



ICAR-IASRI



NEWS

Volume 23

No. 4

January-March, 2019

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

From director's desk.....

Training Management Information System (TMIS) has been developed in compliance with the ICAR HRM Policy and caters to the Cadre-wise Training Needs of all institutes. TMIS automates the process of Annual Training Plan (ATP) Creation, Training Application, Training Feedback, Training Evaluation and Report creations from the data collected yearly. DARE-ICAR-Foreign-Visit-Management-System (FVMS) has also been developed to automate on line foreign visit application process, proposal assessment, visit approval, Online tracking of proposal's current status, e-mail notification on submission and approval of proposal, automatic sanction letter generation process.



Nested orthogonal designs are very useful for conducting computer experiments with multiple levels of accuracy. Two general methods of constructing nested orthogonal Latin hypercube designs have been developed. First method deals with 2 layers of NOLH and the second methods deals with three or more layers of NOLH. The methods give many new nested orthogonal Latin hypercube designs with fewer number of runs as compared to existing nested orthogonal Latin hypercube designs. A web application has been developed for online generation of Orthogonal and nested orthogonal Latin hypercube Designs comprising of four different modules, (i) 1st order OLH design (ii) 2nd order OLH design (iii) Nested OLH design and (iv) OLH design with good space filling property. The application has been developed using JSP language and STS (Java) platform.

Data Analysis Software for estimation of area and yield under fruits and vegetables has been developed. It is a window based software. This analysis Software runs on methodology developed by ICAR-IASRI for estimating the area, yield and production of fruits and vegetables. Software opens with an upload form where user can upload files for different schedules which can be used for analysis and then after user can select the schedule for estimating the results. This analysis software analyzes five different schedules entered through Data Entry software developed earlier. Using this Software, estimates of area, yield and production of fruits and vegetables at village level/ block level/ district level can be generated for each state. Presently, it is working for six states namely Andhra Pradesh, Himachal Pradesh, Maharashtra, Tamil Nadu, Haryana and Madhya Pradesh for which the survey was conducted. It also calculates variance and Percentage Standard error for the estimates of area, yield and production of fruits and vegetables at District Level. This software also provides the number of records which have been analyzed, all important count factors like number of blocks considered for each crop and number of farmers in a district for a particular crop. In this software there is a setting option from where user can manage the static data for different states at tehsil/ block level and also district level.

An R-package-WaveletANN has been developed. The forecasting algorithm based on combination of wavelets and artificial neural network has been implemented in real data analysis. This R package is developed and published in CRAN (<https://CRAN.R-project.org/package=WaveletANN>). It will help the users to apply the technique to the suitable dataset without bothering much about the writing of computer programs.

Sixteen training programmes were conducted on a wide range of topics viz., Statistical modeling and forecasting, Statistical techniques/ Advances for agricultural data analysis, OMICS tools for agricultural germplasm improvement, Analysis of experimental data and Computational and statistical advances for analysis of biological data in agriculture. It will be heartening to note that the institute has conducted one training exclusively in Hindi. I am also glad to announce that a good number of publications has come out during this period.

Scientists of the Institute have provided Consultancy/Advisory services and participated in different Conference/Symposia/Workshop etc. in various capacities and also delivered invited lectures. It is hoped that the contents of the document would be informative and useful. Any suggestion for improving the contents of the newsletter further would be highly appreciated.

(Lal Mohan Bhar)

HONOURS/AWARDS

1. Shyamsundar Parui received M.N. Das Memorial Young Scientist Award 2019 in the National Conference on Challenges and Opportunities in Statistics and Informatics for Futuristic Humanosphere especially in Agriculture and 21st Annual Conference of Society of Statistics, Computer and Applications held at Department of Statistics and Computer Applications, S.V. Agricultural College, Tirupati during January 29-31, 2019 for the paper: Shyamsundar Parui, Rajender Parsad and B.N. Mandal. Efficient Designs for Designs for Incomplete Factorial Experiments for Two Factors with Unequal Block Sizes.
2. Garima Singh received best paper in students' session award for the following paper at 72nd Annual Conference of Indian Society of Agricultural Statistics on Statistics, Informatics and Engineering Interventions - A Roadmap to Transform Indian Agriculture towards Prosperity during December, 13-15, 2018 for the paper Garima Singh and B N Mandal. "On block designs for comparing test treatments with control(s)".
3. Arpan Bhowmik received Young Scientist Award-2018 of Coochbehar Association for Cultivation of Agricultural Science (COBACAS) for contribution in agricultural sciences during the COBACAS 4th National Conference organized jointly by COBACAS and UBKV at College of Agriculture, UBKV, Majhian, Dakshin Dinajpur, West Bengal during 17-18 January, 2019
4. Arpan Bhowmik received the Best Paper Award 2018 among the published papers in Journal of Agricultural Engineering. The award has been conferred by the Executive council of the Indian Society of Agricultural Engineers, New Delhi for the paper Pandirwar, A. P., Kumar, A., Mani, I., Gaikwad, B. B., Sawant, C. P. and Bhowmik, A. (2018). Soil Bin Studies on Plug and Finger-type Onion Seedling Transplanting Mechanisms. *Journal of Agricultural Engineering*. **55 (1)**, 1-14.
5. R. K. Paul received best poster award in the 10th International triennial Calcutta symposium on Probability and statistics held during 27-30 December, 2018 at University of Calcutta, West Bengal
6. A.R.Rao received "Best Teacher Award in Agricultural Higher Education 2018-19" from ICAR-IARI, New Delhi. Received the award from Sh. Radha Mohan Singh, Union Minister of Agriculture & Farmers Welfare, Government of India on 8th February 2019. The award carries cash prize of Rs. 50,000/- and a certificate.
7. Hukum Chandra received "Recognition Award" for outstanding contributions in the field of Social Sciences for the Biennium 2017-2018 from the National Academy of Agricultural Sciences, India. The award was conferred by Shri Radha Mohan Singh, Honorable Union Minister of Agriculture & Farmers' Welfare, and Shri Gajena Singh Shekhawat, Honorable Union Minister of State for Agriculture & Farmers' Welfare Govt. of India, on 20 February, 2019, New Delhi.
8. निम्नलिखित मौलिक शोध पत्रों को हिन्दी में छपवाने तथा राष्ट्र एवं राष्ट्रभाषा की सेवा करने के लिए कृषि अनुसंधान पत्रिका ने लेखकों को कृषि विज्ञान गौरव की मानद उपाधि से अलंकृत किया।
9. अखिलेश झा, सिनी वर्गीस, सीमा जग्गी, मो. हारून एवं देवेन्द्र कुमार ;2018। तीन प्रतिकृतियों वाली असमान खण्ड आकारों में समाधेय आंशिक संतुलित अपूर्ण खण्ड (2) अभिकल्पनाओं की एक नई श्रृंखला । भारतीय कृषि अनुसंधान पत्रिका, 33(3): 161–164.
10. सुमित सौरव, सिनी वर्गीस, मो. हारून, सीमा जग्गी एवं देवेन्द्र कुमार ;2018। संवेदी परीक्षणों में दो नियंत्रण वाले परीक्षण उत्पादों की तुलना हेतु संतुलित अभिकल्पनाएं । भारतीय कृषि अनुसंधान पत्रिका, 33(3): 218–220.
11. निम्नलिखित मौलिक शोध पत्रों को हिन्दी में छपवाने तथा राष्ट्र एवं राष्ट्रभाषा की सेवा करने के लिए कृषि अनुसंधान पत्रिका ने लेखकों को कृषि विज्ञान गौरव की मानद उपाधि से अलंकृत किया।

12. बी.एन. मंडल, सुकांत दाश, अनिल कुमार एवं देवेन्द्र कुमार (2018). अनुवांशिक अध्ययन के लिए परिक्षण अभिकल्पना का उपयोग. भारतीय कृषि अनुसन्धान पत्रिका, 33(2): 177-180.
13. सुकांत दाश, अनिल कुमार, बी.एन. मंडल, कृष्ण लाल एवं देवेन्द्र कुमार (2018). मिश्रणों का द्वारा परीक्षण | भारतीय कृषि अनुसन्धान पत्रिका, 33(2): 181-184.

RECOGNITIONS

1. Hukum Chandra was Resource Person in the workshop on "Applications of Spatio-Temporal models" at University of Hyderabad, Hyderabad during 31 January to 01 February, 2019.
2. Hukum Chandra was Invited Speaker in the International Conference on "Computer Age Statistics in the Era of Big and High Dimensional Data" at Department of Statistics, Savitribai Phule Pune University during 03-05 January, 2019.
3. Hukum Chandra was Invited Speaker in the National Conference on "Recent Developments in Statistics and their -Applications to the Society" at Ahmednagar during 17-18 January, 2019.
4. Hukum Chandra chaired Invited Paper Session in the National Conference on "Recent Developments in Statistics and their -Applications to the Society" at Ahmednagar during 17-18 January, 2019.
5. Hukum Chandra was Invited Speaker in the National Conference on "Challenges and Opportunities in Statistics and Informatics for Futuristic Humanosphere especially in Agriculture (COSIFHA-2019)" at SV College of Agriculture, Tirupati during 29-31 January, 2019.
6. Arpan Bhowmik Co-Chairman for Technical Session 2 on Conservation, Sustainable Development, Crop Improvement and Management for Doubling Farmers' Income in the COBACAS 4th National Conference on Diversified Farming Systems: Sustainable Livelihood and Doubling Farmers' Income organized jointly by Coochbehar Association for Cultivation of Agricultural Science (COBACAS) and Uttar Banga Krishi Viswa Vidyalaya (UBKV) at College of Agriculture, UBKV, Majhian, Dakshin Dinajpur, West Bengal during 17-18 January, 2019.
7. Arpan Bhowmik acted as an Expert Member of an Interview board for selecting one SRF under one NASF project in division of Agricultural Extension on 30 January, 2019.
8. A.R. Rao acted as Convener for technical Session on "Application of bioinformatics and statistical tools in genetics" organized under National Genetics Congress held during 14-16 December 2018 at ICAR-IARI, New Delhi.
9. K.K. Chaturvedi member, Technical Program Committee, 9th International Conference on Quality, Reliability, Infocom Technology and Business Operations (ICQRITBO'2018) during Dec. 27-29, 2018 at Conference Centre, University of Delhi, Delhi
10. Mohammad Samir Farooqi appointed external examiner by the department of Statistics and Operation Research, AMU, Aligarh.
11. Anil Rai invited as expert in the workshop in National Testing Agency for Agricultural Statistics from February, 28-March 02, 2019 at NOIDA, U.P
12. Mohammad Samir Farooqi was appointed external examiner by the department of Statistics and Operation Research, AMU, Aligarh.
13. Hukum Chandra was Resource Person in the workshop on "Applications of Spatio-Temporal Models" at University of Hyderabad, Hyderabad during 31 January to 01 February, 2019.

14. Hukum Chandra was Resource Person in the workshop on "Statistical Computing Using R" at Department of Statistics, Punjab University, Chandigarh during 28 February to 01 March, 2019.
15. Hukum Chandra was Expert Member in the Core Group of Experts on Normalization, constituted by the Chairman, National Testing Agency and Secretary (HE), Department of Higher Education, Ministry of Human Resource Development, Government of India, 2018-19.
16. Hukum Chandra acted as Guest of Honour, inaugural session, national workshop on "Big Data Analysis with R", Rabinanath Tagore University, Bhopal on March 15, 2019.
17. Hukum Chandra as invited Speaker, National workshop on "Big Data Analysis with R", Rabinanath Tagore University, Bhopal, March 15, 2019.
18. Hukum Chandra selected as expert member, Departmental Promotion Committee constituted by ASRB for the assessments of the Scientists in the discipline of Agricultural Statistics at ICAR-CIFRI, Barrackpore, West Bengal on March 26, 2019.

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

- The Secretary DARE and DG, ICAR launched entitled "Application of Next-Generation Breeding, Genotyping, and Digitalization Approaches for Improving the Genetic Gain in Indian Staple Crops" funded by ICAR-BMGF on 25th January, 2019 in NASC. Susheel Kumar Sarkar is CCPI from ICAR-IASRI, New Delhi. (22.01.2019-21.01.2023)
- Ramasubramanian V. presented a new institute project proposal entitled "Enhanced Classification And Regression Tree (CART) models for forecasting in agriculture" as institute seminar on 05.01.2019.
- Harish Kumar H V presented New Project Proposal Seminar on topic titled "Modelling dynamics of institutional credit to agriculture in India" at institute level on 05/01/2019 and Submitted RPP-I to PME cell for internal evaluation on 09/01/2019.
- New institute funded project titled "Modelling dynamics of institutional credit to agriculture in India" was started with effective date 02nd February, 2019 consisting project team Harish Kumar H.V. (PI), Shivaswamy G.P(Co-PI) Anuja A.R(Co-PI) and Achal Lama (Co-PI) with project duration of two and half years.
- New Project "Investment in Indian Council of Agricultural Research Leadership in Agricultural Higher Education" has been sanctioned with the funding under NAHEP Component2 for the period 28 February 2019 to March 2022.

HUMAN RESOURCE DEVELOPMENT

Training programs organized

S.N.	TITLE	VENUE	PERIOD	NUMBER OF PARTICIPANTS
1.	Experimental Designs and Statistical Data Analysis Course Director Seema Jaggi Co-Course Director Arpan Bhowmik	ICAR-IASRI, New Delhi	03.01.2019 To 16.01.2019	INA*

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2.	Design of Experiments and Data Analysis Course Directors Seema Jaggi Rajender Parsad Anindita Datta	ICAR-IASRI, New Delhi	12.11.2018 To 11.02.2019	--
3.	Recent Advances in Statistical Techniques for Data Analysis in Agriculture Course Director L. M. Bhar Course Co-Director A.K. Paul R.K Paul	ICAR-IASRI, New Delhi	10.01.2019 to 30.01.2019	23
4.	Implementation of e-Office in ICAR Institutes Course Director Mukesh Kumar	ICAR-IASRI, New Delhi	23.01.2019 to 24.01.2019	--
5.	Applications of Remote Sensing and GIS in Agricultural Surveys Course Directors Tauqueer Ahmad Prachi Misra Shoo Ankur Biswas	ICAR-IASRI, New Delhi	11.03.2019 to 31.01.2019	--
6.	Recent Advances in Statistical Modeling and Forecasting for Agricultural Data Analysis Course Director K.N. Singh Course Co-Directors Achal Lama Ravina Singh Shekhawat	ICAR-IASRI, New Delhi	23.02.2019 to 15.03.2019	--
7.	Workshop on ICAR KRISHI Portal - A Central Research Data Repository Course Director Rajender Parsad Course Co-Directors Anil Kumar Anshu Bhardwaj Susheel Kumar Sarkar Sukanta Dash	ICAR-IASRI, New Delhi	18.03.2019 to 19.03.2019	--

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9.	Academic writing with LaTeX Course Director <i>B.N. Mandal</i>	ICAR-IASRI, New Delhi	25.03.2019	--
10.	ICAR-ERP for Finance Officers of ICAR Course Director <i>Mukesh Kumar</i> <i>Sudeep Marwaha</i> <i>Shashi Dahiya</i>	ICAR-IASRI, New Delhi	11.03.2019 to 16.03.2019	--
11.	KRISHI Portal-ICAR Research Data Repository Course Director <i>Rajender Parsad</i> <i>Mukesh Kumar</i>	NRC, Banana, Tiruchirappalli	25.03.2019	--
12.	Modern Statistical Techniques in Genetics Course Director <i>Himadri Shekher Roy</i> <i>R.K. Paul</i> <i>A.K. Paul</i>	Education Division, ICAR	01.02.2019 to 21.03.2019	---
13.	Basic Statistical Methods in Agriculture Course Director <i>Rajender Parsad</i> Course Co-Directors <i>Sukanta Dash</i> <i>Arpan Bhowmik</i>	at ICAR-IASRI, New Delhi	04.02.2019 to 23.02.2019	--
14.	Unit Level Data Repository for AICRPs Convener Rajender Parsad Co-ordinators <i>Susheel Kumar Sarkar</i> <i>Sukanta Dash</i> <i>Arpan Bhowmik</i>		25.02.2019 to 26.02.2019	--
15.	Design of Experiments and Data Analysis Coordinators Course Director <i>Seema Jaggi</i> <i>Rajender Parsad</i> <i>Anindita Datta</i>	ICAR-IASRI, New Delhi	12.11.2018 To 11.02.2019	--

16	<p><i>कृषि सर्वेक्षणों के लिए प्रतिदर्श तकनीकें एवं प्रतिदर्श आँकड़ों का सांख्यिकीय विश्लेषण</i></p> <p>पाठ्यक्रम निदेशक श्री राजू कुमार</p> <p>पाठ्यक्रम सह-निदेशक डा. अंकुर बिश्वास श्री दीपक सिंह</p>	ICAR-IASRI, New Delhi	22.02.2019 to 27.02.2019	--
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PUBLICATIONS

Research Papers

1. Meher, PK, Sahu, TK, Gahoi, S, Tomar, R and Rao, AR (2018). funbarRF: DNA barcode-based fungal species prediction using multiclass Random Forest supervised learning model. *BMC Genetics*, 20:2. <https://doi.org/10.1186/s12863-018-0710-z>.
2. Meher, PK, Sahu, TK, Raghunandan, K, Gahoi, S, Choudhary, NK and Rao, AR (2018). HRGPred: Prediction of herbicide resistant genes with k-mer nucleotide compositional features and support vector machine. *Scientific Reports*, 9: 778. <https://doi.org/10.1038/s41598-018-37309-9>.
3. Singh, I , Deb, R , Kumar, S, Singh, R, Andonissamy, J, Smita, S, Singh, GS, Kumar, R, Ojha KK, Sahoo, NR, Murali, S, Chandran, R, Nair, VR, Lal, SB, Mishra, DC & Rai A (2019). Deciphering Foot-and-Mouth Disease (FMD) virus-host Tropism. *Journal of Biomolecular Structure and Dynamics*. Deciphering Foot-and-Mouth Disease (FMD) virus-host Tropism. *Journal of Biomolecular Structure and Dynamics*, DOI: 10.1080/07391102.2019.1567386.
4. Jaiswal, S, Jadhav, PV, Jasrotia, RS, Kale, PB, Kad, SK, Moharil, MP, Dudhare, MS, Deshmukh, AG, Mane, SS., Nandanwar, RS., Penna, S, Manjaya, JG, Iquebal, MA, Tomar, RS, Rai, A and Kumar, D (2018). Transcriptomic signature reveals mechanism of flower bud distortion in witches'-broom disease of soybean (*Glycine max*). *BMC Plant Biology* <https://bmcplantbiol.biomedcentral.com/articles/10.1186/s12870-018-1601-1>
5. Das, R, Arora, V, Jaiswal, S, Iquebal, MA, Angadi, UB, Singh, R, Shil, S, Rai, A and Kumar D (2018). PolyMorphPredict: Web server for rapid polymorphic SSR locus discovery from whole genome and transcriptome data. *Frontiers in Plant Sciences*. <https://www.frontiersin.org/articles/10.3389/fpls.2018.01966/full>
6. Islam, S, Sharma, AK, Sharma, K, Farooqi, MS and Chaturvedi, KK (2018). Diagnosing wheat disease using expert system. *Journal of the Indian Society of Agricultural Statistics*. 72(3):255-259.
7. Verma, R, Wason, M and Bhowmik, A (2018). Case of Connecting eam Foundation and Communication Technology Based Model, Its Perceived Utility and Effectiveness in Information and Service Delivery. *International Journal of Agricultural Sciences*. 10(22): 7539-7541.
8. Bijarniya H, Khura, TK, Mani, I, Kushwaha, HL Lande, SD and Sarkar, SK (2019) Development of liquid urea ammonium nitrate fertilizer foliar application system for enhanced nutrient use efficiency. *Ind. Jour. Agri. Sci.* 89 (1): 22-7.
9. Mozafari, SH Dass, A, Choudhary, AK, Singh, T and Sarkar, SK (2018). Influence of moisture conservation and integrated nutrient management on growth and productivity of summer maize in southern Afghanistan. *Ann. Agri. Res.*, 39(4): 354-60.

10. Stori, RM, Ahmadzai, KM, Parihar, CM, Jat, SL, Mandal, BN, Kumar, L and Meena, BR (2019). Effect of tillage practices and phosphorus doses on the performance of mungbean (*Vigna radiata*) in semi-arid Kandahar region of Afghanistan. *Indian Journal of Agronomy* 63 (4): 532-534.
11. Stori, RM, Parihar, CM, Ahmadi, S, Ahmadzai, KM, Nayak, HS, Jat, SL, Mandal, BN, Wasifhy, MK., Sayedi, SA, Shamsi, AB, Ehsan, Q, Parihar, MD, Kumar, L and Meena, BR (2019). Economical optimum dose of phosphorus for mungbean (*Vigna radiata*) under contrasting tillage practices in arid region. *Indian Journal of Agricultural Sciences* 89(1):165–8.
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14. Paul, NC, Sahoo, PM, Sahoo, RN, Das, B, Biswas, A, Krishna, G, Rai, A, and Ahmad, T (2018). Comparative Evaluation between Multispectral and Hyperspectral Data for Discrimination of Fruit Crops using Statistical Techniques. *Journal of the Indian Society of Agricultural Statistics*, 72(3): 187-191.
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Reference Manual /Manual/ E-manual/Pamphlet

1. Seema Jaggi, Arpan Bhowmik and Anindita Datta (2017). *Experimental Designs and Statistical Data Analysis*. E- manual. ICAR-IASRI Publications.
2. Seema Jaggi, Arpan Bhowmik and Anindita Datta (2017). *Experimental Designs and Statistical Data Analysis*. E- manual. ICAR-IASRI Publications.
3. Prachi Misra Sahoo, Tauqueer Ahmad and Ankur Biswas (2019). *Recent Advances in Agricultural Surveys: Remote Sensing and GIS Applications: Reference Manual of the International Training Programme held during March 11-31, 2019 for the participants from African-Asian Rural Development Organization (AARDO) member countries at ICAR-IASRI, New Delhi Publication.*(Hard Copy)
4. Prachi Misra Sahoo, Tauqueer Ahmad and Ankur Biswas (2019). *Recent Advances in Agricultural Surveys: Remote Sensing and GIS Applications: Reference Manual of the International Training Programme held during March 11-31, 2019 for the participants from African-Asian Rural Development Organization (AARDO) member countries at ICAR-IASRI, New Delhi Publication.*(Soft Copy)
5. Mukesh Kumar, Sudeep Marwaha and Shashi Dahiya (2019). *Bilingual Training Brochure on "ICAR-ERP - Finance Module for ICAR Personnel" held during 11-16 March 2019 at ICAR-IASRI.*
6. Himadri Shekher Roy, R.K.Paul and A.K.Paul (2019). "Modern Statistical Techniques. E-Reference Manual Vol. I and Vol.-II. ICAR-Indian Agricultural Statistics Research.
7. Himadri Shekher Roy, R.K.Paul and A.K.Paul (2019). "Modern Statistical Techniques. E-Reference Manual Vol. I and Vol.-II. ICAR-Indian Agricultural Statistics Research.(in the form of CD).
8. Raju Kumar, Deepak Singh and Ankur Biswas. (2019). कृषि सर्वेक्षणों के लिए प्रतिदर्श तकनीकें एवं प्रतिदर्श आँकड़ों का सांख्यिकीय विश्लेषण: **Reference Manual of the Hindi Karyashala** held during 22–27 February 2019 at ICAR-IASRI, New Delhi Publication.

Popular Articles

- Chandra, H. (2019). *Statistical Computing Using R*. National workshop on "Big Data Analysis with R", Rabinanath Tagore University, Bhopal, March 15, 2019.

Abstracts

- UB Angadi, MA Iquebal, Sarika Jaiswal, Anil Rai and Dinesh Kumar, "Web based tool and mobile apps for wheat variety identification using throughput SNP genotyping data", in proceedings of national conference "Advanced Research Methodologies In Social Science" during Feb 26th to 28th 2019 at University of Agricultural Sciences, Dharwad.

Book Chapter

- S. B. Lal, Anu Sharma, K. K. Chaturvedi, M. S. Farooqi and Anil Rai Internet of Things in Forestry and Environmental Sciences. In Book: Statistical Methods and Applications in Forestry and Environmental Sciences, Forum for Interdisciplinary Mathematics, Springer

E-Book

- Himadri Shekher Roy E-learning module-tools and techniques.ICT and Social media for skill development in Agriculture. 153-163. Today and Tomorrows Printer and Publishers, New Delhi-110002.

PAPERS PRESENTED/ INVITED TALKS DELIVERED

1. Paper presented an invited talk on “Machine Learning Approaches for Binning of Metagenomics Data” at 21st Annual Conference of Society of Statistics, Computer and Applications, Challenges and Opportunities in Statistics and Informatics for Futuristic Humanosphere during 29-31 January 2019 at S.V. College Agriculture, AP, Tirupati. (Anu Sharma)
2. Paper presented on Efficient Designs for Designs for Incomplete Factorial Experiments for Two Factors with Unequal Block Sizes (presented in M.N. Das Memorial Young Scientist Award 2019 Session on January 30, 2019 in National Conference on Challenges and Opportunities in Statistics and Informatics for Futuristic Humanosphere especially in Agriculture and 21st Annual Conference of Society of Statistics, Computer and Applications held at Department of Statistics and Computer Applications, S.V. Agricultural College, Tirupati during January 29-31, 2019) (Shyamsundar Parui*, Rajender Parsad and B.N. Mandal)
3. Paper presented on Construction of Second Order Orthogonal Latin Hypercube Designs with Four Factors (Invited Talk delivered on 29.01.2019 in National Conference on Challenges and Opportunities in Statistics and Informatics for Futuristic Humanosphere especially in Agriculture and 21st Annual Conference of Society of Statistics, Computer and Applications held at Department of Statistics and Computer Applications, S.V. Agricultural College, Tirupati during January 29-31, 2019) (B.N. Mandal*, Sukanta Dash and Rajender Parsad)
4. Delivered Invited talk lecture on the “Construction of Nested Orthogonal Latin Hypercube Designs in National Conference on Challenges and Opportunities in Statistics and Informatics for Futuristic Humanosphere especially in Agriculture and 21st Annual Conference of Society of Statistics, Computer and Applications held at Department of Statistics and Computer Applications, S.V. Agricultural College, Tirupati during January 29-31, 2019. (Sukanta Dash*, B.N. Mandal and Rajender Parsad.)
5. Delivered Invited talk lecture on Block designs for comparing test treatments with control(s). (presented in the students' session) at 72nd Annual Conference of Indian Society of Agricultural Statistics on Statistics, Informatics and Engineering Interventions - A Roadmap to Transform Indian Agriculture towards Prosperity during December, 13-15, 2018.) (Garima Singh* and B N Mandal)
6. Delivered Invited talk lecture “Repeated Measurements analysis with missing observations” in 21st Annual National Conference on Challenges and Opportunities in Statistics and Informatics for Futuristic Humanosphere Especially in Agriculture (COSIFHA-2019) during January 29-31, 2019 at S.V. Agricultural College, Tirupati. (Susheel Kumar Sarkar* and Sanjeev Panwar.)
7. Paper presented on Modeling of Occurrence of Neonatal Diarrhea in Young Goats through Distribution Approach. [Lead Lecture in the COBACAS 4th National Conference on Diversified

- Farming Systems: Sustainable Livelihood and Doubling Farmers' Income organized jointly by Coochbehar Association for Cultivation of Agricultural Science (COBACAS) and Uttar Banga Krishi Viswa Vidyalaya (UBKV) at College of Agriculture, UBKV, Majhian, Dakshin Dinajpur, West Bengal during 17-18 January, 2019] (Rahul Kumar Gupta, Arpan Bhowmik*, Seema Jaggi, Anindita Datta, Kaustrav Aditya and Souvik Paul.)
8. Paper presented on Experimentation Order in Multi-Factor Experiments.[Invited Talk in the National Conference of Society of Statistics, Computer and Applications on “Challenges and Opportunities in Statistics and Informatics for Futuristic Humanosphere especially in Agriculture (COSIFHA-2019)” organized by the Department of Statistics and Computer Applications of Acharya NG Ranga Agricultural University at SV College of Agriculture, Tirupati during 29-31 January, 2019] (Eldho Varghese*, Arpan Bhowmik, Seema Jaggi, Cini Varghese and T.V. Sathianandan)
 9. Poster Presentation on Assessment of water quality using pollution index of River Hindon, Uttar Pradesh, India in International Conference on Global Environmental Challenges, Human Health and Sustainable Development held during 11 to 13 January, 2019 at The Convention Centre, JNU, New Delhi. (Gaurav Singh*, Neelam Patel, Tanu Jindal, Sumit Pal and Arpan Bhowmik)
 10. Presented one invited talk entitled “Statistical Modelling of Climatic Variables using Wavelet Technique” in the 21st Annual National Conference on “Challenges and Opportunities in Statistics and Informatics for Futuristic Humanosphere Especially in Agriculture (COSIFHA) during 29 -31 January 2019, at S.V. Agricultural College, Tirupati, ANGRAU, Andhra Pradesh. (R. K. Paul)
 11. Paper presented entitled “Knowledge Dissemination of Farmer FIRST programme through FFP Portal” in 21st Annual Conference of Society of Statistics, Computer and Application on ‘Challenges and Opportunities in Statistics and Informatics for Futuristic Humanosphere Especially in Agricultural Sciences’ at S.V. Agricultural College (ANGRAU), Tirupati, during 29-31 January 2019. (Mukesh Kumar, Anshu Bharadwaj, Soumen Pal, Rajni Jain, Shiv Kumar, Chetna Gupta and Rama)
 12. Paper presented entitled “Analysis and Evaluation of Training Effectiveness under Capacity Building Program of ICAR: A Case Study” in 21st Annual Conference of Society of Statistics, Computer and Application on ‘Challenges and Opportunities in Statistics and Informatics for Futuristic Humanosphere Especially in Agricultural Sciences’ at .V. Agricultural College (ANGRAU), Tirupati, during 29-31 January 2019. (Alka Arora, Sudeep Marwaha, Soumen Pal, Ranjeet Kumar Paul and Saravanakumar R)
 13. Delivered a invited talk paper entitled “Decision Tree based Online Classification and Visualization” in the invited paper session on “Geo and Spatial Statistics” in National Conference on “Challenges and Opportunities in Statistics and Informatics for Futuristic Humanosphere Especially in Agriculture” (COSIFHA – 2019), during 29–31 January, 2019 at S.V. Agricultural College, Tirupati. (Shashi Dahiya)
 14. Delivered a invited talk paper entitled “Analysis and Evaluation of Training Effectiveness under Capacity Building Program of ICAR: A Case Study ”. in National Conference on “Challenges and Opportunities in Statistics and Informatics for Futuristic Humanosphere Especially in Agriculture” (COSIFHA – 2019), during 29–31 January, 2019 at S.V. Agricultural College, Tirupati. (Alka Arora).
 15. Paper presented entitled “Small Area Prediction of Counts Under a Spatial Non-Stationary Generalized Linear Mixed Model” in International Conference on “Computer Age Statistics in the

- Era of Big and High Dimensional Data" at Department of Statistics, Savitribai Phule Pune University during 03-05 January, 2019.(Hukam Chandra)
16. Paper presented entitled "Analysis of District and Social Group-Wise Disparity in Poverty in Chhattisgarh using Small Area Estimation Approach" in International Conference on "Computer Age Statistics in the Era of Big and High Dimensional Data". (Hukam Chandra)
 17. Paper presented entitled "Finite Population Mean Estimation using Two Auxiliary Variables in Double Sampling in the Presence of Nonresponse" in International Conference on "Computer Age Statistics in the Era of Big and High Dimensional Data".(Hukam Chandra)
 18. Paper presented entitled "Small Area Estimation of Proportions under a Spatial Dependent Aggregated Level Generalized Linear Mixed Model" in National Conference on "Recent Developments in Statistics and their -Applications to the Society" at Ahmednagar during 17-18 January, 2019. (Hukam Chandra)
 19. Paper presented entitled Small Area Prediction of Counts Under a Spatial Non-Stationary Generalized Linear Mixed Model. in National Conference on "Challenges and Opportunities in Statistics and Informatics for Futuristic Humanosphere especially in Agriculture (COSIFHA-2019)" at SV College of Agriculture, Tirupati during 29-31 January, 2019. (Hukam Chandra)
 20. Paper presented on Big Data in Indian Agricultural Research and Development (Invited talk during Satellite Symposium on Big Data in yland Agriculture delivered on February 12, 2019) in 13th International Conference on yland Development: Converting yland Areas from Grey into Green organized by International yland Development Commission (IDDC) and Arid Zone Research Association of India (AZRAI) and hosted by ICAR-CAZRI at Jodhpur during February 11-14, 2019. (Rajender Parsad)
 21. Paper presented on Information System for AICRP on Fruits (Invited talk delivered on February 15, 2019) Sixth Group Discussion of ICAR-AICRP on Fruits held at Assam Agricultural University, Jorhat, during February 14-16, 2019. (Rajender Parsad)
 22. Participated in poster presentation on Changes in soil microbial health in upland rice under diverse nutrient management condition in NEH region. in XIV Agricultural Science Congress "Innovations for Agricultural Transformation" held during 20-23 February, 2019 at NASC Complex and IARI campus organized by National Academy of Agricultural Sciences, New Delhi and ICAR- Indian Agricultural Research Institute, New Delhi. (Bisworanjita Biswal)
 23. Participated in poster presented on Generalized row-column designs for comparing test treatments with a control in agricultural experiments. in XIV Agricultural Science Congress "Innovations for Agricultural Transformation" held during 20-23 February, 2019 at NASC Complex and IARI campus organized by National Academy of Agricultural Sciences, New Delhi and ICAR- Indian Agricultural Research Institute, New Delhi. (Anindita Datta)
 24. Gave a presentation on the topic entitled "Statistical methodologies for agricultural data analysis and decision making" in the Workshop entitled "Building Evidence in Agriculture: Reviewing Data Systems and the Way Forward" at Hotel Maurya, Patna on 15.02.2019. (RamasubramanianV.)
 25. Presented poster "Modelling and forecasting of pest dynamics using Generalized linear models: A case of Jassids in cotton at Guntur, Andhra Pradesh" Prawin Arya, Wasi Alam and Ranjit Paul during XIV Agricultural Science Congress. (Prawin Arya)
 26. Delivered scientific talk on "Capital Formation across Rural-Urban Gradient of Bangalore North-An Economic Analysis" in Indo-German conference on rural-urban transition (International conference)

- held at University of Agricultural Sciences, GKVK, Bangalore during 20-22, February, 2019. (Harish Kumar H.V.)
27. Participated in poster presentation on the topic "Crop diversification towards high value crops: Status, determinants and its impact on farmers' welfare in eastern India" in the XIV Agricultural Science Congress 2019 held at NAAS complex, New Delhi during 20th to 23rd February, 2019. (Anuja A. R).
 28. Deliver lectures as resource person in NGS data analysis workshop cum Training at Assam Agricultural University, Jorhat during 14-16 March 2019. (K.K. Chaturvedi)
 29. Presented paper on Information System for AICRP on PHET in 34th Annual Workshop of AICRP on PHET organized at Tamil Nadu Agricultural University, Coimbatore during March 12-15, 2019. (Rajender Parsad)
 30. Presented paper in "Calibration Approach Based Estimation of Regression Coefficient using Auxiliary Data" by in 72nd Annual National Conference of ISAS. (Vandita Kumari, Hukum Chandra, L.M. Bhar and Kaustav Aditya)
 31. Presented paper in the International Conference "Emerging Innovation in Statistics & Operations Research (EISOR-2018)" at M.D. University, Rohtak during December 27-30, 2018. (2018). Estimation of Regression Coefficient using Calibration Approach with Multi Auxiliary Variables. (Kumari, V., Chandra, H. and Aditya, K.)
 32. Delivered lectures in the workshop on "Statistical Computing Using R", Department of Statistics, Punjab University, Chandigarh during February 28 to March 01, 2019. (Hukum Chandra)
 33. Delivered lectures in the National workshop on "Big Data Analysis with R", Rabinanath Tagore University, Bhopal on March 15, 2019. (Hukum Chandra)
 34. Prepared and delivered 04 lectures on "Statistical Computing Using R" in the national workshop on "Big Data Analysis with R", Rabinanath Tagore University, Bhopal on March 15 on 2019. (Hukum Chandra)

PARTICIPATION IN CONFERENCE/WORKSHOP/SYMPOSIA/SEMINAR/ TRAINING/ ANNUAL DAY/FOUNDATION COURSE

International

1. Hukum Chandra participated in the International Conference on "Computer Age Statistics in the Era of Big and High Dimensional Data" at Department of Statistics, Savitribai Phule Pune University during 03-05 January, 2019.
2. Rajender Parsad participated 13th International Conference on yland Development: Converting yland Areas from Grey into Green organized by International yland Development Commission (IDDC) and Arid Zone Research Association of India (AZRAI) and hosted by ICAR-CAZRI at Jodhpur during February 11-14, 2019.

National

1. Rajender Parsad, Susheel Kumar Sarkar, B.N. Mandal and Sukanta Dash participated National Conference on Challenges and Opportunities in Statistics and Informatics for Futuristic Humanosphere especially in Agriculture and 21st Annual Conference of Society of Statistics, Computer and Applications held at Department of Statistics and Computer Applications, S.V. Agricultural College, Tirupati during January 29-31, 2019 .

2. Arpan Bhowmik participated the COBACAS 4th National Conference on Diversified Farming Systems: Sustainable Livelihood and Doubling Farmers' Income organized jointly by Coochbehar Association for Cultivation of Agricultural Science (COBACAS) and Uttar Banga Krishi Viswa Vidyalaya (UBKV) at College of Agriculture, UBKV, Majhian, Dakshin Dinajpur, West Bengal during 17-18 January, 2019.
3. D.C. Misra attended 21st Annual Conference of Society of Statistics, Computer and Application held at SV college of Agriculture, ANGRAU, Tirupati during January 29-31, 2019 and presented an invited talk on the paper entitled "Informative Gene Selection : Algorithms and Techniques" in a technical session "Statistical Genomics".
4. Hukum Chandra participated in the National Conference on "Recent Developments in Statistics and their -Applications to the Society" at Ahmednagar during 17-18 January, 2019.
5. Hukum Chandra participated in the National Conference on "Challenges and Opportunities in Statistics and Informatics for Futuristic Humanosphere especially in Agriculture" at SV College of Agriculture, Tirupati during 29-31 January, 2019.
6. Hukum Chandra participated in the workshop on "Applications of Spatio-Temporal Models" at University of Hyderabad, Hyderabad during 31 January to 01 February, 2019.
7. P.K. Meher attended the workshop "Academic writing with LATEX", which was organized at ICAR-IASRI, New Delhi, during 25th March, 2019
8. Rajender Parsad participated in 34th Annual Workshop of AICRP on PHET organized at Tamil Nadu Agricultural University, Coimbatore during March 12-15, 2019.
9. Susheel Kumar Sarkar and Sukanta Dash participated in two day Workshop on "ICAR KRISHI Geoportal: A Digital Platform for Sustainable Agriculture" during March 07-08, 2019 at ICAR-NBSS&LUP, Nagpur.
10. Seema Jaggi, Cini Varghese, Susheel Kumar Sarkar, Sukanta Dash and Sunil Kumar Yadav attended a Hindi Workshop on "Academic Writing with LATEX" on March 25, 2019 which was organized at ICAR-IASRI by Division of Design of Experiments.
11. B.N. Mandal and Sunil Kumar Yadav participated in a two days' Workshop on ICAR KRISHI Portal - A Central Research Data Repository during March 18-19, 2019 at ICAR-IASRI, New Delhi
12. S.B. Lal attended a National Workshop on "Big Data Analytics with R" during 15-16 March, 2019 held at Dept. of CSE & IT, Rabinanath Tagore University, Bhopal as a Guest of Honor and Resource Person. My topic was "Big Data in R and R Hadoop.
13. Soumen Pal and Sh. Pal Singh Participated Hindi Workshop on "Academic, Writing with LATEX at ICAR-IASRI on 25th March, 2019.
14. Sudeep, Alka Arora Mukesh Kumar Anshu Bharaswaj Shashi Dahiya Soumen Pal Mr. SN Islam and Mr. Pal Singh participated in "National Consultation on ICT in Agriculture" workshop for all Computer Scientists of ICAR, jointly organized by DKMA &ADG (ICT), ICAR at NASC Complex , New Delhi on 6th March 2019.
15. Soumen Pal attended Annual Zonal Action Plan Workshop of KVKs, Zone-VII at ICAR-ATARI, Zone – VII, Umiam, Meghalaya during 1-2 March, 2019.
16. Soumen Pal attended Workshop Cum Training for KVKs of Punjab, Haryana and UP on Production Practices Survey at Krishi Vigyan Kena, ICAR-National Dairy Research Institute, Karnal during 27-28 March, 2019.
17. Mukesh Kumar participated in 24th Annual Conference of AICRP for PHET for Launching the Information System on AICRP for PHET developed under KRISHI at TNAU Coimbatore during 12-15 March, 2019
18. Sh. S.N. Islam participated in Smart India Hackathon SIH 2019 at Shiva Na College of Engineering, Chennai during 2-3, March 2019.
19. Kaustav Aditya attended a workshop entitled "Building Evidence in Agriculture-Reviewing data systems and the way forward" Jointly organized by International Growth Centre (IGC), Asian Development Research Institute (AI) and ICAR-IASRI, New Delhi.

20. Anil Kumar and Anindita Datta participated in the XIV Agricultural Science Congress organized by NAAS in collaboration with the ICAR and Indian Agricultural Research Institute at New Delhi from February 20-23, 2019 on the theme "Innovations for Agricultural Transformation".
21. Sukanta Dash participated a Sixth Group Discussion of ICAR-AICRP on Fruits held at Assam Agricultural University, Jorhat, during February 14-16, 2019.
22. Arpan Bhowmik participated in the Training-Cum-Workshop for Officer Incharge, Data Management during February 15-16, 2019. The workshop was organized under KRISHI project.
23. RamasubramanianV. attended a half-day Workshop entitled "Building Evidence in Agriculture: Reviewing Data Systems and the Way Forward" at Hotel Maurya, Patna on 15.02.2019.
24. Wasi Alam attended conference " Conclave - Innovating Indian Agriculture Towards A New Green Revolution " held on Feb 01, 2019 at the Leela Palace, Chandrakyapuri, New Delhi.
25. Harish Kumar H.V. Participated in Indo-German conference on rural-urban transition (International conference) held at University of Agricultural Sciences, GKVK, Bangalore during 20-22, February, 2019.
26. Anuja A. R. participated in the XIV Agricultural Science Congress: Innovation for Agricultural Transformation (International Conference), held at NAAS complex, New Delhi during 20th to 23rd February, 2019.
27. Prawin Arya participated in one day conclave "Innovating Indian Agriculture -Towards a new Green Revolution" held at Leela Palace, Chandrakyapuri, New Delhi on 01.02.2019.
28. Prawin Arya participated in XIV Agricultural Science Congress held at NASC complex, New Delhi-12 during 20-23 Feb., 2019.

CONSULTANCY/ADVISORY SERVICES PROVIDED

Arpan Bhowmik

- to Mr. Dinesh Saini, a Ph.D. Scholar in the division of Microbiology at PG School, IARI on the use of Central Composite Designs with three factors viz. FAC, NaCl and K_2HPO_4 each at five levels.
- to Mr. Gaurav Singh, SRF at Water Technology Centre, IARI and a Ph.D. Scholar in Amity University was advised on the use of Principal Component Analysis (PCA) with respect to different physiochemical variables affecting different sites in terms of pollution alongside Hindon river water, Uttar Pradesh.
- to Hillol Chakdar, Scientist, ICAR-NBAIM on the use of Principal Component Analysis (PCA) to identify the contribution of different amino acids on the composition of four different *Pseudomonas* species viz. *P. koreensis*, *P. synergiae*, *P. aeruginosa* and *P. stutzeri*.

U.B. Aangadi

- Consultancy service project with International Livestock Research Institute (ILRI) is in progress and total consultancy fee is Rs.3,96,750/- for 23 man-days
- New consultancy service proposal "Development database and analysis tool for feed demand-supply assessment in Mali, West Africa" has been prepared with ILRI South_Asia Region, New Delhi and submitted the same for approval. Total consultancy fee is Rs. 4, 42, 500/- for 25 man-days.
- Consultancy service project with International Livestock Research Institute (ILRI) is in progress and total consultancy fee is Rs.3,96,750/- for 23 man-days
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Anil Rai

- consultancy project "The study on field testing of the developed guidelines on estimating post-harvest losses of horticultural crops, livestock products and fish and fish products" Funded by FAO, Rome.
- consultancy project "The study on field testing of the developed guidelines on estimating post-harvest losses of horticultural crops, livestock products and fish and fish products" Funded by FAO, Rome.

Ramasubramanian V.

- To Ms. Kasturi Chattopadhyay, M.F.Sc. (Pht) student of ICAR-CIFE, Mumbai on Factorial RBD ANOVA on interaction effect between levels of storage periods & levels of different concentrations of chitosan gelon pH value of the refrigerated emulsion sausages on 09.02.2019.
- To Manish Bhan, JNKVV, Jabalpur on fitting weather indices based regression modeling of pest incidence for Chickpea varieties using weather variables on 13.02.2019
- To Lloyd Chrispin, Assistant Professor, TNFU on correlation and regression analysis between fish catch and fish seed stocking over seven reservoirs of Tamil Nadu on 29.01.2019.
- To Ms. Pooja Saklani, Ph.D. (Aquaculture) student of ICAR-CIFE, Mumbai by analyzing fish species over markets data using Friedman Rank test on 18.01.2019.

Harish Kumar H V

- To V. Venkataravanappa, Scientist (Plant Pathology), ICAR-IIHR, Bangalore and Manjesh, G. N., Scientist, ICAR-DMAPR, Anand on analysis of the data of Chilly and Adhatoda crops.
- To a Ph.D student of Division of Agricultural Economics, IARI in analysis of the data of millets for structural breaks using Bai-Perron test and cropping pattern shifts using markov chain.

Himadri Shekher Roy

- To Kirti Sourav, scientist, ICAR Research Complex for Eastern Region, Patna in carrying out contrast analysis of RBD data.
- To Harena Verma, Scientist, Regional Station, ICAR Complex For NEH (Jharnapani) (ICARNEH,RS), Khanakhuru.

Deepak Singh

- To A.K. Parihar, ICAR- Indian Institute of Pulses Research, Kanpur for analysis for adessing environmental interaction with yield of selected genotypes in mungbean n.

Mir Asif Iquebal

- To A. Ghosh, Scientist, IARI, New Delhi regarding RNAseq data generation and analysis.

- To Prachi Shripatrao Yadav, Scientist, IARI, New Delhi regarding experimental designing for whole genome data generation.

Sarika

- To Amrita Ghosh, Scientist, IARI, New Delhi regarding whole genome data generation and analysis of cryptic species in fungus. Chiranjit Kaur, Principal Scientist, IARI, New Delhi regarding response surface design analysis.

R.K. Paul

- To Mr. Subrat Keshori Behera, Assistant Professor, Bihar Agricultural University in developing forecast model for forecasting of crop yield.



एक कदम स्वच्छता की ओर



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

Agrisearch with a human touch

Compiled and Edited by

LM Bhar
Ajit
BJ Gahlot
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&
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Published by

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ICAR-IASRI
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