



IASRI

NEWS



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निदेशक की कलम से . . .

समाचार पत्र के इस अंक में प्रतिवेदनाधीन अवधि के दौरान प्रमुख अनुसंधानिक एवं प्रशिक्षण सम्बन्धी उपलब्धियों और संस्थान की अन्य महत्वपूर्ण गतिविधियों पर प्रकाश डाला गया है।

विभिन्न दरिद्रता प्राचलों के जिला स्तरीय विश्वसनीय आकलक विकसित करने के विशेष उद्देश्य से लधु क्षेत्र आकलन तकनीक के उपयोग द्वारा एन.एस.एस.ओ. के आँकड़ों से जिला स्तर पर दरिद्रता आपतन का आकलन किया गया। अध्ययन में स्पष्टतः दर्शाया कि मध्य प्रदेश राज्य में दरिद्रता सम्बन्धी आकलक उच्चतम थे तथा उसके बाद उत्तर प्रदेश था जबकि पंजाब के आकलक सबसे निम्न स्तर पर थे। एक वैब आधारित सॉफ्टवेयर एस पी ए आर 3.0 विकसित किया गया है।

जनगणना एवं सांख्यिकी विभाग, कोलम्बो, श्रीलंका के सहभागियों के लिए कृषि में पूर्वानुमान तकनीकें विषय पर एक अन्तरराष्ट्रीय प्रशिक्षण कार्यक्रम आयोजित किया गया। पाँच राष्ट्रीय प्रशिक्षण कार्यक्रम आयोजित किये गए जिनमें शामिल हैं - एन.ए. आई.पी. के अन्तर्गत दो प्रशिक्षण कार्यक्रम जिनमें से एक एस.ए.एस. के उपयोग द्वारा सामाजिक विज्ञान अनुसंधान में आँकड़ों का विश्लेषण एवं एस.ए.एस. के उपयोग द्वारा फार्म उपस्कर एवं मशीनरी अनुसंधान में आँकड़ों का विश्लेषण एवं व्याख्या, कृषीय डाटा सेटों में नॉलेज डिस्कवरी मे लिए डाटा माइनिंग तकनीकें एवं औजार तथा कृषि प्रशिक्षणों की अभिकल्पना एवं विश्लेषण में नवीनतम तकनीकें विषयों पर भा.कृ.अ.प. के शिक्षा विभाग द्वारा प्रायोजित दो शीतकालीन स्कूल। इन प्रशिक्षण कार्यक्रमों में 86 प्रतिभागियों ने सहभागिता की।

आई.एस.ई.सी., कोलकाता की आफिशियल सांख्यिकी एवं पद्धति पर एन.ए.एस.ए. द्वारा संचालित छः सप्ताह के प्रशिक्षण कार्यक्रम के प्रतिभागियों के लिए भा.कृ.सां.अ.सं. के क्रियाकलापों एवं गतिविधियों पर एक दिवसीय दौरा भी आयोजित किया गया।

डॉ. विजय कुमार भाटिया को भारतीय कृषि सांख्यिकी संस्था (भा.कृ.सां.सं.) द्वारा सांख्यिकी भूषण 2011 के गौरवशाली सम्मान से सम्मानित किया गया। डॉ. प्रज्ञेयु ने भा.कृ.सां.सं. से प्रोफेसर पी.वी. सुखात्मे स्वर्ण पदक पुरस्कार 2011 तथा राष्ट्रीय कृषि विज्ञान अकादमी से फेलोशिप प्राप्त की। डॉ. योगिता घरड़े को भा.कृ.सां.सं. द्वारा जी. आर. सेठ स्मारक युवा वैज्ञानिक पुरस्कार प्रदान किया गया।

चौदह नई परियोजनाएँ आरम्भ की गयीं। संस्थान के वैज्ञानिकों द्वारा 21 शोधपत्र प्रकाशित किये गये तथा अनेक बैठकों/सम्मेलनों/संगोष्ठियों/कार्यशालाओं इत्यादि में भी सहभागिता की गयी।

आशा है कि इस अंक की विषय-वस्तु एन.ए.आर.एस. के वैज्ञानिकों के लिए सूचनाप्रद एवं उपयोगी होगी। समाचार पत्र की विषय-वस्तु में सुधार लाने हेतु आपके सुझावों का स्वागत है।



From Director's Desk . . .

This newsletter highlights some of the salient research and training achievements made and other significant activities performed during the period under report.

District level poverty incidence estimation from NSSO data using small area estimation technique was undertaken with the specific objectives of developing reliable district level estimates of various

poverty parameters. The study clearly showed that the poverty estimates were highest for MP state followed by UP while the minimum values were obtained for Punjab. A web based software SPAR3.0 has been developed at the Institute.

One international training programme on Forecast Techniques in Agriculture for participants of Department of Census and Statistics, Colombo, Sri Lanka was organised.

Five National training programmes were conducted which include two under NAIP on Data Analysis in Social Science Research using SAS and Data Analysis and Interpretation in Farm Implements and Machinery Research Using SAS, two winter schools sponsored by the Education Division of ICAR on Data Mining Techniques and Tools for Knowledge Discovery in Agricultural Datasets and other on Recent Advances in Designing and Analysis of Agricultural Experiments. 86 participants attended these training programmes. One day study visit was also organized on functions and activities of IASRI for the participants of six weeks training programme on Official Statistics and Related Methodology of ISEC, Kolkata conducted by NASA.

Dr. VK Bhatia received the prestigious title of Sankhyiki Bhushan 2011 from Indian Society of Agricultural Statistics (ISAS). Dr. Prajneshu received Professor PV Sukhatme Gold Medal Award 2011 from ISAS and Fellowship of National Academy of Agricultural Sciences. Dr. Yogita Gharde received Dr. GR Seth Memorial Young Scientist Award from ISAS.

Fourteen new projects were initiated. Scientists of the Institute published 21 research papers and participated in number of meetings/ conferences/ symposia/ workshops, etc.

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

Vijay Kumar
(विजय कुमार भाटिया)

VKBhatia
(VK Bhatia)

RESEARCH ACHIEVEMENTS

- Measurement of poverty and its estimation has always been an important activity of the planning process in every developing country. Poverty measurement is generally based on household consumption expenditure surveys. Household consumption expenditure data in India are collected through National Sample Surveys Office, (NSSO). At present, reliable estimates of poverty related parameters are available only at the state level. In view of the problem of non-availability of reliable estimates of various poverty related parameters at the district level for microlevel planning, the study entitled **District level poverty incidence estimation from NSSO data using small area estimation technique** was undertaken with the specific objectives of developing reliable district level estimates of various poverty parameters using small area estimation technique. The poverty parameters considered in the study were Head count ratio, Income gap ratio, Poverty gap ratio and Squared poverty gap ratio. Besides, estimates were also obtained for other related parameters like the Number of persons, Number of poor persons, Monthly per capita consumer expenditure (MPCE) at the district level as well as various holding category wise, Amount of loan outstanding at the district level and Number of persons in the various MPCE classes. The study used NSSO 59th and 61st round data for the rural areas. The 59th round data pertained to the Uttar Pradesh (UP) state. This data was used to estimate the parameter amount of loan outstanding at the district level. The 61st round data was utilised for the UP, Madhya Pradesh (MP) and Punjab states. The UP state data was used to estimate MPCE for each of the district as a whole as well as for the various land holding classes. The 61st round data for the three states was used to estimate Number of persons, total Number of poor persons, Poverty ratio, Income gap ratio, Poverty gap ratio, Squared poverty gap ratio and number of persons falling in the various MPCE classes. Two types of estimates were developed in this study. The first one was direct district level estimate which used only district specific sample size. The district level small area estimates were developed using an area level linear mixed model. The covariates used in the small area estimates were obtained from 2001 population census data. The results of the analysis clearly revealed that the small area estimation technique based estimates had better precision as compared to the direct district level estimates. Further, various small area diagnostic procedures were performed to validate the reliability of the model-based small area estimates versus direct survey estimates. The study clearly showed that the various poverty estimates were highest for MP state followed by UP while the minimum values were obtained for Punjab state.
- Statistical Package for Agricultural Research Ver. 1.0 (SPAR 1.0) had been primarily developed for the statistical analysis of experimental research data in Plant Breeding and Genetics. SPAR 2.0 was a Windows based version of SPAR 1.0 which was on DOS platform. Most of the software are now web enabled and as such there was a need to develop the web based version of SPAR 2.0. **SPAR 3.0** is a web based system and has been developed using Microsoft .NET (ASP.NET with C#) technology. It consists of all the modules of data analysis which are available in SPAR 2.0. It is user friendly and menu-driven package. SPAR 3.0 consists of various modules viz., Descriptive Statistics (Measures of Central Tendency, Measures and Coefficients of Dispersion, Generation of Moments, Measures &

Coefficients of Skewness and Measures of Kurtosis), Estimation of Breeding Values (General Mean and Scaling Tests), Correlation and Regression Analysis (Correlation Analysis, Regression Analysis and Path Analysis), Variance and Covariance Components Estimation, Stability Analysis, Multivariate Analysis viz., Cluster Analysis, Discriminant Analysis and Principal Component Analysis. Mating Design Analysis Module viz., Complete Diallel, Partial Diallel Line x Tester (with parents), Line x Tester (without parents), Three way cross, Double cross and North Carolina Designs I, II, III, Double Cross Analysis and Complete Online Help with Contents, Index, Search and Favorites facilities.

HUMAN RESOURCE DEVELOPMENT

Training Programmes Organised

International

- An International training programme on **Forecast Techniques in Agriculture** was organized during 17-31 October 2011 for Officers of Department of Census and Statistics, Sri Lanka at IASRI, New Delhi. A total of 7 participants attended the programme. The course aimed at acquainting the participants about various techniques for forecasting crop yields and forewarning pests and diseases. Various topics covered under the course were Descriptive Statistics and Exploratory Data Analysis, Pre-Harvest Forecast of Crop yield-An Overview, Correlation and Regression Analysis, Weather based Pre-Harvest Crop Forecasting, SAS: An Overview, SPSS: An Overview, Plant Character based Pre-Harvest Crop Yield Forecasting, Change Detection Techniques, FASAL project, Fuzzy Regression, Introduction to Remote Sensing, Estimation of Crop Yield using Remote Sensing, Artificial Neural Network, Logistic Regression, Bayesian approach for Crop Yield Forecast, Non-linear Growth Models, Crop Simulation Models, Weather based Crop Forecasting- India Meteorological Department (IMD) Approach, Weather based Forewarning Models for Pests & Diseases and Yield Loss Assessment, Forecasting based on Markov Chain Model, Linear Time Series Modeling, Structural Time Series Modeling, Non- Linear Time Series Modeling, R: An Overview, Introduction to Data Mining, Demand Projection for Agriculture Commodity, Online Expert



System in Agriculture and Support Vector Machine. The participants were also taken to IMD to demonstrate weather forecasting system. The programme was inaugurated by Dr. RK Shukla, Director, National Council of Applied Economic Research -Centre for Macro Consumer Research (NCAER-CMCR).

- Institute assisted in organizing one week module of an International training programme on **Sampling Techniques and Survey Methods** for the officers of Srilanka Government organized by National Academy of Statistical Administration (NASA), MOS & PI, GOI at IASRI, New Delhi during 03-08 October 2011. The Inaugural Session was organized on 03 October, 2011 which was attended by senior officials of NASA. Sh. SK Das, Director General, CSO, MOS&PI, GOI was the Chief Guest. During the period, 19 lectures on different topics were delivered by Institute faculty. A total of 07 participants attended the programme.

National

- A researchers training programme on **Data Analysis in Social Science Research Using SAS** was organized at IASRI, New Delhi during 10-15 October 2011 under NAIP Consortium Strengthening Statistical Computing for NARS with Dr. Rajender Parsad as Course Director and Dr. Sivaramane N as course Co-ordinator. The training programme was inaugurated by Dr. C. Devakumar, ADG (EPD), ICAR, New Delhi. This training programme was attended by 20 participants from IASRI, New Delhi; IARI, New Delhi; Institute of Agricultural Sciences, BHU, Varanasi; S.D. Agricultural College, Sardarkrushinagar; UAS, Raichur; Central Institute of Fisheries Technology, Kochi; CRIJAFT, Barrackpore, Kolkata; Directorate of Groundnut Research, Junagadh; AAU, Anand, Gujarat; CSWCR&TI, Dehradun; MPUA&T, Udaipur; BSKV, Dapoli; NDRI, Karnal.



Karnal. The training was aimed at acquainting the participants with the capabilities of SAS and JMP Statistical Discovery Software along with hands on experience training. The reference manual was provided to the participants during the beginning of the training programme. The lectures on SAS for Statistical Procedures; Tests of Significance: parametric and Non-parametric; Correlation and Regression; Regression Diagnostics; Limited Dependent Variable Models: Logit, Probit and Tobit; Logistic Regression; Multivariate Analysis of Data; Non-linear Statistical Models; Weather Based Forecasting Models; Demand Analysis; Econometric Analysis Using

Panel Data; Testing Integration of Spatially Separated Markets; Time Series Analysis; Sampling Techniques; Partial Equilibrium Models in Agriculture; Learning Simple SAS Macros; SAS Enterprise Guide: An Overview; JMP Statistical Discovery Software: An Overview; Design Resources Server; Indian NARS Statistical Computing Portal; Case Studies; SAS/ETS Procedures, etc. were delivered. The valedictory function of the training programme was organized on October 15, 2011 and was addressed by Dr. S Mauria, ADG (IPR & TM), ICAR, New Delhi and Dr. VK Bhatia, Director, IASRI and Dr. VK Gupta, ICAR National Professor were the guest of honour on this occasion, New Delhi.

- A one day study visit was organized on 13 October 2011 at IASRI on functions and activities of IASRI for the participants of six weeks training programme on Official Statistics and Related Methodology of **International Statistical Education Centre (ISEC) Kolkata** conducted by National Academy of Statistical Administration (NASA). The participants were from four countries i.e. Afghanistan, Mongolia, Gambia and Tanzania.
- A researchers training programme on **Data Analysis and interpretation in Farm Implements and Machinery Research Using SAS** was organized for research personnel of All India Coordinated Research Project on Farm Implements and Machinery, Central Institute of Agricultural Engineering, Bhopal at IASRI, New Delhi during 14-19 November 2011 under NAIP Consortium Strengthening Statistical Computing for NARS with Dr. Rajender Parsad as Course Director. The training programme was inaugurated by Dr. NP Sirohi, ADG (Engg), ICAR, New Delhi. This training programme was attended by 18 participants from Punjab Agricultural University, Ludhiana; OUA&T, Bhubaneswar; Kerala Agricultural University, Kerala; Central Agricultural University, Imphal; Indian Institute of Sugarcane Research, Lucknow; Central Institute of Agricultural Engineering, Bhopal; NDUAT, Faizabad; CCS Haryana Agricultural University, Hisar; Dr. Punjabrao Deshmukh Krishi Vidyapeeth, Akola; IGFRI, Jhansi; UAS, Raichur; TNAU, Coimbatore; GBPU&T, Pantnagar; MPKV, Rahuri; Acharya N.G. Ranga Agricultural University, Hyderabad and JNKVV, Jabalpur. The training was aimed at acquainting the participants with the capabilities of SAS and JMP Statistical Discovery Software along with hands on experience training. The reference manual was provided to the participants during the beginning of the training programme. The lectures on Statistics: Introduction and Concepts; Fundamental of Designs of Experiments; Response Surface Designs and Experiments with mixtures; Fundamentals of Sample Surveys; Multivariate Analysis of Data; SAS for Statistical Procedures; Tests of Significance Using SAS; Correlation and Regression; Regression Diagnostics; Logistic Regression; Learning Simple SAS Macros; SAS Enterprise Guide: An Overview; JMP Statistical Discovery Software; Design Resources Server; Indian NARS Statistical Computing Portal; Multi-stage Stratified Sampling Using SAS; Analysis of Repeated Measures Data; Case Studies relating to Formulation of Long-Term Mechanization



Strategies and Case Studies related to Designed Experiments, etc. were delivered. Dr. Pitam Chandra, Director, CIAE, Bhopal and Dr Surendra Singh, Project Co-ordinator held the mid-term review of the course on November 16, 2011. The valedictory function of the training programme was organized on November 19, 2011 and Dr. A.P. Srivastava, National Coordinator, NAIP Component III delivered the valedictory address.

- Winter School on **Data Mining Techniques and Tools for Knowledge Discovery in Agricultural Datasets** was organized during 03-23 November 2011. This training program was sponsored by the Education Division of ICAR with the objective to learn techniques and tools from the challenging area of Data Mining which deals with discovering patterns/knowledge from huge datasets. Twenty three participants attended this training. The training was designed to cover both theoretical and practical aspects on data mining. The course broadly covered topics like Regression Analysis, Bayesian Classifier, Linear Discriminate Analysis, K-means/ Hierarchical Clustering, Decision Tree, Support Vector Machine, Genetic Algorithm(GA), CART, Artificial Neural Network, Fuzzy Logic, Hybrid (Neuro-Fuzzy), Data



Preprocessing and Dimensionality Reduction Techniques, Performance Evaluation Measures, Databases concepts and SQL Server (Databases), Knowledge Management Tools (Agri-Daksh and Seed Spices). In addition to these, concepts from the important areas like Web Mining, Text Mining, Image Mining and Bio-informatics were also covered in the training program. Practical classes were taught using software: SAS Miner, R package and Weka. The teaching faculty for this course was mainly from this Institute. Some guest faculty were also invited from other organizations like JNU, Delhi University, IP University, NDRI, NBAGR, IARI and NCAP. E-book of the reference manual was prepared and was made available on the IASRI site. Dr. C Devakumar, ADG (EPD), ICAR was the chief guest for inaugural function and Dr. Kusumakar Sharma, ADG (HRD) was the chief guest for the valedictory function. Dr. Alka Arora was the Course Director for this training program.

- Winter School on **Recent Advances in Designing and Analysis of Agricultural Experiments** was organized from 29 November to 19 December 2011 at IASRI, New Delhi. Out of ninety three applicants 25 participants were selected. The participants were from the various disciplines of agriculture such as Soil Science, Agronomy, Horticulture, Agricultural Engineering, Agricultural Statistics, Plant Breeding, etc. Dr. T.P. Rajendran, Assistant Director-General (Plant Protection) was the Chief Guest and Dr. Bikas Sinha, Former Member, National Statistical Commission was the Guest of Honour in the inaugural



function. The Winter School aimed at familiarizing the participants with the recent advances in designing and analysis of agricultural experiments for drawing statistically valid inferences from data and to acquaint the participants with the use of statistical packages for data analysis along with hands on experience. Entire Course contents was structured in the following broad headings viz. Computer Usage and Statistical Software Packages; Designs for Single Factor Treatment Structure; Designs for Multifactor Treatment Structure; Diagnostics and Remedial Measures; Designs for Multiple Response Experiments; Other Useful Statistical Techniques such as Variance components estimation, Analysis of Groups of experiments, Geoinformatics, Covariance analysis, Probit Analysis, etc. The course material was distributed to the participants in the beginning of the Winter School in the form of reference manual in two volumes consisted a total of 781 pages. A mid-course session was held on December 09, 2011. Dr. C. Devakumar, Assistant Director-General (Education, Planning & Development) was the Chief Guest in the Valedictory function. Dr. Krishan Lal was the Course Director for this winter school.

Conferences / Symposium / Work Shops Organised

- **Second workshop-cum-installation training programme for Nodal Officers** of NAIP Consortium on Strengthening Statistical Computing for NARS was organized at IASRI, New Delhi on 01 November 2011, it was a Consortium Partners meeting. All consortium partners except IVRI, Izatnagar; MPUAT, Udaipur and CIFE, Mumbai participated in the meeting. Discussions were held on What's new in SAS EBI 9.3, Architecture Details, Pre-Installation Checklist for EBI, Installation

of EBI; Running Stored Process Using SAS EBI, Getting Usage Reports, AICRP Prototype running, Accessing SAS E-Miner using URL and Connecting SQL to SAS E-miner and showing one OLAP Cube generation and Web Report Generation from data on number of persons trained through SSCNARS. Dr. RC Agarwal, National Co-ordinator, NAIP Component-I and Dr. VK Bhatia, Director, IASRI, New Delhi held the discussions on achievements and future course of action with the consortium partners. During 02-03 November 2011, it was for nodal officers to sort out implementation issues and refinements in installation process, handing over of updates



- and upgrades and face to face interaction with nodal officer and besides installation issues, discussions were also held on Usage of SAS in different NARS organizations. 25 Nodal officers: 20 from IASRI lead centre, New Delhi; 04 from CIFE, Mumbai and one from IVRI, Izatnagar linked centres participated in the training programme. Nodal officers from NBFGR, Lucknow; PDC, Meerut; NDUAT, Faizabad; SBBPUAT, Modipuram; IAS BHU, Varanasi could not attend the meeting.
- A one day workshop related to the project Evaluation of Agricultural Census Scheme was organized as first step at IASRI, New Delhi on November 04, 2011, in which officers from different states related to Agriculture Census Scheme, Officers of Department of Agriculture & Co-operation, Ministry of Agriculture, Government of India, invited Experts and Scientists/Technical Officers of the Institute related to the Scheme and other invited officers participated.
 - Following invited paper sessions were organised during 65th Annual Conference of ISAS on the theme Statistics and Informatics for Agricultural Research was held at Department of Dairy Economics and Statistics, National Dairy Research Institute, Karnal during 03-05 December 2011.
 - Advances in Statistical Techniques in Dairy Sciences (Conveners : Dr. PK Malhotra, IASRI, and Dr. DK Jain, NDRI, Karnal)
 - Designs for Multi-factor Experiments (Conveners: Dr. Rajender Parsad, IASRI, New Delhi and Dr. R Malhotra, NDRI, Karnal)
 - Emerging Paradigms of Knowledge Management in Agricultural Sciences (Conveners : Dr. Sudeep Marwaha, IASRI and AK Sharma, NDRI, Karnal)
 - Workshop of NAIP Component –I was organised on 15 November 2011 and progress of NABG project was presented during the Workshop.
 - Mid Term Appraisal cum Training Workshops for the Nodal Officers of NISAGENET was organised at S.V. Agricultural College, Tirupati during 25-26 November 2011.

PANORAMA OF ACTIVITIES

Research Advisory Committee Meeting

- The 13th meeting of the Research Advisory Committee of IASRI was organised during 12-13 December 2011 under the Chairmanship of Dr. Prem Narain, Former Director, IASRI, New Delhi. The meeting was attended by Dr. SD Sharma, Dr. VK Bhatia, Director IASRI, Dr. Sridhar Sivasubbu, Institute of Genomics and Interactive Biology, New Delhi, Dr. NPS Sirohi, ADG (Engg.), ICAR as



members of RAC of the Institute and Dr. Rajender Parsad, Head, Division of Design of Experiments & Member Secretary RAC. Dr. Padam Singh Member, National Statistical Commission & Head Research and Evaluation, EPOS, Health Consultants (India) and Chairman QRT of IASRI also attended the meeting on special invitation. Dr. VK Gupta, National Professor, ICAR and all Heads of Divisions, IASRI also attended the meeting as special invitees.

Other Meetings

- The process of interaction with stakeholders was initiated in August 2010 and various Interactive Meets were organized for the purpose. In response to the D.O. No. PS/DDG (Engg.)/2011 dated 01 November 2011, a stakeholders' meeting was organised at the Institute on 03 November 2011. After incorporating the suggestions received on the major issues, the identified thrust areas under six Broad programmes were prepared.
- One meeting of Women Cell was held on 12 December 2011. The meeting was presided over by Chairperson Dr. Ranjana Agrawal.

Seminars Delivered

Seminars in different areas of Agricultural Statistics and Computer Application were delivered. These seminars include presentation of salient findings of the completed research projects by the scientists, thesis/ORW/course seminars of students of M.Sc. and Ph.D. (Agricultural Statistics) and M.Sc. (Computer Application) and Guest seminars.

Two Guest seminars during the period were delivered by Dr. Patrick S. Schnable on The Next Generation Sequencing Revolution and by Shri S. Mauria (ADG, IPR), ICAR on IPR Issues in ICAR.

The Details of Seminars Delivered

Category	Type of seminar	Number
Student	Course	16
	ORW	02
Scientist	Project Proposal	01
	Project Completion	01
	Foreign Visit	01
Guest		02
Total		23

New Projects / Schemes / Programmes

The following new projects were initiated:

- Experimental designs in the presence of indirect effects of treatments.(DST funded).
- Spatial non stationarity in small area estimation under area level model.
- Application of optimization techniques for construction of incomplete block designs.
- Forecasting models using functional data analysis and nonlinear support vector regression techniques.
- Study to develop methodology for crop acreage estimation under cloud cover in satellite imageries.
- Development of weather-based crop yield forecasting models using GARCH and wavellet techniques.
- Analysis and determination of antimicrobial peptides: A machine learning approach.
- Study of asymmetry in retail-wholesale price transmission for selected essential commodities.
- An econometric study of water markets in canal command area of north-western Rajasthan.
- Study of sample sizes for estimation of area and production of food grain crops.
- Development of web enabled Statistical Package for Factorial Experiments (SPFE 2.0).
- Exploration of central data warehouse for knowledge discovery.
- ePlatform for seed spice growers
- Weather based yield forecasts for rice and wheat using non-linear regression techniques.

AWARDS AND RECOGNITION

- Dr. VK Bhatia
Indian Society of Agricultural Statistics conferred the prestigious title of Sankhyiki Bhushan on Dr. VK Bhatia, Director IASRI, a distinguished researcher and a visionary scholar for his insightful and outstanding theoretically creative and methodologically innovative contributions in the development of the subject of Statistics and its applications in agricultural research system.
- Dr. Prajneshu
 - Received Professor PV Sukhatme Gold Medal Award 2011 from ISAS
 - Received Fellowship of National Academy of Agricultural Sciences
- Dr. Yogita Gharde received Dr. GR Seth Memorial Young Scientist Award from ISAS for her research paper entitled Hierarchical Bayes Small Area Estimation Approach for Spatial Data
- Dr. Sudeep and Dr. Alka Arora received Achievement Award in special recognition of research to the field and also in special appreciation of valuable services to the conference in the 5th Indian International Conference on Artificial Intelligence (IICA-11) held at Bangalore during 14-16 December 2011.

Visit Abroad

- **Dr. VK Bhatia** was deputed to attend the First meeting of the Steering Group for Agricultural Statistics as a Member during 21-23 November 2011 at Manila, Philippines.
- **Dr. UC Sud** was deputed to participate in 4th Meeting of WYE Group on Statistics on Rural Development and Agriculture Household Income held during 08-11 November 2011 at Rio de-Janerio, Brazil.
- **Dr. Ramasubramanian V.** attended International training in the area of “Science Policy and Technology Forecasting” during 18 August to 17 November 2011 at University of Houston, USA under NAIP-HRD-L&CD, Social Sciences Division.
- **Dr. Anil Rai** was deputed to FAO, Srilanka to provide Consultancy Services on the topic Feasibility Study on the Use of GIS/Remote Sensing for the Census of Agriculture by Food and Agricultural Organisation during 27 September to 17 October 2011.

PUBLICATIONS

Research Papers

1. Abeynayake, NR, Jaggi, Seema and Varghese, Cini (2011). Neighbour balanced bipartite block designs. *Comm. in Statist.:Theo. and Meth.*, **40**, 4041-4052.
2. Bhardwaj, SP and Kumar, Ashok (2011). Constraint to groundnut production in India. *Agril. Year Book 2011*.
3. Chambers, R, Chandra, H and Tzavidis, N (2011). On bias-robust mean squared error estimation for linear predictors for domains. *Survey Methodology*, **37(2)**, 153-170.
4. Chandra, G, Tiwari, N and Chandra, H (2011). Adaptive cluster sampling based on ranked sets. *Advances in Methodology and Statist.*, **8(1)**, 39-55.

5. Chandra, H (2011). Model-based direct Vs indirect estimators for small areas. *J. Ind. Soc. Agril. Statist.*, **65(3)**, 347-358.
6. Chandra, H, Salvati, N and Sud, UC (2011). Disaggregate-level estimates of indebtedness in the state of Uttar Pradesh in India-an application of small area estimation technique. *J. Appl. Statist.*, **38(11)**, 2413-2432.
7. Choudhary, AK, Singh, D and Iquebal, MA (2011). Selection of pigeonpea (*Cajanus cajan*) genotypes for tolerance to aluminum toxicity. *Plant Breeding*, **130(4)**, 492-495.
8. Ghosh, Himadri and Prajneshu (2011). Statistical learning theory for fitting multimodal distribution to rainfall data: An application. *J. Appl. Statist.*, **38(11)**, 2533-2545.
9. Goyal, P, Chahar, M, Mathur, AP, Kumar Amrender and Chattopadhyay, C (2011). Morphological and cultural variation in different oilseed Brassica isolates of *Alternaria brassicae* from different geographical regions of India. *Ind. J. Agril. Sci.*, **81(11)**, 1052-58.
10. Gupta, VK, Nigam, AK, Parsad, Rajender and Bhar, LM (2010). Resolvable block designs for factorial experiments with full effects efficiency. *J. Ind. Soc. Agril. Statist.*, **65(3)**, 305-315.
11. Jaggi, Seema, Varghese, Cini and Abeynayake, NR (2010). Neighbour balanced block designs for two factors. *J. Mod. Appl. Statist. Meth.*, **9(2)**, 452-460.
12. Karak, T, Abollino, O, Bhattacharyya, P, Das, KK and Paul, RK (2011). Fractionation and speciation of arsenic in three tea gardens soil profiles and distribution of as in different parts of tea plant (*Camellia sinensis* L.) *Chemosphere*, **85**, 948-960.
13. Malik, N, Biswas, AK, Raju, CB and Mandal, BN (2011). Bio-monitoring of heavy metal pollution in a fishery reservoir of Central India. *Fresenius Env. Bull.*, **20(12)**, 3381-3386.
14. Mandal, BN, Gupta, VK and Parsad, Rajender (2011). Construction of efficient mixed-level *k*-circulant supersaturated designs. *J. Statist. Theo. Prac.*, **5(4)**, 627-648.
15. Nikam, SS, Mishra, AK, Sarangi, A, Paresh, BS, Singh, DK and Ramasubramanian, V (2010). Artificial neural network models to predict wheat crop evapotranspiration. *J. Agril. Engg.*, **47(2)**, 20-25.
16. Paul, AK, Singh, Surendra, Kumar, Ashok, Singh, NO, Raman, Rohan Kumar, Haunshi, Santosh and Verma, Med Ram (2011). Nonlinear growth models for body growth of vanaraja poultry birds. *UP J. Gen. & Evol.*, **4(4)**, 65-69.
17. Paul, RK and Bhar, LM (2011). M-estimation in block designs. *J. Ind. Soc. Agril Statist.*, **65(3)**, 323-330.
18. Sarika and Iquebal, MA (2011). Modelling and forecasting of pigeonpea (*Cajanus cajan*) in Orissa using ARIMA methodology. *Ind. J. Appl. Statist.*, **11**, 27-29.
19. Sharma, VK and Jaggi, Seema (2011). Variance balanced circular designs involving sequences of treatments with first and second residuals. *Mod. Assisted Statist. Appli.*, **6(4)**, 317 - 324.
20. Varghese, Eldho and Jaggi, Seema (2011). Blocking response surface designs incorporating neighbour effects. *Open J. Statist.*, **1(3)**, 199-204.
21. Varghese, Eldho, Jaggi, Seema and Varghese, Cini (2011). Row-column designs balanced for non-directional neighbour effects. *Mod. Assisted Statist. Appli.*, **6(4)**, 307-316.

INVITED LECTURES DELIVERED

- Training programme on “Monitoring and forecasting of plant disease epidemics under climate change scenario” under CAFT in Division of Plant Pathology at IARI, New Delhi during October 10 to November 01, 2011.
 - Iquebal, MA- Logistic regression models, ARIMA models and its use in disease forecasting (2 lectures)
- Training programme on Quantitative Methods for Agricultural Policy Research organized at IARI, New Delhi during October 17-22, 2011 under NAIP Consortium Policy and Institutional Options for Inclusive Growth. The following lectures were delivered:
 - Jaggi, Seema - (i) SPSS: An Overview, (ii) Regression Analysis and Diagnostics using SPSS (on October 19, 2011)
 - Parsad, Rajender - (i) SAS: An Overview and (ii) Multivariate Analysis: An Overview (on October 20, 2011).
 - Sivaramane N. - (i) Testing market co-integration (on October 20, 2011) and (ii) Limited dependent variable models (on 21 October 2011)
- Dr. Sudeep delivered a lecture on Maize AgriDaksh in Hindi on 14 October 2011 to Tribal farmers from 5 different states of the country at DMR, New Delhi.
- Dr. Rajender Parsad delivered an invited lecture on Experimental design for perennial fruit crops to the participants of the Winter School on Advances in Rootstocks for overcoming Biotic and Abiotic Stresses in Fruit Crops organized by the Division of Fruits and Horticultural Technology, IARI, New Delhi during 17 November- 07 December 2011.
- 21 days CAFT training programme on Agricultural Growth, Diversification and Food Security held at Division at Division of Agricultural Economics, IARI, New Delhi during 15 November - 05 December 2011.
 - Jaggi, Seema - Regression analysis and diagnostics using SPSS (two lectures) (19 November 2011)
 - Parsad, Rajender- SAS: An overview and Multivariate analytical techniques using SAS
 - Singh, DR- Groundwater development and water markets: Performance and prospects (21 November, 2011)
 - Sivaramane, N. -(i) Limited dependent variable models on (22 November 2011) and (ii) Future markets and price transmission (26 November 2011)
 - Ramasubramanian V.- Technology forecasting methods for decision making in agriculture (28 November 2011)
- Dr. RC Goyal delivered 2 lectures as invited talk on November 11, 2011 in the Winter School on Extension Strategy on Information Communication Technology for Value Added Agriculture during 02-22 November 2011 at the Farmers’ Training Centre, (erstwhile Lake Hall) BCKV, Kalyani, Nadia, West Bengal.
- Sh. SN Islam delivered an invited lecture on Expert System on wheat during a training programme Participatory Research and Extension Management during 25 November - 04 December 2011 at DWR, Karnal

- Ms. Anshu Bharadwaj delivered five lectures as National Resource Person in the NAIP sponsored National Training Programme on Recent Trends of Geoinformatics in Land Resource Database management for Sustainable Agriculture held at NBSS&LUP, Nagpur during 15 - 28 November 15-28, 2011.
- Dr. Rajender Parsad delivered two lectures on (i) Design Resources Server and (ii) Indian NARS Statistical Computing Portal to the participants of the Workshop-cum-training programme organized at DWM, Bhubaneswar under the consortium Strengthening Statistical Computing for NARS during 03 - 05 December 2011.

PAPER PRESENTED

- International Conference on Microbiology Biotechnology for Sustainable Development during November 03-06, 2011,
 - i) Rai, Anil, Farooqi, Md. Samir, Sanjukta RK, Rai, Niyati, Sharma, Naveen and Mishra DC- Assessment of codon usage bias in salt-stressed, *salinibacter ruber*. *Souvenir and Abstract Book, Page No.- 387*.
 - ii) Sanjukta, RK, Sharma, Naveen, Farooqi, Md. Samir, Mishra, DC and Rai, Anil. Synonymous codon usage pattern among genes of moderately halophilic bacteria, *chromohalobacter salexigens* DSM 3043. *Souvenir and Abstract Book, Page No.- 387*.
- 65th Annual Conference of ISAS on the theme Statistics and Informatics for Agricultural held at Department of Dairy Economics and Statistics, National Dairy Research Institute, Karnal during December 03-05, 2011
 - Rajender Parsad and V.K. Gupta. Some applications of design for factorial experiments in NARS. In the sub-theme on Designs for Multi-factor Experiments. (invited talk)
 - BN Mandal, VK Gupta and Rajender Parsad. Algorithmic construction of efficient multilevel k-circulant supersaturated designs.
 - Cini Varghese. Factorial Crossover Designs. In the sub-theme on Designs for Multi-factor Experiments. (invited talk)
 - Eldho Varghese and Seema Jaggi (2011). Response surface methodology in the presence of neighbour effects from adjoining experimental units. Session on Dr GR Seth Memorial Young Scientist Award.
 - Chaturvedi, A, Alam, W, Singh, NO and Paul, AK. Robustness of the sequential testing procedures for the parameters of zero-truncated binomial and Poisson distributions.
 - Singh, NO, Kumar, Surinder, Singh, KN, Gopimohon and Paul, AK. Fitting of fox model with autoregressive of order one using expected value parameters.
 - Arora, Alka, javanmard, Maedeh Zirak and Jain, Rajni. Online Software for Fuzzy Clustering.
 - Sudeep. KM tool for development of online expert systems for crops.
- Annual Review-cum-Planning-meet of CSISA Research Platforms at NASC Complex New Delhi on 05 December 2011 under CSISA, IRRI, India.
 - Parsad, Rajender. Statistical Analysis of CSISA Research Platform Data.

- National Symposium on Biodiversity and Food Security: Challenges and Devising Strategies held at Indian Institute of Pulses Research, Kanpur during 10-11 December 2011
 - Sarika, Iquebal, MA and Rai, Anil. In silico analysis and homology modelling of antioxidant proteins of legumes.
- 5th Indian International Conference of Artificial Intelligence (IICAI) at SIT, Tumkur, Bangalore during 14-16 Dec. 2011.
 - Sudeep. Ontology based expert system for varietal selection of Maize
- Biennial Group Meeting of AICRP on Integrated Farming Systems held at CARI, Port Blair during December 27-29, 2011.
 - Parsad Rajender. Issues related to designing experiments, data submission, data processing and analysis of data. (invited talk)
- Conference on Agricultural Bio-technology organized by Confederation of Indian Industries, IARI New Delhi jointly with DBT New Delhi and ICAR New Delhi during 19-20 December 2011 at IARI, New Delhi.
 - Rai, Anil. Bioinformatics in Agriculture (invited talk)

PARTICIPATION

Conferences / Workshops / Seminars / Symposia etc

- A workshop on “Targeted Attacks & Mitigation” held at Indian Computer Emergency Team (CERT-in) CGO Complex, New Delhi, Department of Information Technology, Ministry of Communication and Information Technology (Govt. of India) on 04 November 2011.
- International Conference on Innovative Approaches for Agriculture Knowledge Management, at Vigyan Bhawan and NASC complex, New Delhi during November 09-12, 2011. Dr. PK Malhotra, Co-chaired a session “Use of ICT for Agricultural Knowledge Management” held on 10 November 2011 during the Conference.
- 25th Annual Conference of Indian Society of Agricultural Marketing held at NAARM, Hyderabad during 22-24 November 2011.
- ESRI User Conference during 07-08 December 2011 and Pre conference tutorial on Cloud Computing on 06 December 2011 held at hotel Redission, Noida, UP.
- FAI Annual Seminar 2011 organised at Hotel The Ashok during 07-09 December, 2011.
- Dr. AK Paul attended 2nd SAS Workshop cum Installation Training Programme organised at UAS, Bangaluru on 13th December, 2011 and delivered two lectures on Design resource server and progress of SSC, NARS.

Trainings

- Dr. Ramasubramanian, V. attended a training workshop on “Policy Advocacy and Dissemination Workshop” of the NAIP project “Risk assessment and insurance products for agriculture” organised at Assam Agricultural University, Jorhat, Assam on 07 December, 2011 and gave a presentation on Online Decision Support System.

Meetings

- SOC meeting of ICAR on 03 October 2011 at Krishi Bhawan, New Delhi
- Meeting with Dr Vidya Dhar, Agricultural Census Commissioner on 04 October 2011 at Krishi Bhawan to discuss about the Evaluation of Agriculture Census Scheme project.
- Meeting of the Working Group constituted under the chairmanship of Economic & Statistical Adviser, Directorate of Economics & Statistics, Ministry of Agriculture for the construction of Index Numbers of Area, Production and Yield of crops to implement the recommendations of National Statistical Commission regarding construction of index numbers of area, production and yield of different crops at Krishi Bhawan, New Delhi on 11 October 2011.
- Meeting at Central Statistical Organization (CSO) regarding "Establishment of Consultancy Wing" in the Ministry of Statistics and Programme Implementation, GOI on 14 October 2011.
- Participated as Chief Guest in the NAIP Training Programme on Quantitative Method for Agricultural Policy Research on 17 October 2011 at Division of Agricultural Economics, IARI, New Delhi
- XX Group Worker's Meeting of AICRP(STF) at HC& RI, Periyakulam from 29 September - 02 October 2011 and Dr. Ranjana Agrawal gave two presentation.
- Coordination Committee for Organization of Studies (CCOS) in the field of Agricultural Economics meeting under the Chairmanship of Secretary, Department of Agriculture & Cooperation on 21 October 2011 at Krishi Bhawan, New Delhi
- Meeting with IBM India for discussing the Contract to be signed between IBM and ICAR for development of MIS on 25 October 2011 at NAIP. The meeting was chaired by Dr. MM Pandey, DDG (Engg) and attended by Director Finance, NC-I and Vice-president IBM.
- Interaction meeting of Scientists of CABIn with Dr. Patrick S. Schnable, Director, Plant Science Institute, Director, Center for Carbon Capturing Crops, Professor, Department of Agronomy, Department of Genetics, Development and Cell Biology, Iowa State University on 01 November 2011.
- Meeting related to integration of Phenomics, Bio-prospecting and NABG project at NASC Complex New Delhi on 03 November 2011.
- Strengthening the Security Mechanism on 03 November 2011 at ICAR Krishi Bhawan, New Delhi
- Meeting with representatives of different ICAR organizations under NARS held at IASRI on 03 November, 2011 regarding Research Priorities and Role of IASRI in NARS during 12th Five Year Plan.
- Meeting related to national consultancy related to Bio-Clustering, Bio-simulation services and genomic portal development has been finalized with C-DAC, Pune during 08-09 November 2011.
- Organized a technical session as a Panelist on Technological Issues to Usher Openness during the International Conference on Innovative Approaches for Agricultural Knowledge Management: Global Extension Experiences on 10 November 2011 at NASC Complex, New Delhi

- 15th Steering Committee meeting for Preparation of Manuals on various Statistical Indicators/ Statistics on 15 November 2011 at Sardar Patel Bhawan, New Delhi
- Meeting related to genomic platform of ICAR in NPBGR, New Delhi on 16 November 2011.
- Brainstorming session on 'Precision Farming, Farm Mechanization and Energy' organized by CIAE, Bhopal on 16 November 2011 at IASRI, New Delhi.
- First meeting of the Steering Group for Agricultural Statistics on 21-23 November 2011 at Manila, Phillippines.
- Brain storming session on Buffalo Genomics at ICAR Board Room, NASC Complex New Delhi under the Chairmanship of DG ICAR, New Delhi on 24 November 2011.
- Meeting under the Chairmanship of Prof. Abhijeet Sen, Member (Agriculture), Planning Commission on 25 November 2011.
- Meeting to discuss implementation of the recommendations of the Expert Committee on Agricultural Statistics and urgency of regular data on horticulture & livestock on 25 November 2011 under the Chairmanship of Prof. Abhijeet Sen, Member (Agriculture), Planning Commission at Planning Commission, Yojana Bhawan, New Delhi.
- Interaction Meet with Scientists Trained Abroad & Impact Assessment of International Trainings in Frontier Areas of Agricultural Sciences" held at NASC Complex, New Delhi during 28-30 November 2011.
- Meeting to review the existing format of Half-Yearly Progress Monitoring Report of ARS Scientists with a view to ensuring more objective evaluation of performance of Scientists on 23 November 2011 at NDRI, Karnal and 29 November 2011 at CSSRI, Karnal
- Biennial Group Meeting of AICRP on Integrated Farming Systems held at Central Agricultural Research Institute, Port Blair during 27-29 December 2011
- Meeting of the Empowered Committee for Implementation of the Scheme "Awards & Fellowships and Outstanding and Meritorious Research Studies in Statistics' on 29 November 2011
- ISO/TC 69 Technical Committee meeting MSD 3:3 on 07 December 2011 at Bureau of Indian Standards, New Delhi
- दिनांक 17 दिसम्बर 2011 को राजभाषा कार्यान्वयन समिति की बैठक
- Strengthening the Security Mechanism on 19 December 2011 at ICAR Krishi Bhawan, New Delhi.

CONSULTANCY/ADVISORY SERVICES PROVIDED

- Dr. Anil Rai provided FAO consultancy to Government of Sri-Lanka on Feasibility study on applications of remote sensing and GIS in agricultural census/surveys during 27 September to 17 October 2011.
- One month training on **SAS, SAS Enterprise Guide** and **JMP** was provided to Dr. Neeru Bhushan, Senior Scientist from Central Research Institute on Goat, Makhdoom under NAIP consortium Strengthening Statistical Computing for NARS, at IASRI, New Delhi

COMPUTING FACILITIES

Wide Area Network

Internet services have been provided to the users and the website of IASRI is being updated regularly. This site has been visited 151864 times since 01 April 2008 and 985991 times since 05 September 2003.

PERSONNEL

Congratulations on your Promotion

Name	Promoted to	Effective Date
Sh. Panna Lal Gupta	T-7-8	01-01-2009
Sh. Pratap Singh	T-7-8	01.01.2010
Sh. Vijay Pal Singh	T-7-8	01.01.2010
Sh. Arun Pratap Singh	T-7-8	01.01.2010
Sh. Pramod Kumar	T-7-8	01.01.2010
Smt. Manjit Kaur	T-7-8	01.06.2010
Sh. Rajinder Singh Tomar	T-7-8	01.01.2010
Sh. Anil Kumar	T-7-8	01.01.2010
Sh. Rajinder Singh	T-7-8	17.03.2010
Sh. Som Dutt	T-6	01.07.2005
Sh. Anil Garg	T-6	01.07.2006
Sh. Subhash Chand	T-6	10.06.2011
Sh. Mohan Singh	T-5	01.01.2011
Sh. Lakshmi Chand	T-5	09.04.2011
Sh. Hira Mani	T-4	29.06.2011

Congratulations on your Appointment

Name	Designation	Effective Date
Sh. Sudhir Srivastava	Scientist	23.12.2011
Sh. Sukanta Dash	Scientist	24.12.2011

Wish you happy Retired Life

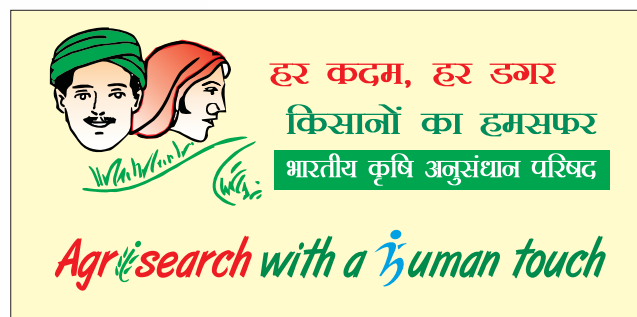
Name	Designation	Date
Sh. Mahanand	Jr. Clerk	01.10.2011
Sh. Ilash Chand	Sr. Gestetner Operator	31.10.2011

Transfer on promotion

Name	From/To	Effective Date
Smt. Sarita Mahendru	To IARI, New Delhi ad AF&AO	07.10.2011

Saleable Technologies

- Statistical Package for Factorial Experiments (SPFE 1.0)
- Statistical Package for Agricultural Research (SPAR 2.0)
- Statistical Package for Augmented Designs (SPAD)
- Statistical Package for Block Designs (SPBD 1.0)
- Statistical Package for Animal Breeding (SPAB 2.0)
- Software for Survey Data Analysis (SSDA 1.0)



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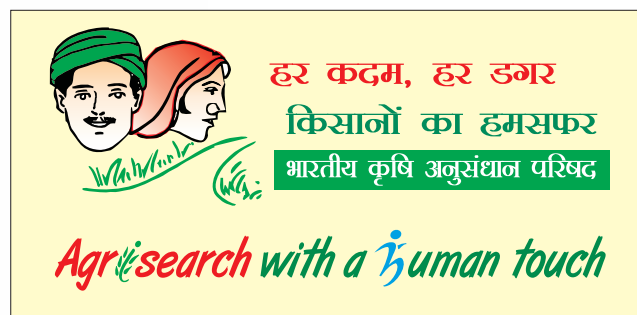
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