennial Workshop of AICRP\_IFS organized at TNAU, Coimbatore during December 22-24, 2014. (Dr. Cini Varghese and Dr. Susheel Kumar Sarkar)
- Annual Workshop of AICRP-PHT during Session on Harvest and Post-Harvest Losses held at UAS Bangalore on January 08, 2015. (Dr. Anil Rai)
- Roundtable Technical Session with Dr. Stephan Brobst, CTO, Teradata Inc. on January 08, 2015. (Sh. KK Chaturvedi)
- 7<sup>th</sup> Agricultural Summit AGRI@8% - Challenges and Way out on January 15, 2015 at Hotel Sanghrilla, New Delhi. (Dr Sanjeev Panwar and Sh. Bishal Gurung).
- Workshop on Assessment of Harvest and Post-Harvest Losses of Major Crops and Commodities on January 23, 2015 at IIT, Chennai. (Dr. UC Sud)

- 12<sup>th</sup> Agricultural Science Congress held on February 03-06, 2015 at National Dairy Research Institute, Karnal Commemorating the Silver Jubilee of National Academy of Agricultural Sciences. (Dr. UC Sud, Sh. SD Wahi, Dr. AR Rao and Dr. Sangeeta Ahuja)
- Workshop on IPv6 implementation in Departments of GOI at DoT on February 11, 2015. (Dr. Mukesh Kumar and Dr. Sudeep)
- Workshop on PME Indicators and Implementation Strategy organized by NAAS, NAARM and IFPRI at NASC Complex, New Delhi on February 23, 2015. (Dr. Seema Jaggi)
- Workshop on Training Needs Assessment for HRD Nodal Officers of ICAR held at NAARM, Hyderabad on February 26, 2015. (Dr. Seema Jaggi)
- Workshop on Impact Assessment of Agricultural Research and Development on March 17, 2015 at National Institute of Agricultural Economics and Policy Research (NIAP), New Delhi. (Dr. RK Paul)
- Workshop on Synthesizing Statistical and Agricultural Sciences for Harnessing and Enhancing Quality of Agricultural Research organized by National Professor Unit at IASRI, New Delhi on March 25, 2015. (Dr. Seema Jaggi, Dr. Rajender Parsad, Dr. LM Bhar, Dr. Cini Varghese, Dr. Susheel Kumar Sarkar, Dr. BN Mandal, Dr. Eldho Varghese, Dr. Sukanta Dash, Dr. Arpan Bhowmik, Dr. UK Pradhan and Mr. Kader Ali Sarkar)

### Krishi Vigyan Mela

- The institute participated in the PUSA Krishi Vigyan Mela 2015 organized by IARI, New Delhi



from March 10-12, 2015 and elevated a stall to exhibit its significant research findings and software. The stall attracted a huge number of visitors including farmers, students and entrepreneurs. Through live demonstrations and posters, the developed technologies were explained to the visitors. The Institute received “Best Stall Award” in the mela.

### Trainings Attended

- 21 days CAFT on Agricultural Web Application Development using Content Management Tools from September 24, 2014 to October 14, 2014 at ICAR- IASRI. (Dr. Susheel Kumar Sarkar)
- One month Orientation Training at ICAR-IASRI, New Delhi from October 14 to November 13, 2014 as a part of 100<sup>th</sup> FOCARS. (Mr. Kader Ali Sarkar)
- Three months Professional Attachment Training under Prof. Mausumi Bose at Indian Statistical Institute, Kolkata as a part of 100<sup>th</sup> FOCARS from December 15, 2014 to March 16, 2015. Carried out a short-term research project on “Robustness of Crossover Designs under Correlated Errors”. (Mr. Kader Ali Sarkar)

### Visit Abroad

#### Dr. UC Sud

- Visited Bangladesh to participate in the Workshop on Harmonization and Dissemination Unified Agricultural Production Statistics in Bangladesh during June 23-29, 2014.

#### Dr. Hukum Chandra

- Visited Italy to attend the Collaborative Training Programme on Small Area Estimation under Generalised Linear Mixed Model from Dr. Nicola Salvati, researcher of Statistical Methodology, Department of Economics and Management, University of Pisa, Italy during June 09 to August 01, 2014.
- Visited Tsukuba, Ibaraki, Japan to participate in Sixth Workshop on Forging Partnerships in Statistical Training in Asia and the Pacific: Networking for Agricultural and Rural Statistics, during September 02-04 2014 and attended Experts Meeting on Skills Framework and

Training Needs Assessment Tools for Agricultural and Rural Statistics on 05 September 2014. Also made a presentation on A curriculum for training on agricultural and rural statistics.

- Visited Chiba, Japan during December 15-18, 2014 to attend the training programme at United Nations Statistical Institute for Asia and the Pacific on Assessing Training Needs of the Statistical Workforce in Agricultural Statistics.

#### **Sh. KK Chaturvedi**

- Attended a training on Bioinformatics at Cornell University, Ithaca, USA during January 28 – April 05, 2014 sponsored by NAIP (ICAR).

#### **Dr. Sanjeev Panwar**

- Visited Addis Ababa, Ethiopia as a resource person in the training course on “Advanced Experimental Designs, Data Analysis and Management for Breeding Trials” during November 03-08, 2014.

#### **Dr. Susheel Kumar Sarkar**

- Visited Spain to attend training on Integrated Breeding Multi-Year Course (IB-MYC) Year 3 under Generation Challenge Programme - Integrated Breeding Platform (GCP-IBP) during 09-30 May 2014 at Mediterranean Agronomic Institute of Zaragoza (IAMZ) in Zaragoza, Spain.