- 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 programmes and workshops organized and other significant activities performed at the institute during the period under report.

Balanced Incomplete Latin Square design BILS (v, r) has been constructed by removing the v -r disjoint transversals from a Latin square of order v via a pair of orthogonal Latin squares. A module for online generation of Balanced Latin square designs for all values of $3 < v < 21$ (except $v = 6, 10, 14, 18$) have been developed. (available at www.iasri.res.in/design/BILS_Design/Default.aspx).

A module has been developed for on-line generation of Row Column Designs with equal replication of each treatments for Factorial Experiments in Two Rows for 2^n ($n<10$) factorial experiments for orthogonal estimation of main effects and two factor interactions. It also generates designs with unequal replications in the same parametric range for orthogonal estimation of main effects and two factor interactions.

Eight training programmes, one each sponsored by FAO, DES-Dept. of Planning-Govt. of UP, MoSPI-Govt. of India, Skymet Weather Services Private Ltd.-Noida, and four sponsored by ICAR-IASRI, New Delhi were organised. Besides, one national workshop and one Hindi workshop has also been organized.

Scientists of the institute have received various awards and recognitions. Dr. Dinesh Kumar was awarded Gold Medal with Certificate of Academic Excellence in Graduation Ceremony for having First Rank in First Batch as ICAR nominated and sponsored candidate in Post Graduate Diploma in Technology Management in Agriculture (PGDTMA). Scientists have visited various countries viz. Korea, Brazil on different assignments.

During the period, 14 new projects were initiated. Scientists of the Institute have published 23 research papers, 06 book chapters, 01 pocket diary, one popular article, 02 training manuals and 01 project report, apart from this 01 database was also developed which is available at Institute's web site. Besides, 35 invited lectures/ lectures were delivered by the scientists. Further, scientists have participated in different conferences/ symposia/ workshops, etc.

Copyrights for the two online software/publication of IASRI have been received. One for Web generation of experimental designs balanced for indirect effects of treatments (WebDBIE) (available at www.iasri.res.in/webdbie) while the other for Pilot study on cost of production of coconut in Kerala.

During celebrations of the 56th Annual Day of the Institute, Nehru Memorial Lecture was organised and Nehru Memorial Gold Medal for the year 2012-14 were awarded to Md. Harun, M.Sc. (Agricultural Statistics), Ms. Sanchita Naha, M.Sc. (Computer Application) and Ms. Puru Supriya, M.Sc. (Bioinformatics) students. The Annual Report of the Institute for the year 2014-15 was also released.

संस्थान में 07 से 14 सितम्बर 2015 के दौरान आयोजित हिन्दी सप्ताह के अन्तर्गत संस्थान के पूर्व निदेशक, डॉ. विजय कुमार भाटिया जी द्वारा कृषि सांख्यिकीय में मेरा अनुभव विषय पर डॉ. दरोगा सिंह स्मृति व्याख्यान के साथ-साथ काव्य-पाठ, वाद-विवाद, प्रश्न-मंच, अन्ताक्षरी, इत्यादि विभिन्न प्रतियोगिताएं आयोजित की गयीं। प्रतियोगिताओं के सफल प्रतियोगियों को पुरस्कृत करने के साथ-साथ वर्ष 2014-15 के दौरान सरकारी कामकाज मूल रूप से हिन्दी में करने के लिए प्रोत्साहन योजना के अन्तर्गत नकद पुरस्कार प्रदान किये गये तथा संस्थान में आयोजित हिन्दी कार्यशालाओं के वक्ताओं को भी सम्मानित किया गया ।

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

- **Strengthened Design Resources Server by:**
  Balanced Incomplete Latin Square Designs

  Latin square designs are widely used in comparative experiments where two crossed blocking factors are present and each blocking factor has v levels, where v is equal to the number of Latin letters in the Latin square or the number of treatments in the design. In this arrangement, each Latin letter appears in each row and each column precisely once. However, it may not always be possible to accommodate all the v Latin letters or treatments precisely once in each row and / or each column, leading thereby to a situation where each row and / or each column may have less than v Latin letters or treatments appearing in them. In other words, there would be empty nodes in the Latin square arrangement and the Latin square design, meaning thereby that the row-column design is a non-orthogonal design with treatments vs rows and / or treatments vs columns classifications as non-orthogonal. Balanced incomplete Latin square designs have been introduced for such situations. A balanced incomplete Latin square design with parameters v and r is an incomplete Latin square of order v such that each row and each column has $r < v$ non-empty cells and $v-r$ empty cells and each of the v symbols appears exactly r times in the whole square. Henceforth, we shall denote a balanced incomplete Latin square with v symbols and r replications of each symbol as BILS (v, r). Here the term 'balanced' implies that each row and column has same number of non-empty cells and each symbol has same number of replications in the whole square. This balance is neither related to pair-wise balance nor variance balance. Here, construction of BILS (v, r) is done by removing the $v-r$ disjoint transversals from a Latin square of order v via a pair of orthogonal Latin squares. Here, a transversal in a Latin Square of order v is a set of v cells such that only one cell is allowed in each row and in each column, and furthermore, each symbol can appear in each cell once. A module for online generation of Balanced Latin square designs for all values of $3 < v < 21$ (expect v = 6, 10,14, 18) have been developed and made available at www.iasri.res.in/design/BILS_Design/Default.aspx.

Row-Column Designs in 2 Rows for Orthogonal parameterization

Row-column designs are useful for the experimental situations in which there are two cross classified sources of heterogeneity in the experimental material. In many experimental situations due to practical considerations, it may not be possible to accommodate more than two experimental units in a column of a row-column design. Row-column designs with two rows and with factorial treatment structure have also been found useful in many agricultural experimental situations including two-coloumn microarray experiments. When the design is non-orthogonal in a row-column set up, it would be desirable that it permits orthogonal estimation of all factorial effects with high efficiency. This may require a large number of columns. Due to cost and time considerations, it may not be possible to run a design in number of runs that are required for orthogonal estimation of all the factorial effects. The experimenter may, however, be interested in orthogonal estimation of all the main effects and two factor interactions based on an orthogonal parameterization. A module has been developed for on-line generation of Row Column Designs with equal replication of each treatments for Factorial Experiments in Two Rows for 2^n ($n<10$) factorial experiments for orthogonal estimation of main effects and two factor interactions. Here, for each factor, two designs are generated, one in which main effects are estimated with more efficiency. Online generation module also generates designs with unequal replications in the same parametric range for orthogonal estimation of main effects and two factor interactions. Here one can obtain designs with fewer number of columns as compared to the minimum number of replications required for orthogonal estimation of main effects and two factor interactions in equi-replicated designs. This module has been made available at http://www.iasri.res.in/design/Row_Column_design_OP_2_rows/Default.aspx.

AWARDS AND RECOGNITIONS

- Dr. AK Paul and Dr. Susheel Kumar Sarkar were elected as Joint Secretary of the Indian Society of Agricultural Statistics, New Delhi.

- Dr.Sarika, Dr. Sukanta Dash, Dr. RK Paul and Sh. Sudhir Srivastva were elected as Executive Member of Indian Society of Agricultural Statistics, New Delhi

- Dr. Anil Kumar was nominated Guest of Honor in the valedictory function of short course entitled "Good dairy farming practices: Novel initiatives and extension approaches" at ICAR-NDRI, Karnal and also in the Orientation Program at College of Agriculture, Teerthankar Mahavir University, Moradabad.

- Dr. Dinesh Kumar was awarded Gold Medal with Certificate of Academic Excellence in Graduation Ceremony, on 05 September, 2015 for having First Rank in First Batch as ICAR nominated and sponsored candidate in Post Graduate Diploma in Technology Management in Agriculture (PGDTMA), a joint course of ICAR-NAARM and Central University Hyderabad.

- Dr. Dinesh Kumar was Guest of Honour in Inaugural Session of Accelerating genetic gain of agricultural germplasm by computational approach : Global National Training Workshop on "High-throughput Omics Data for mining of important genes/traits linked to Agricultural Productivity during September 09-12, 2015 at G. B. Pant University of Agriculture & Technology, Pantnagar.

- Dr. Anil Rai Co-chaired a session in National Workshop on "Current Trends in Agricultural Bioinformatics" jointly organized by ICAR-NAARM & ICAR-IASRI during 22-24 September 2015.

- Dr .K.K.Chaturvedi -Chaired the session "IT Applications" in the 4th Intl. Conference on Reliability, Infocomm Technologies and Optimization (ICRITO' 2015) at Amity University, Noida during 02-04 September 2015.

- Smt. Suman Khanna received ICAR Cash Award/Certificate of Distinction 2014 for administrative category on the occasion of ICAR Foundation Day held on 25 July 2015 at Patna.

NEW PROJECTS INITIATED

- Elucidating the mechanism of pashmina fibre development: An OMICS approach. (AGENIASRICOP201501500052). SKUAST, Kashmir: Nazir A Ganai, NDRI, Karnal:Jai K Kaushik, IASRI, New Delhi: AR Rao:01.07.2015-30.06.2018.

- Metagenomics analysis to decipher microbial communities and functions in the rhizosphere of wheat. (AGENIASRICOP201501600053). NBAIM, Mau: DP Singh, Renu, Sunil Kumar, Dipak Tnagrale, Lalan Sharma, Arjun Singh, PK Sahu, IASRI, New Delhi: Sanjeev Kumar, KK Chaturvedi, Samir Farooqi: 03.07.2015-31.03.2017.

- Development of database repertoire for clostridium perfringens strains prevalent in causing Enterotoxaemia in goats. (AGENIASRICOP201501700054). CIRG, Makhdoom: RVS Pawaiya, K Gururaj, AK Mishra, Shivasharanppa N, IASRI, New Delhi: AR Rao: 04.07.2015-31.03.2017

- Development of database on SNPs associated with economically important traits in indian goats (AGENIASRICOP201501800055). CIRG, Makhdoom: RVS Pawaiya,MS Dige, PK Rout, IASRI, New Delhi: AR Rao: 04.07.2015-31.03.2017.

- Rice-metasys: understanding rice gene network for blast resistance and drought tolerance through system biology approach. (AGENIASRICOP201501900056). NRCPB, New Delhi: TR Sharma, Amol Kumar U Solanke, SV Amitha Charu Rama Mithra, RA Nagar, IASRI, New Delhi: DC Mishra, KK Chaturvedi: 08.07.2015-31.03.2017.

- Development of hybrid time series models using machine learning techniques for forecasting crop yield with covariates. (AGENIASRISIL201502000057). Wasi Alam, Kanchan Sinha, Mrinmoy Rai, Santosh Rathod, KN Singh: 14.07.2015-31.12.2017.

- Identification of genetic polymorphisms for pathogenicity in vibrio sp. (AGENIASRICOP201502100058). CIBA, Chennai: Ashok Kumar Jangam, SV Alavandi, K Vinya Kumar, B Sivamani, Satheesha Avunje, IASRI, New Delhi: Monendra Grover: 19.08.2015-31.03.2017.

- Non-parametric bootstrap approach for constructing prediction intervals for non-linear and bivariate time series models (AGENIASRISIL201522000059). Mrinmoy Ray, KN Singh, Wasi Alam, Santhosa Rathod: 19.08.2015-18.08.2017.

- Forecasting of spacio-temporal time series data using Space Time Autoregressive Moving Average (STARMA) model. (AGENIASRISIL201502300060). Santhosa Rathod, Mrinmoy Ray, Ajit, KN Singh: 20.08.2015-19.02.2018.

- Computational and analytical solutions for high- throughput biological data. (AGENIASRISOL201502400061). Anil Rai, Dinesh Kumar, AR Rao, Monendra Grover, KK Chaturvedi, Sanjeev Kumar, DC Mishra:04.09.2015-31.03.2017.

- Development of rank based stability measures for selecting stable genotypes. (AGENIASRISIL201502500062). Prakash Kumar, AK Paul, Samrendra Das, LM Bhar: 10.09.2015-31.08.2017.

- Cluster ensemble algoritms for germplasm evaluation on ChickPea. (AGENIASRISIL201502600063). IASRI,New Delhi: Sangeeta Ahuja, AK Choubey, NCPIM, New Delhi: OP Sharma, NBPGR, New Delhi: HL Raiger: 18.09.2015-17.09.2016.

- Investigation of Causes of Divergence between Official and Trade Estimates of Jute Production. Funded by Directorate of Economics & Statistics (DES), Department of Agriculture and Cooperation (DAC), Ministry of Agriculture (MoA), Govt. of India. (AGENIASRISOL201502700064). UC Sud, Prachi Misra Sahoo, Tauqueer Ahmad, Ajit, Kaustav Aditya and Ankur Biswas: 01.09.2015-31.08.2017.

- Some investigations on trend resistant row-column designs. (AGENIASRISIL201502800065). Arpan Bhowmik, Seema Jaggi, Eldho Varghese, Sunil Kumar Yadav:24.09.2015-31.03.2018

HUMAN RESOURCE DEVELOPMENT
Training Programmes/ Workshops Organised

S.No.	Title	Venue	Date	Sponsored by	No. of Participants
		Training Programmes			
1.	Refresher training programme on Sample Survey and Sampling Design Course Director: Dr. Tauqueer Ahmad Co-Course Director: Dr. Ankur Biswas	ICAR-IASRI New Delhi	06-10 July 2015	Directorate of Economics and Statistics, Department of Planning, Government of Uttar Pradesh	18
2.	Training programmes on Assets, Annual Account and Store under ICAR-ERP Cordinators: Dr. Mukesh Kumar Dr. NS Rao	ICAR-IASRI New Delhi	13- 15 July 2015	ICAR-IASRI New Delhi	21
3.	Training programme on Data Analysis and Interpretation Course Director: Dr. Rajender Parsad Co-Course Director: Dr. Arpan Bhowmik	IASRI, New Delhi New Delhi	10-22 August 2015	MoSPI, Govt. of India	40
4.	Training programme on Payroll and HR module Cordinators: Dr. Mukesh Kumar Dr. Alka Arora	ICAR-IASRI New Delhi	18-21 August 2015	ICAR-IASRI New Delhi	24
5.	Training programme on Small Area Estimation Techniques . Course Director: Dr. Hukum Chandra Co-Course Director: Dr. Kaustav Aditya	ICAR-IASRI New Delhi	24-28 August 2015	ICAR-IASRI New Delhi	19
6.	Training programmes on Payroll and HR module Cordinators: Dr. Anshu Bharadwaj Dr. Mukesh kumar	ICAR-IASRI New Delhi	01-04 September 2015 22-24 September 2015	ICAR-IASRI New Delhi	34
7.	Training programme on "Crop Cutting Experiments Technique" for the officials of Skymet Weather Services Private Ltd., Noida. Course Director: Dr. Tauqueer Ahmad Ms. Vandita Kumari	ICAR-IASRI New Delhi	14-19 September 2015	Skymet Weather Services Private Ltd., Noida	15
		Training under Project			
8.	Training on Field data collection under the study Improving methods for estimating crop area, yield and production under mixed, repeated and continuous cropping	ICAR-IASRI New Delhi	31 August to 04 September 2015	FAO`	05
		Workshops			
9.	National Workshop on "Current Trends in Agricultural Bioinformatics" jointly organized by ICAR-NAARM & ICAR-IASRI Course Director: Dr. Dinesh Kumar	ICAR-NAARM Hyderabad	22-24 September 2015	ICAR-NAARM Hyderabad	44
10.	One-day Hindi Workshop for the technical personnel of ICAR-IASRI on , l -ih-, l -, l -}kjk vkadM+ïadk fo'y¢k.k , oafjik¢kVïil `tu (Data analysis and report generation using SPSS) Cordinators: Dr. Arpan Bhowmik Dr. Eldho Varghese	IASRI, New Delhi	02 September 2015	ICAR-IASRI New Delhi	23

VISIT ABROAD

- Dr. Hukum Chandra was deputed to visit Daejeon, Republic of Korea during July 13-17, 2015 for attending the Regional Workshop on "Statistical Literacy".

- Dr. Hukum Chandra was deputed to visit Rio De Janeiro, Brazil during July 26-31, 2015 to attend the 60th International Statistics Institute World Statistics Congress 2015 as Invited speaker. Dr Hukum Chandra acted as Chairman of Technical Session on Survey Statistics at the Congress.

PANORAMA OF ACTIVITIES

- The 64th meeting of Institute Management Committee (IMC) of the Institute was organized on August 01, 2015 under the chairmanship of Dr. UC Sud, Director. Dr Ajit, Dr. Seema Jaggi and Sr. F&AO made a presentations on Research Achievement of the Institute, Teaching and Training Activities of the Institute and Financial Matters in the meeting. All Heads of Divisions also participated in the meeting.

- Dr. Rajender Parsad organized first workshop of Nodal Officers of ICAR Research Data Repository for Knowledge Management initiative during August 04-05, 2015 at NASC Complex, New Delhi.

- Dr. AK Choubey organized contact sessions and examinations as Partner Institute of NAARM during August 08-10, 2015 and August 11-14, 2015, respectively, at ICAR-IASRI, Delhi for the students of PG Diploma in Technology Management in Agriculture (PGDTMA) offered jointly by the NAARM and the University of Hyderabad. This is first time when Distance Education Program through Video-conferencing has been conducted in ICAR. In all 16 students have participated from IASRI Centre in the program.

- Meeting of Institute Joint Staff Council was organized at IASRI on 04 July, 2015 under the Chairmanship of Dr. UC Sud, Director, IASRI, New Delhi.

- ## हिन्दी सप्ताह का आयोजन

  संस्थान में 07 से 14 सितम्बर 2015 के दौरान हिन्दी सप्ताह का आयोजन किया गया । दिनांक 07 सितम्बर, 2015 को हिन्दी सप्ताह का उद्घाटन संस्थान के निदेशक, डॉ. उमेश चन्दर सूद द्वारा किया गया । हिन्दी उद्घाटन के तत्पश्चात काव्य-पाठ का आयोजन किया गया। हिन्दी सप्ताह के दौरान "डॉ. दरोगा सिंह स्मष्टति व्याख्यान" के साथ-साथ वैज्ञानिक प्रभागों में हिन्दी में सर्वाधिक वैज्ञानिक कार्य करने के लिए प्रभागीय चल-शील्ड के साथ-साथ काव्य-पाठ, वाद-विवाद, प्रश्न-मंच, अन्ताक्षरी, हिन्दीतर कर्मियों के लिए हिन्दी श्रुतलेख एवं शब्दार्थ लेखन प्रतियोगिता आयोजित की गयी । प्रश्न-मंच एवं अन्ताक्षरी प्रतियोगिता के संचालकों द्वारा इन प्रतियोगिताओं को ऑडियो विजुअल रूप में प्रस्तुत किया गया जिससे ये प्रतियोगिताएँ अत्यन्त ही रोचक रहीं । सभी प्रतियोगिताओं में छात्रों सहित संस्थान के विभिन्न वर्गों के कर्मियों ने बढ़-चढ़कर हिस्सा लिया । संस्थान में प्रत्येक वर्ष हिन्दी दिवस के अवसर पर डॉ. दरोगा सिंह स्मृति व्याख्यान का आयोजन किया जाता है जिसमें किसी सुप्रसिद्ध वैज्ञानिक द्वारा किसी भी वैज्ञानिक विषय पर हिन्दी में व्याख्यान दिया जाता है । इस वर्ष इस कड़ी का चौबीसवाँ व्याख्यान भारतीय कृषि सांख्यिकी अनुसंधान संस्थान के पूर्व निदेशक, डॉ. विजय कुमार भाटिया जी द्वारा "कृषि सांख्यिकीय में मेरा अनुभव" विषय पर दिया गया और इस

कार्यक्रम की अध्यक्षता आई.सी.एम.आर. के पूर्व अपर महानिदेशक एवं राष्ट्रीय सांख्यिकीय आयोग के सदस्य, डॉ. पदम सिंह जी द्वारा

की गयी । दिनांक 14 सितम्बर, 2015 को हिन्दी सप्ताह के समापन समारोह के अवसर पर इस दौरान आयोजित प्रतियोगिताओं के सफल प्रतियोगियों को पुरस्कृत करने के साथ–साथ वर्ष 2014–15 के दौरान "सरकारी कामकाज मूल रूप से हिन्दी में करने के लिए प्रोत्साहन योजना" के अन्तर्गत भी नकद पुरस्कार प्रदान किये गये । इसके अतिरिक्त, जुलाई 2014 से सितम्बर, 2015 तक की अवधि के दौरान संस्थान में आयोजित हिन्दी कार्यशालाओं के वक्ताओं को भी सम्मानित किया गया।

- **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).

The Details of Seminars Delivered

Category	Type of seminar	Number
Student	Course	23
Scientist	Project Proposal	07
	Project Completion	03
Total		**33**

PUBLICATIONS

Research Papers

- Banerjee, V, Das, B, Krishnan, P , Verma, APS and Varghese, E (2015). Crop Status Index as an indicator of wheat crop growth condition under abiotic stress situations. *Field Crops Res*., **181**, 16-31.

- Basak, P, Chandra, H, Sud, UC and Lal, SB (2015). Prediction of population total for skewed variable under a log transform model. *Int. J. Agricult. Stat. Sci*., **9(1)**, 143-154.

- Bhowmik, A, Jaggi, S, Varghese, C and Varghese, E (2015). Trend free block designs balanced for interference effects from neighbouring experimental units. *J. Combinatorics, Information and System Sci*., **39 (1-4)**, 117-133.

- Chaduvula, PK, Bhati, J, Rai, A, Gaikwad, K, Marla, SS, Elangovan, M and Kumar, S(2015). Insilico expressed sequence tag analysis in identification and characterization of salinity stress responsible genes in Sorghum bicolour. *Aust. J. Crop Sci*., **9(9)**, 799-806.

- Das, S, Bit, A, Patnaik, S, Sahoo, L, Meher, P, Saha, T. Patel, A, Patel, N, Koringa, Joshi, C, Agarwal, S, Pandey, M, Srivastava, S, Kushwaha, B, Kumar, R, Nagpure, N, Iquebal, MA, Jaiswal, S, Kumar, D, Jayasankar, P, Jena, J and Das, P (2015). Low depth shotgun sequencing resolves complete mitochondrial genome sequence of Labeo rohita. Mitochondrial DNA (http://www.tandfonline.com/doi/full/10.3109/ 19401736.2015.1074197)

- Divya, B, Robin, S, Biswas, A and John, JA (2015). Genetics of association among yield and blast resistance traits in Rice (Oryza sativa L). *Ind. J. Agril. Sci*., **85 (3)**, 354–360.

- Grover, M and Mishra, DC (2015). Development of computational methods for classification and determination of function in proteins related to abiotic stress in Poaceae. *J. Ap. Bio. Sci. Res*., **12**, 1-3.

- Grover, M, Kumar, S, Kumar, R and Mishra, DC (2015). What does it mean to gain complete understanding of biological systems (or for that matter universe)? *J. Ap. Bi. Sci. Res.,* **12**, 4-5.

- Gupta, S, Rao, AR, Varadwaj, P, De, S and Mohapatra, T (2015). Extrapolation of inter domain communications and substrate binding cavity of Camel HSP70 1A: A molecular modeling and dynamics simulation study. *PLOS ONE, 10(8): e0136630. DOI:10.1371/journal.pone.0136630*

- Johar, V, Dhillon, RS, Ajit and Handa, AK (2015). Phenological behaviour and reproductive biology of Melia Composita. *Ind. J. Agroforestory*, 1**7(1)**, 62-67.

- Khandelwal, A, Gupta, S, Gajbhiye, VT and Varghese, E (2015). Degradation of Kresoxim-methyl in water: Impact of varying pH, temperature, light and atmospheric CO_2 level. *Bulletin of Environmental Contamination and Toxicology*. DOI 10.1007/s00128-015-1627-0

- Mandadi, N, Hendrickson, C, Handanahal, S, Rajappa, T, Pai, N, Javeed, S, Verghese, A, Rai, A, Pappu, A, Nagaraj, G and Dhingra, A (2015). Genome sequences of Photorhabdus luminescens strains isolated from entomopathogenic nematodes from southern India. Genomics Data. doi: 10.1016/j.gdata.2015.07.023

- Mishra, S, Behera, TK, Munshi, AD, Bharadwaj, C and Rao, AR (2015). Inheritance of gynoecism and genetics of yield and yield contributing traits through generation mean analysis in bitter gourd. *Ind. J. Horti.*, **72 (2)**, 218-222

- Nandi, PK, Parsad, R and Gupta, VK (2015). Simultaneous optimization of incomplete multi-response experiments. *Open J. Statist.,* **5,** 430-444. doi. http://dx.doi.org/10.4236/ojs.2015.55045

- Paul, AK, Paul, RK, Das, S, Behera, SK and Dhandapani, A (2015). On some development of new nonparametric stability measures. *Ind. J. Agril. Sci.*, **85(8)**, 113-117.

- Paul, RK (2015). ARIMAX-GARCH-WAVELET model for forecasting volatile data. *Model Assisted Statistics and Application*, **10(3)**, 243-252.

- Paul, RK, Gurung, B and Samanta, S (2015). Analyzing the effect of dual long memory process in forecasting agricultural prices in different markets of India. *Int. J. Empirical Finance*,**4(4)**,235-249.

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- Rao, NS, Geeta, KA and Maiti, S (2015). Herbal gardens of India: A promising online database. *Advances in Computer Science and Information Technology,* **2(11),** 74-78.

- Singh, NMD, Paul, AK and Paul, RK (2015). Selecting appropriate nonlinear growth models using bootstrap technique. *Ind. J. Anim. Sci.*, **85(8)**, 104-107.

- Tara Satyavathi, C, Mukesh Sankar, S, Singh, SP, Sharma, R and Varghese, E (2015). Evaluation of newly developed white grain pearl millet lines against downy mildew cited by Sclerospora graminicola. *Int. J. Tropical Agric.*, **33(2)**, 1381-1386.

- Varghese, C, Varghese, E, Jaggi, S and Parsad, R (2015). Row-column designs for diallel cross experiments with specific combining abilities. *J. Ind. Soc. Agril. Statist.,* **69** (2), 201-225.

- Varghese, E and Varghese, C (2015). Variance balanced row-column designs involving diallel crosses incorporating specific combining abilities for comparing test lines with a control line. *Comm. Statist. Theo. Methods* DOI:10.1080/03610926.2015.1032428

- Wani, MH, Paul, RK, Bazaz, NH and Manzoor, M (2015). Market Integration and price forecasting of apple in India*. Ind. J. Agril. Eco.*, **70 (2)**, 169-181.

Book Chapters

- Arora, A and Jain, R (2015). Clustering: Case studies in agriculture, 271-283. *Decision support system in agriculture using quantitative analysis. Agrotech Publishing Academy, ISBN: 978-81-8321-395-0.*

- Bhar, LM (2015). Regression analysis diagnostics and remedial measures. 245-270. *Decision support system in agriculture using quantitative analysis. Agrotech Publishing Academy, ISBN: 978-81-8321-395-0.*

- Jaggi, S, Varghese, C, Varghese, E and Bhowmik, A (2015). Statistical designs for forestry research,13-24. Statistics in Forestry: Methods and Applications*. Bonfring, Coimbatore.*

- Paul, RK (2015). Introduction to time series modelling, 195-206. Agribusiness Managemen*t. Biotech Books, ISBN: 978-81-7622-350-8.*

- Paul, RK (2015). Linear time series analysis, 284-297. Decision support system in agriculture using quantitative analysis. *Agrotech Publishing Academy, ISBN: 978-81-8321-395-0.*

- Paul, RK (2015). Nonlinear time-series snalysis: An application of GARCH model, 298-306. Decision support system in agriculture using quantitative analysis*. Agrotech Publishing Academy, ISBN: 978-81-8321-395-0.*

Pocket Diary

- Gupta, VK, Parsad, R and Mandal, BN (2015). Significance of Experimental Designs in Agricultural Research.

Popular Article

- Gupta, VK, Mandal, BN and Parsad, R (2015). History of Statistics on Timeline. Aavailable at http://sample.iasri.res.in/ssrs/history.pdf.

Training Mannuals/ e-mannuals

- Sample Survey and Sampling Design (2015, Eds. Ahmad, Tauqueer and Biswas, Ankur).

- Data Analysis and Interpretation. (Eds. Parsad, Rajender and Bhowmik, Arpan).

Project Reports

- Sukant Dash, NK Sharma, Kamta Prasad and N Ravisankar (2015). Summarisation of Experiment on sustainable production system in different agro-climate zones (2000-2012), I.A.S.R.I./P.R.-10/2015

Databases Developed

- Wheat in-silico and experiments SSR database and web portal development (UB Angadi)

INVITED LECTURES DELIVERED

- The following lectures were delivered in Summer School on "Analytical Techniques for Decision Making in Agriculture" held at ICAR-National Institute of Agricultural Economics and Policy Research (NIAP) during July 16 – August 05, 2015
    - Dr. UB Angadi : Two lectures on i) Case study: Database and expert system in Animal feed resources and ii) ICT in Agriculture.
    - Dr. Hukum Chandra : A lecture on Various elementary concepts of sample surveys.
    - Dr. Rajender Parsad : Two lectures on SAS: An overview.
    - Dr. Anil Rai : A lecture on Bioinformatics and its applications in agriculture.
    - Dr. N. Srinivasa Rao : A lecture on Data center and its services in ICAR.
    - Dr. Prachi Misra Sahoo: Two lectures on on Overview & Applications of GIS.
    - Dr. Cini Varghese: Two lectures on Statistical Analysis using Excel.
    - Dr. Eldho Varghese: Two lectures on Overview of SPSS.

- One Week Research Methodology Workshop for Science Scholars at University of Kashmir, Hazratbal, Srinagar on 27 August 2015.
  - Dr. UC Sud: A lecture on the use of various sampling techniques and their applications in Agricultural Surveys.
- Workshop on Research Methodology for Science Research Scholars/College and University Teachers of University of Kashmir held at UGC-Human Resource Development Centre, University of Kashmir, Hazartbal, Srinagar during 25-31 August, 2015
  - Dr. Rajender Parsad. 4 Invited lectures on Fundamentals of Design of Experiments and Web Resources on Designed Experiments.
  - Dr. UC Sud. Use of various sampling techniques and their applications in Agricultural Surveys.
- 21days CAFT training programme on "Communication and management tools and approaches for agricultural extension" during 02-22 September, 2015 at IARI, New Delhi
  - Dr. N. Srinivasa Rao : A lecture on "Creating own webpages: Google Sites".
- Participants of FOCARS on 22 September 2015   in ICAR-NAARM Hyderabad.
  - Dr. Anil Rai : A Lecture on " Activities of Agricultural Bioinformatics and Computational Biology in ICAR-IASRI".
- Summer School on "Novel genomic tools and modern breeding approaches for enhancing productivity and nutritional quality of pulse crops" at ICAR-IIPR, Kanpur from September 05-25, 2015.
  - Dr. Dinesh Kumar: Lectures and Hands on sessions on Allele mining for identifying novel variants.
  - Dr. M A Iquebal: Lecture and Hands on sessions on NGS data analysis: Transcriptome analysis in chickpea and its applications.
- Sanatan Dharama College (Lahore), Ambala Cantt, Affiliated College of Kurukshetra University, Haryana, on 03 September 2015.
  - Dr. Dinesh Kumar: Importance of Biological Science with multi-disciplinary research and career opportunities in 21st Century.(Invited Talk)
- National Workshop on Current Advances on Agricultural Bioinformatics held at ICAR-National Academy of Agricultural Research Management, Hyderabad during September 22-24, 2015.
  - Dr. M. A. Iquebal: Five lectures and Hands on sessions on i) Data Cleaning and Pre-Processing, ii) Genome Assembly, iii) Genome Annotation (Structural and functional), iv) Transcriptome Analysis (Reference and denovo) and v) Metagenome Analysis.
- Training Programme on Laying out Quality Experiments/Field Trials of Rapeseed-Mustrad for Precise Evaluation under Different Conditions held at Directorate of Rapeseed-Mustard Research, Sewar, Bharatpur during 14-15 September 2015.
  - Dr. Rajender Parsad: Six lectures on (i) Fundamentals of Design of Experiments; (ii) Augmented Designs; (iii) Analysis of Covariance; (iv) Diagnostics and Remedial Measures; (v) Design Resources Server and (vi) Indian NARS Statical Computing Portal.

PAPERS PRESENTED

- 60th International Statistics Institute World Statistics Congress 2015 held at Rio De Janeiro, Brazil during 26-31 July, 2015
  - Chandra, H*, Salvati, N and Chambers, R (2015). Small area prediction for discrete data under spatial nonstationary model. (Invited paper).

- Altair Technology Conference ATCx 2015 held at Le Meridien, New Delhi on July 17, 2015.
  - Rai, Anil, Chaturvedi, KK*, Lal, SB, Anagadi, UB and Jai Bhagwan. CABGRID: Interactive job submission and management portal for Indian agriculture. (Invited talk)
- First Workshop of Nodal Officers of ICAR Research Data Repository for Knowledge Management initiative during August 04-05, 2015 at NASC Complex, New Delhi.
  - Jaggi, Seema* and Sarkar, Susheel Kumar. Information system on designed experiments. (in the technical session IV on Unit Level Data Repository). (Talk)
  - Parsad, Rajender. ICAR Research Data Management Policy. (in theTechnical Session I: ICAR Research Data Management Policy and ICAR Research Data Repository for Knowledge Management) (Talk)
- International Conference On Recent Trends In Computer And Information Technology Research organised during 25- 26 September, 2015 at B. S. Anangpuria Institute of Technology & Management, Faridabad.
  - Aarti Singh, Anu Sharma, Nilanjan Dey and Amira S. Ashour (2015). Web Recommendation Techniques – Status, Issues and Challenges,

Participation

Conferences / Workshops / Trainings/ Seminars / Symposia etc.

- One day Conference on Museum Maintenance at India International Centre , Max Muller Marg , New Delhi on June 06, 2015. (Sh. Pal Singh)
- Launch of CRP-Genomics by DG, ICAR, New Delhi at ICAR-NBFGR, Lucknow on July 12, 2015 at Lucknow. (Dr. UC Dud and Dr. Anil Rai)
- Workshop of Nodal Officers of ICAR Research Data Repository for Knowledge Management initiative organized during August 04-05, 2015 at AP Shinde Symposium Hall, NASC Complex, New Delhi. (Dr. UC Sud)
- Training on SCM module of MIS-FMS during July 22-23, 2015 at IASRI, New Delhi. (Dr. NS Rao)
- Popular talk on "Monitoring Agricultural ResourceS (MARS): Experience of European Union" by Dr. Jacques Delincé, Senior Statistician, FAO, Rome organized by Indian Society of Remote Sensing (Delhi Chapter) & Indian Society of Agrophysics on July 24, 2015 at IARI, New Delhi. (Dr. Ankur Biswas and Mr. Kanchan Sinha)
- First workshop of Nodal Officers of KRISHI: Knowledge based Resources Information Systems Hub for Innovations in Agriculture (ICAR Research Data Repository for Knowledge Management) held at NASC Complex, New Delhi during August 04-05, 2015 . (Dr. Seema Jaggi, Dr. Rajender Parsad, Dr. Ajit, Dr. Anil Kumar, Dr. Susheel Kumar Sarkar and Dr. Arpan Bhowmik)
- 54th All India Wheat & Barley Research Workers' Meet held at SD Agricultural University, Sardarkrushinagar, Dantiwada, Gujrat during August 21-24, 2015. Actively participated in the session on Crop Improvement (held on August 21, 2015) and discussed the issues relating to designing and analysis of varietal trials and criterion of promotion of entries. (Dr. Rajender Parsad)
- Training programme on Geospatial analysis for natural resources management using statistical tools" at NAARM, during 02-11 September 2015. (Dr. Prawin Arya)

Meetings

- 2nd sub-committee of Expert Committee (Agricultural Statistics) KLSSSP on 13 July 2015 at Thycaud, Thiruvanthapuram. (Dr. UC Sud)
- ICAR Foundation Day, Awards Ceremony on 25-26 July 2015 at Patna. (Dr. UC Sud)

- Executive Council Meeting of Indian Society of Agricultural Statistics chaired by Dr. S Ayyappan, Secretary, DARE and Director General, Indian Council of Agricultural Research. held on August 03, 2015 at Krishi Bhavan, New Delhi. (Dr. UC Sud, Dr. Anshu Bharadwaj, Mohammad Samir Farooqi and Mr. Ankur Biswas)

- Orientation Programme of the newly selected M.Sc/Ph.D students in the Discipline of Agricultural Statistics, Computer Application and Bioinformatics on August 03, 2015. (Dr. UC Sud as Chairman and Professors and Faculty Members)

- Meeting on Development of IT Platform for Registration of Varieties and evaluation of performance of varieties under Seed Bill 2004 organized by Seed Division, Department of Agriculture & Cooperation on August 06, 2015 and presented IASRI view points on the proposal submitted by IASRI. (Dr. A.K Choubey and Dr. Alka Arora)

- Project Monitoring Committee (PMC) for construction of Training Hostel for IASRI and NIAP on August 06, 2015 at NIAP, New Delhi. (Dr. UC Sud)

- Standing Committee for the 23rd Conference of Central and State Statistical Organizations (COCSSO) held on August 06, 2015 at Sardar Patel Bhawan, New Delhi. (Dr. UC Sud)

- Board of Studies meeting in the discipline of Bioinformatics on August 07, 2015. (Dr. UC Sud as Chairman)

- Meeting with the officials of "Technology Information Forecasting and Assessment Council" (TIFAC), New Delhi for ATFC project on August 11, 2015. (Mr. Santosha Rathod and Mr. Mrinmoy Ray)

- Meeting for discussing the proposal Mera Gaov Mera Gaurav on August 20, 2015. (Director as Chairman and All Heads of Division and PME Incharge)

- 54th All India Wheat and Barley Research Worker's Meet at Sardar Krushinagar Dantiwada Agricultural University, Dantiwada, Gujarat during August 21-24, 2015. Presented "Applications of computational biology in wheat improvement" and provided input for strategic approach for wheat molecular breeding programme consortium formulation where CABIN, IASRI can contribute its mandated role in genomic data analysis supporting wheat biotechnology programme of the country through AICRP programme. (Dr. Dinesh Kumar)

- Skype meeting with Michael Austin Rahija, Research Officer, FAO, Rome, Italy on August 26, 2015 at the Institute to discuss CAPI software regarding questionnaire designing under the project "Study on improving methods for estimating crop area, yield and production under mixed, repeated and continuous cropping". (Mr. Ankur Biswas)

- SOC meeting of ICAR at Krishi Bhawan on August 31, 2015 regarding the presentation of TMIS software. (Dr. Sudeep)

- Review of Fertilizer Quality Control System by Inter Ministerial Committee (IMC) on August 31, 2015 at Krishi Bhawan, New Delhi. (Dr. UC Sud)

- 54th Meeting of Board of School of Sciences, Indira Gandhi National Open University, New Delhi held on September 03, 2015.(Dr. Rajender Parsad)

CONSULTANCY /ADVISORY SERVICES PROVIDED

- Dr. Arpan Bhowmik advised Dr. Suresh M. Nebapure, Scientist, Division of Agricultural Entomology, Indian Agricultural Research Institute on the use of two way analysis of variance for data on Electroantennogram responses of Uzi fly against various compounds viz., terpenoides, green plant volatiles, aromatics, aliphatics and nitrogenous compounds.

- Mr. Mrinmoy Ray suggested Dr. Madhubala Thakrey, Scientist, IARI, New Delhi to use RBD design.

- Mr. Mrinmoy Ray suggested Mr. Anirban Mukhopadhay, Scientist, VPKAS, Almora to apply fuzzy logic.

- Mr. Santosha Rathod advised Dr. Heena Sharma, SRF in the project entitled "Regulatory role of gibberellic acid under high temperature stress in wheat (Triticum aestivum L.)" at IARI, New Delhi (funded by CSIR) on July 20, 2015.

- Sh. Prakash Kumar advised Ms.Vanita Pandey, Ph.D. student of PG School, IARI in the analysis of data on soybean.

- Sh. Samarendra Das give advisory and analytical help to M.Sc. (Floriculture) Student regarding the data analysis of her research work. The data pertained to study the effect of various bio-fertiliser doses on the growth of gladiolus genotypes. The data on various plant traits like plant height, corn length, corn weight etc. were generated by using RCBD and the analysis was performed in SAS (9.4).

- Mr. Prakash Kumar advised to Mr. Harish Makhija, Ph.D. Student, PG School, IARI, New Delhi fin the analysis of data on stability analysis and GGE plot generated for the given data to genotype x environment interaction of variety development.

- Dr. Ranjit Kumar Paul provided advisory one Ph.D. student Mr. Ravishankar M Pardhi in Agricultural Economics for Institute of Agricultural Sciences, BHU regarding price forecast of potato using ARIMA, SARIMA cointegration and wavelets technique.

- Mr. UK Pradhan provided advisory service to Ms. Snigdharani Sahoo, M.Sc. student, OUAT, Bhubaneswar to forecast production of different cereal and pulses using ARIMA model.

- Dr. Arpan Bhowmik advised Dr. Namita Saha, Scientist, Centre for Environment Science and Climate Resilient Agriculture (CESCRA), ICAR-IARI, New Delhi, on the use of cluster analysis for studying microbial diversity analysis under organic farming system. The data was analysed using SAS 9.3

- Dr. Bishal Gurung advised Mr. Amrit Lamichaney, Scientist IIPR, on the procedure of analysis using D^2 and Principal Component Analysis for his research. The analysis was carried out using SAS software

- Dr. Ranjit Kumar Paul provided advisory to Dr. Bipasa Sarkar from Agricultural Chemicals, IARI in analyzing the Effect of moisture, soil type and Blue Green Algae (BGA) on Degradation of tricyclazole.

- Dr. Hukum Chandra provided Consultancy to FAO of United Nations under Global Strategy to Improve Agricultural and Rural Statistics in Sri Lanka during 20 September to 02 October, 2015.

Copyright

- Copyrights for the following online software/publication of IASRI have been received on July 15, 2015.
  - Seema Jaggi, Cini Varghese, Eldho Varghese and Anu Sharma (2014). Web generation of experimental designs balanced for indirect effects of treatments (WebDBIE) (Online software available on IASRI website at *www.iasri.res.in/webdbie.* (Registration No. SW-8370/2015).
  - UC Sud, HVL Bathla, Jagbir Singh, GK Jha, DC Mathur, KK Kher, K Muralidharan, C Thamban and CV Sairam. Pilot study on cost of production of coconut in Kerala. (Registration No. L-62123/2015).
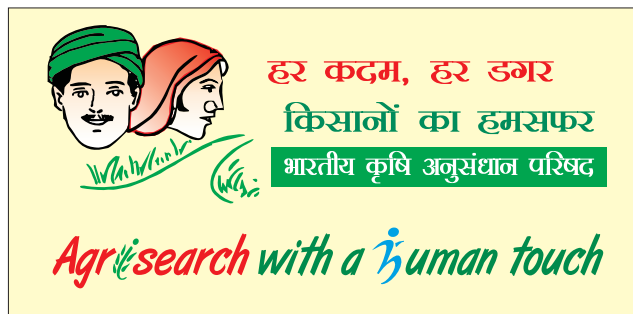
PERSONNEL

Congratulations on your Promotion

Name	Designation	Effective Date
Sh. Trilok Saini	Assistant	03.08.2015
Sh. PR Paite	UDC	03.08.2105
Sh. Sunil Kumar-II	UDC	04.08.2015
Smt. Alka Nayyar	Steno Gr.-III (2nd ACP)	25.08.2015
Smt. Alka Nayyar	Personnel Assistant	31.08.2015
Sh. Prem Prakash	PS(3rd ACP)	01.07.2015
Smt. Harsh Kapoor	Assistant(3rd ACP)	24.07.2015
Smt. Manju Gulati	Assistant(3rd ACP)	01.08.2015
Sh. Surat Ram	PS(3rd ACP)	09.08.2015
Smt. Anita Malik	Assistant(3rd ACP)	01.07.2015

Wish you Happy Retired Life

Name	Designation	Effective Date
Sh. UP Singh	Chief Technical Officer	31.08.2015

हर कदम, हर डगर
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