



IASRI



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NEWS

July-September, 2010

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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 ।

कृषि अनुसंधान एवं शिक्षा विभाग के सचिव एवं भा.कृ.अ.प. के महानिदेशक, डॉ. एस. अय्यप्पन की अध्यक्षता में 21 अगस्त, 2010 को आयोजित राष्ट्रीय कृषि अनुसंधान प्रणाली की अनुसंधान एवं विकास प्रभावकारिता में सुधार के लिए भा.कृ.सां.अ.सं. की भूमिका विषय पर संगोष्ठी इस अवधि की एक महत्वपूर्ण गतिविधि है । इस गतिविधि की अनुवर्ती कार्रवाई के रूप में तथा अनुसंधान-योग्य मामलों का पता लगाने के लिए डॉ. अनिल कुमार सिंह, उपमहानिदेशक (एन.आर.एम.) की अध्यक्षता में 22 सितम्बर, 2010 को भा.कृ.अ.प. के संस्थानों की अनुसंधान एवं विकास में प्रभावकारिता बढ़ाने के लिए भा.कृ.सां.अ.सं. की भूमिका विषय पर प्राकृतिक संसाधन प्रबंधन विभाग के साथ एक अन्य संगोष्ठी आयोजित की गयी ।

कृषि अनुसंधान एवं शिक्षा विभाग के सचिव एवं भा.कृ.अ.प. के महानिदेशक, डॉ. एस. अय्यप्पन द्वारा 18 सितम्बर, 2010 को राष्ट्रीय जैवसूचना ग्रिड की स्थापना पर एन.ए.आई.पी. कन्सोर्टियम की लॉच कार्यशाला का उद्घाटन किया गया । इस कन्सोर्टियम का उद्देश्य वैश्विक स्तर पर कृषि जैवसूचना में अनुसंधान एवं विकास में प्रगति बनाये रखना, राष्ट्र की विशेषज्ञता की आवश्यकता तथा अनुसंधान के इस क्षेत्र में जानकारी से अवगत कराना है ।

पशु-चिकित्सा उत्पादों के मूल्यांकन के लिए अनेक बायोइक्यूवीलेन्स परीक्षण संचालित किये जाते हैं । बायोइक्यूवीलेन्स परीक्षणों के लिए दक्ष प्रसरण संतुलित अभिकल्पनाएँ प्राप्त कर कैंटलॉगबद्ध की गयीं । जैविक अस्तित्व वाले परीक्षण, जैसे पशुओं पर परीक्षण, जिनमें विभिन्न समयावधियों में प्रत्येक परीक्षण इकाई में ट्रीटमेंट्स के सीक्वेंस का उपयोग होता है, क्रॉसओवर अभिकल्पनाओं का उपयोग करते हुए संचालित किये जाते हैं । लीनियर प्रोग्रामिंग पद्धति का उपयोग करते हुए दक्ष-क्रॉसओवर अभिकल्पनाएँ प्राप्त करने के लिए एक एल्गोरिथ्म विकसित की गयी है ।

प्रतिवेदनाधीन अवधि के दौरान संस्थान के वैज्ञानिकों द्वारा 10 शोध-पत्र, एक पुस्तक अध्याय तथा एक परियोजना रिपोर्ट प्रकाशित की गयी । संस्थान में विभिन्न प्रशिक्षण कार्यक्रम भी आयोजित किये गये ।

आशा है कि इस अंक की विषय-वस्तु एन.ए.आर.एस. (NARS) 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.

A very important event during this period is the Interactive Meet on "Role of IASRI in Improving R&D Efficacy of NARS" organized under the Chairmanship of Dr S. Ayyappan, Secretary, DARE & Director General, ICAR on 21 August 2010.

As a follow up action of this interactive meet and to identify researchable issues, another Interactive Meet on Enhancing the Role of IASRI in R&D Efficacy with NRM Division of ICAR Institutions was held on 22 September 2010 under the Chairmanship of Dr. A.K. Singh, DDG(NRM).

Launch Workshop of NAIP Consortium on Establishment of National Agricultural Bioinformatics Grid was inaugurated by Dr S. Ayyappan, Secretary (DARE) and Director-General (ICAR) on 18 September 2010. The goal of the consortium is to keep pace with the research and developments in agricultural bioinformatics at global level, country needs expertise and exposure in this area of research.

Bioequivalence trials are conducted for evaluation of veterinary medical products. Efficient variance balanced designs for bioequivalence trials have been obtained and catalogued. Experiments with biological entities, like trials with animals, often involve application of a sequence of treatments to each experimental unit over varying periods of time are conducted using cross over designs. An algorithm for obtaining efficient crossover designs using linear programming approach has been developed.

The scientists of the Institute published 10 Research Papers, one book Chapter and one Project Report. Various training programmes were also organised at the Institute. 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 Bhatia

(विजय कुमार भाटिया)

VK Bhatia

(VK Bhatia)

Launch Workshop of National Agricultural Bioinformatics Grid (NABG)

Dr S. Ayyappan, Secretary (DARE) and Director-General (ICAR), inaugurated the Launch Workshop of National Agricultural Bioinformatics Grid (NABG) at Indian Agricultural Statistics Research Institute (IASRI), New Delhi on September 18, 2010. This project is funded by NAIP ICAR under Component-1. Under this project supercomputing facilities for undertaking research in the field of Agricultural Bioinformatics is being developed at IASRI along with High Performance Computing infrastructural facilities at five National Bureaus related to crop science, animal science, fisheries, agriculturally important microbes and insects namely NBPGR, New Delhi, NBAGR Karnal, NBFGR Lucknow, NBAIM Mau and NBAII Bangalore. This would be national facility which will provide computational framework to support biotechnological research in the country. The website of NABG (<http://www.iasri.res.in/nabg>) was also launched by Dr. S. Ayyappan Honourable Director General ICAR and Secretary DARE.



In order to keep pace with the research and developments in agricultural bioinformatics at global level, country needs expertise and exposure in this area of research. Therefore, establishing National Agricultural Bioinformatics Grid (NABG) will help in developing databases, data warehouse, software and tools, algorithms, genome browsers and high-end computational facilities through systematic and integrated approach in the field of agricultural bioinformatics. NABG is also aimed for capacity building for research and development in agricultural bioinformatics and in turn agricultural biotechnology. Further, it is also going to provide platform for inter-disciplinary research in cross-species genomics. It is expected that, in due course of time, information and knowledge generated through research on bioinformatics from the genomic knowledge base will start flowing downward and experimentations in different sectors of agriculture will be able to evolve internationally superior competitive varieties/breeds and commodities in agriculture. The objectives of NABG are to develop agricultural bioinformatics grid for the country, to create local databases and Bioinformatics Data Warehouse (BinDW) for genomic resources across species, Human resource development in agricultural bioinformatics and to create and promote inter-disciplinary research groups with focus on agricultural bioinformatics.

In order to sustain this activity council established the Centre of Agricultural Bioinformatics (CABin) with the status of a division in this institute. The main responsibility of the CABin is to integrate a number of other institutions/organizations in order to provide computational framework and support to carry out biotechnological research. This network of institutions is based on two-tier architecture and it will be able to bridge the gap between genomic information and knowledge, utilizing statistical and computational sciences. Also, this model will help in the development of partnerships at various levels among national and international organizations. Further, this will also establish functional linkages among researchers and scientists in the field of Bioinformatics and related fields.

INTERACTIVE MEET

- An one day Interactive Meet on “Role of IASRI in Improving R&D Efficacy of NARS” was organized on 21 August 2010 at the Institute. Hon’ble Dr. S. Ayyappan, Secretary, DARE & Director General, ICAR chaired the meeting. During the meeting discussion on mandate, objectives and activities of IASRI and expectations from the Institute to improve R & D efficacy in NARS through application of statistics and use of IT and computational techniques were made.



- A meeting on Integration of IT efforts in the ICAR was held on August 25, 2010 at NASC Complex, New Delhi under the Chairmanship of Hon’ble Dr. S. Ayyappan, Secretary, DARE & Director General, ICAR.
- An Interactive Meet on Enhancing the Role of IASRI in R&D Efficacy of NRM Division of ICAR Institutions was held on 22 September 2010 under the Chairmanship of Dr A.K. Singh, DDG(NRM). In this meeting all Directors of ICAR Institutes under NRM Division and all Project Co-ordinators of AICRPs of NRM Division participated.



RESEARCH ACHIEVEMENTS

Designs for Bioequivalence Trials

Bioequivalence is defined as the degree to which clinically important outcomes after receiving a new formulation (test) of a drug resemble those of a previously well established formulation called standard or control or reference. Bioequivalence trials are conducted for evaluation of veterinary medical products. Repeated measurements designs (RMDs) balanced for residual effects are the most recommended experimental designs for these trials. However, in bioequivalence trials, the experimenters are not interested in all pairwise comparisons among direct effects and among residual effects of formulations, but are interested in test versus reference formulation comparisons of direct as well as residual effects. A class of variance balanced RMDs with complete sequences has been developed for such experimental situations. Besides, a class of partially variance balanced RMDs with incomplete sequences has also been obtained. These designs can be advantageously used in situations wherein the number of available periods is less than the number of formulations.

Cross Over Designs Using Linear Integer Programming

Experiments with biological entities, like trials with animals, often involve application of a sequence of treatments to each experimental unit over varying periods of time are conducted using cross over designs. These designs are used advantageously in nutrition experiments with dairy cattle, long term agricultural field experiments, bioequivalence trials, etc. The distinguishing feature of such an experiment is that any treatment applied to a unit in a certain period influences the responses of the unit not only in the period of its application but also leaves residual effects in the succeeding periods. These residual effects or carryover effects may be of different magnitudes. Balanced cross over designs are useful for these experimental situations. Linear integer programming approach has been developed for generating sequence of treatments to be assigned to the units. Using this approach, cyclic circular balanced and cyclic circular strongly balanced cross over designs for $v < 30$, $p < 5$ and $\lambda \leq 4$ or $\lambda^* \leq 4$ have been generated, where λ (λ^*) refers to number of times each treatment is preceded by every other treatment excluding itself (including itself) depending on whether it is circular balanced or circular strongly balanced. The designs obtained are uniform over periods. A catalogue of designs for $v < 30$, $p < 5$, $\lambda \leq 4$ or $\lambda^* \leq 4$, $p < v$ with $n \leq 100$ is given. The designs obtained are universally optimal over the class of all connected designs with fixed number of treatments, number of periods and number of sequences.

This article proposes a new linear integer programming approach to obtain cyclic circular balanced and cyclic circular strongly balanced cross over designs for given number of treatments v , number of periods p , and number of units n .

HONOURS / AWARDS / RECOGNITIONS

Award

- Dr. Anil Kumar, Scientist was Conferred for Young Scientist Award 2010 by the Executive Committee of Hi-Tech Horticultural Society on the occasion of National Symposium on Emerging Trends in Agricultural Research held during September 11-12, 2010 at PDFSR, Modipuram (Meerut)

VISIT ABROAD

- Dr. H. Ghosh successfully completed the NAIP Training program on “Multimarket Modelling for Policy Analysis” at Department of Economics, Southern Illinois University, Carbondale, U.S.A. He studied the indirect effects of policy change of price on quantity produced and consumed of rice along with maize in terms of partial demand and supply elasticity in multimarket model set up.

NEW PROJECT INITIATED

The following two projects were initiated:

- Weather based forewarning models for Onion Thrips in collaboration with Directorate of Garlic Research (DOGR), Pune has been initiated from April 01, 2010.
- Weather based forewarning of Mango pests in collaboration with Central Institute for Subtropical Horticulture (CISH), Lucknow has been initiated from April 01, 2010.
- A Study on Multiple Bio-assays under National Professor Scheme of ICAR has been initiated from May 01 2010.
- Response Surface Methodology Incorporating Neighbour Effects has been initiated from September 01, 2010.

HUMAN RESOURCE DEVELOPMENT

Training Programmes:

- A trainers training programme on **SAS: A Comprehensive Overview (Part I)** was organized during June 23- July 09, 2010. The training programme was inaugurated by Dr. VK Gupta, ICAR National Professor. The training programme was attended by 26 research personnel of NARS from Indian Agricultural Research Institute, New Delhi; National Centre for Agricultural Economics and Policy Research, New Delhi; National Research Centre for Agroforestry, Jhansi; Indian Grassland and Fodder Research Institute, Jhansi; Indian Institute of Soil Science, Bhopal; Central Institute of Agricultural Engineering, Bhopal; Directorate of Soybean Research, Indore and Indian Agricultural Statistics Research Institute, New Delhi. Dr Rajender Parsad and Sh. N Sivaramane co-ordinated the training programme. Dr. VK Gupta, ICAR National Professor was the Chief Guest during Valedictory function and it was chaired by Dr. VK Bhatia, Director, IASRI, New Delhi.
- One-day training programme on **Thin Client Solution / High Performance Cluster Computing** by Locuz Enterprize Solution for NAIP-BAM Project was organised on July 07, 2010 in Centralized Statistical and Computational Genomics Lab Facility at IASRI, New Delhi.



- A training programme on **Technological Forecasting Methodologies** under the aegis of Sub-programme on Technology Forecasting of NAIP Project V-PAGE was organised at Indian Agricultural Statistics Research Institute, New Delhi during 13 – 17 July, 2010. A total of 17 participants (Scientists / Assistant Professors) from various ICAR institutes/ State Agricultural Universities attended the programme. The methods on Technological Forecasting (TF) covered in this training programme were : Intuitive methods, Extrapolation methods, Normative methods, Time series modelling, Scenario building, Multivariate methods, Analytical Hierarchical Process, Fuzzy Analytical Hierarchical Process, Interpretive Structural Models, Simulation modelling, Bibliometrics, Patent analysis with case study of nanotechnology, TIFAC organisation and its role in national TF exercise, Technology forecasting through combination of models, TF initiatives at IASRI viz., ICT for Accelerated Growth in Agriculture, Implications of RS & GIS on agriculture and Multi-Dimensional Scaling for prioritizing factors in agriculture. The faculty included all the scientists associated in the project and also guest speakers drawn from NAARM, Hyderabad, TIFAC, New Delhi, NISTADS, New Delhi and RIS, Delhi. The training programme ended with the valedictory function in which the chief guest was Dr. Ramesh Chand, Director, NCAP, New Delhi who is also the Consortium leader of the project V-PAGE. Dr. Ramasubramanian was the Course Director for the Training Programme.



- A researchers training programme on **Data Analysis using SAS** was organized at IASRI, New Delhi during August 17-22, 2010 under NAIP Consortium Strengthening Statistical Computing for NARS with Dr. Rajender Parsad as Course Director. The training programme was inaugurated by Dr NT Yaduraju, National Co-ordinator, NAIP Component-I and the inaugural function was presided over by Dr VK Gupta, ICAR National Professor. It was attended by 20 researchers (scientists/technical personnel) from the 13 NARS organizations, IARI, New Delhi; NBPGR, New Delhi; DMR, New Delhi; NCAP, New Delhi; PDFSR, Modipuram; NRCAF, Jhansi; IGFR, Jhansi; NBFGR, Lucknow; DSR, Indore; PDMAS, Bangalore; RVSKVV, Gwalior; SVPUAT, Meerut and IASRI, New Delhi. The training was aimed at acquainting the participants with the capabilities of SAS and JMP Statistical Discovery Softwares and to provide hands on experience on the usage of SAS and JMP. The reference manual was provided to the participants during the beginning of the training



programme. The lectures on SAS: An Overview; SAS Data Sets; Learning Simple SAS Macros; Regression Diagnostics and Remedial Measures; Time-series Analysis Modelling and Forecasting using SAS Software; SAS Enterprise Guide: An Overview; E-Miner: An Overview; JMP Statistical Discovery Software: An Overview; Fitting of Nonlinear Statistical Models using SAS and Design Resources Server were delivered. The valedictory function of the training programme was organized on August 22, 2010 and the valedictory address was delivered by Dr VK Bhatia, Director IASRI.

- A refresher training programme on **Small Area Estimation** for in-service ISS officers and senior officers of State Govts./UTs was organized during August 23-28, 2010. This training programme was funded by Central Statistical Organization (CSO), Ministry of Statistics and Programme Implementation (MOS&PI), Govt. of India (GOI). The broad objective of the training programme was to provide exposure to the participants about the small area estimation techniques. Dr UC Sud was the Course Director and Dr Tauqueer Ahmad was the Co-Course Director of the programme. The reference manual was brought out and softcopy of manual was prepared in CD. The training programme was inaugurated by Prof. TCA Anant, Chief Statistician and Secretary, MOS&PI, GOI. Dr Padam Singh, Head, Research & Evaluation, EPOS Health Consultants (India) Pvt. Ltd. delivered the valedictory address on August 28, 2010.



- Conducted a training programme on **On-line data entry of experimental information and its corresponding technical program in AFEIS** at Acharya NG Ranga Agricultural University, Rajendranagar, Hyderabad during September 27 – 28, 2010.
- दिनांक 29 सितम्बर, 2010 को संगणक भवन में इन्टरनेट व ई-मेल विषय पर एक कार्यशाला का आयोजन किया गया ।

CONFERENCES / SEMINARS / SYMPOSIA ETC. ORGANIZED

Seminar 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.

The Details of Seminars Delivered

Category	Type of seminar	Number
Student	Course	01
	Thesis	02
Scientist	New Project Proposal	03
	Mid Term	04
	Project Completion	11
	Training	04
Guest		01
Total		26

Guest seminars during the period

- Dr. DS Rathore, Founder Director, Wisdom International & Former Vice Chancellor, HPKV, Palampur on “ Wisdom for Happy life”.

PANORAMA OF ACTIVITIES

ANNUAL DAY CELEBRATIONS

- The Annual Day of the Institute was celebrated on 02 July 2010 in which Dr. Madan Mohan Pandey, Deputy Director General (Engineering), ICAR was the Chief Guest. Dr. Swapan Kumar Datta, Deputy Director General (Crop Science), ICAR delivered the **Nehru Memorial Lecture entitled ‘A Journey for Next Generation Seed’**. Nehru Memorial Gold Medal for the year 2007-09 was awarded to Sh. Prabina Kumar Meher, M.Sc. (Agricultural Statistics) student and for the year 2006-09 was awarded to Sh. Ashutosh Karna, M.Sc. (Computer Application) student. V.V.R. Murthy Award for the year 2007-09 was awarded to Sh. Prabina Kumar Meher, M.Sc. (Agricultural Statistics) student. Annual Report of the Institute for the year 2009-10 was released on the Annual Day.



हिन्दी सप्ताह

- संस्थान में 14 से 20 सितम्बर, 2010 के दौरान हिन्दी सप्ताह मनाया गया तथा इस दौरान आयोजित कार्यक्रम/प्रतियोगिताएँ इस प्रकार हैं : डॉ. दरोगा सिंह स्मृति व्याख्यान, प्रभागीय चल-शील्ड, प्रश्न-मंच, अन्ताक्षरी, हिन्दी श्रुतलेख एवं शब्दार्थ लेखन (हिन्दीतर कर्मियों के लिए), हिन्दी वर्तनी तथा शोधा-पत्र-पोस्टर-प्रदर्शन प्रतियोगिता । 14 सितम्बर, 2010 को हिन्दी दिवस के अवसर पर “डॉ. दरोगा सिंह स्मृति व्याख्यान” के साथ-साथ हिन्दी सप्ताह का उद्घाटन भी हुआ । यह वैज्ञानिक व्याख्यान संस्थान के पूर्व निदेशक तथा परिषद् के परीक्षा नियंत्रक, डॉ. सुखदेव शर्मा द्वारा “भारत में कृषि शिक्षा” विषय पर दिया गया । समारोह की



अध्यक्षता एकैप के निदेशक, डॉ. रमेश चन्द जी द्वारा की गयी। हिन्दी सप्ताह के समापन समारोह के अवसर पर संस्थान निदेशक, डॉ. विजय कुमार भाटिया द्वारा इस दौरान आयोजित विभिन्न प्रतियोगिताओं के सफल प्रतियोगियों को पुरस्कृत किया गया। साथ ही, भारत सरकार, राजभाषा विभाग द्वारा जारी “सरकारी काम-काज मूल रूप से हिन्दी में करने के लिए द्वात्साहन योजना” के अन्तर्गत संस्थान के दो कर्मियों को नकद पुरस्कार भी प्रदान किये गये।

- संस्थान में दिनांक 14-20 सितंबर 2010 के दौरान आयोजित किये गये हिन्दी सप्ताह के अन्तर्गत विभिन्न प्रतियोगिताओं में निम्नलिखित वैज्ञानिकों/तकनीकी कर्मियों ने भाग लिया एवं पुरस्कार प्राप्त किये।
 - हिन्दी वर्तनी डॉ सिनी वर्गीस प्रथम पुरस्कार
 - हिन्दी श्रुतलेख एवं शब्दार्थ लेखन (हिन्दीतर) डॉ सिनी वर्गीस द्वितीय पुरस्कार
डॉ रामसुब्रमणियन वी. तृतीय पुरस्कार
श्री एल्दो वर्गीस प्रोत्साहन पुरस्कार
 - श्री पॉल सिंह ने संस्थान में आयोजित किये गये हिन्दी सप्ताह के अन्तर्गत प्रश्न मंच प्रतियोगिता में भाग लिया एवं द्वितीय पुरस्कार प्राप्त किया।
 - पूर्वानुमान एवं अर्थमिति तकनीक प्रभाग ने हिन्दी में वैज्ञानिक प्रकृति का सर्वाधिक कार्य करने हेतु प्रभागीय चल-शील्ड प्राप्त की।
 - पोस्टर प्रस्तुतीकरण प्रतियोगिता के अन्तर्गत शोध-पत्र
 - कुमार, प्रमोद एवं तोमर, राजेन्द्र सिंह - विविधिकरण या तीव्रीकरण प्रक्रिया द्वारा उपयोगी फसलक्रम का चयन ने प्रथम स्थान प्राप्त किया।
 - प्रज्ञेषु, धोष, हिमादि, एवं वाधवा, सविता - जनरलाइज्ड लैम्बडा आबंटन (जी.एल.डी.) का यूनीमॉडल वर्षा आँकड़ों में उपयोग ने द्वितीय पुरस्कार प्राप्त किया।
 - पॉल, ए.के., बेहरा, एस.के. एवं वाही, एस.डी. - एनोवा विधि द्वारा मासटाईटिस रोग की अनुवांशिकता का अनुमान ने तृतीय पुरस्कार प्राप्त किया।
 - सिंह, पॉल, मरवाह, सुदीप, अग्रवाल, हरि ओम एवं सिंह, हरनाम - मक्का फसल सूचना तंत्र ने तृतीय पुरस्कार प्राप्त किया।
- दिनांक 06 सितम्बर, 2010 को शिक्षक दिवस का आयोजन संस्थान के प्रशिक्षण प्रशासन प्रकोष्ठ द्वारा किया गया। इस अवसर पर प्रोफेसर ए.के. निगम को सम्मानित किया गया।



Special Meet:

- संस्थान में हिन्दी की प्रगति का जायजा लेने के लिए संसदीय राजभाषा समिति की दूसरी उप-समिति द्वारा 27 सितम्बर, 2010 को संस्थान के कार्य का निरीक्षण किया गया ।

PUBLICATIONS

Research Papers:

- Gandhi, RS, Kumar, Amit, Singh, Avtar and Paul, AK (2009). Genetic analysis of stayability in dairy cattle: a review. *Ind. J. Dairy Sci.* **62**, 79-89.
- Gupta, VK, Singh, Poonam, Kole, Basudev and Parsad, Rajender (2010). Computer aided construction of efficient multi-level supersaturated designs. *J. Statist. Theo. Prac.*, **4(2)**, 221-231.
- Jaggi Seema, Sarika and Sharma, VK (2010). Response surface analysis incorporating neighbour effects from adjacent units. *Ind. J. Agric. Sci.* **80(8)**, 719-723.
- Madke, PK, Lathwal, SS, Singh, Yajuvendra, Kumar, Anil and Kaushik, Vinay (2010). Study of behavioural and physiological changes of crossbred cows under different shelter management practices. *Ind. J. Anim. Sci.* **80 (8)**, 771-774
- Meher, PK, Rao, AR, Wahi, SD and Jaggi, N (2010). Detection of multivariate outliers in breeding data. *Int. J. Statist Sys.* **5(4)**, 527-35.
- Pateria, Dinesh Kumar, Jaggi, Seema and Varghese, Cini (2009). Self-neighbourhood strongly balanced block designs. *J. Ind. Statist. Assoc.* **47(1)**, 1-14.
- Sarkar, Ananta, Parsad, Rajender, Gupta, VK, Chatterjee, Kashinath and Rathore, Abhishek (2010). Efficient row-column designs for microarray experiments. *J. Ind. Soc. Agril. Statist.*, **64(1)**, 89-117.
- Sarkar, Basudeb, Verma, RPS, Parsad., Rajender and Shoran, Jag (2010). Diversity among barley germplasm collection in India. *Ind. J. Genet. Plant Breeding*, **70(3)**, 234-239.
- Srivastava, SK, Sivaramane, N and Mathur VC (2010). Diagnosis of pulses performance of India. *Agric. Eco. Res. Rev.*, **23(1)**, 137-148.
- Varghese Cini, Sonawane, MN, Jaggi, Seema and Sharma, VK. (2010). Repeated measurements designs for bioequivalence trials. *J. Statist. Appl.* **5(1)**, 47-59.

Book Chapter:

- Rai, A, Chaturvedi, KK, Bhatia, VK and Ramasubramanian, V (2010). Impact assessment of information and communication technology on food grain production in India. *Evaluation and Impact Assessment of Technologies and Developmental Activities in Agriculture, Fisheries and Its Allied Field Eds. Ajit Kumar Roy. New India Publishing Agency, New Delhi.*

Research Project Reports

- Alam, W, Rao, AR, Singh, P, Wahi, SD and Prabhakaran, VT (2010). Some investigations on robust clustering procedures. IASRI Publication. (Project report published - AP Cess Funded Project)

Other Publication

- Annual Report of the Institute for the year 2009-10. (Available at the website of the Institute at <http://www.iasri.res.in/annualreports/ar.htm>)
- IASRI News, April - June, 2010. (Available at the website of the Institute at <http://www.iasri.res.in/NewsLetters/nl.htm>)

Research Papers Presented in the Conference

- 10th International Conference of Economic Modelling held at Istanbul, Turkey during 07-10 July 2010
 - Kaul, Sushila. Agricultural credit cooperatives of India.
- Second meeting for setting up Horticulture Information System (HIS) under the Chairmanship of Dr. H.P. Singh, DDG(Hort.), ICAR on 21 July 2010 held at Krishi Bhawan.
 - Tauqueer Ahmad. Methodological issues relating to horticulture surveys in India.
- National Workshop on Improvement of Agricultural Statistics organized by Department of Economics and Statistics, Ministry of Agriculture at NASC Complex, New Delhi during 07-08 September 2010.
 - Ahmad, T (2010). Variation between official and trade estimates of Cotton production: Causes and remedies.

Invited Talk

- 17th Annual Group Meeting of All India Co-ordinated Research Project on Rapeseed and Mustard organized at Rajmata Vijayaraje Scindia Krishi Vishvva Vidhyalaya, Gwalior from September 01-03, 2010.
 - Parsad, Rajender and Gupta, VK - Efficient design and analysis of rapeseed-mustard trials

INVITED LECTURES DELIVERED

- Dr UC Sud delivered lectures on: i) Agricultural statistics in India on 06 July 2010, in a one-week training programme on 'Official Statistics' organized during 05-09 July 2010 and ii) Application of sample survey in agricultural statistics on 24 July 2010, in a five-week training programme on 'Official Statistics' for ISS probationers organized during 05 July - 06 August 2010 at National Academy of Statistical Administration, Greater Noida (UP).
- Dr. AR Rao presented a talk on Bioinformatics in the session "Natural Resource Management and Engineering" during Interactive session on "Biotechnology Research in ICAR" held at NASC complex on 26-27 July 2010
- Dr KK Tyagi delivered a lecture on 'Determination of sample size' to the participants of a Biostatistical Workshop on Sample Size Analysis organized by the Department of Biostatistics, PGIMER, Chandigarh on 27 August 2010.
- Dr. V. Ramasubramanian gave a presentation on Time series models for price forecasting in the Workshop on Quantitative Modeling Approaches for Economic Policy Analysis in Agriculture at NCAP, New Delhi during 12-13 August 2010

- Dr. A.R.Rao delivered a seminar on Statistical and computational genomics lab facility at Central Rice Research Institute, Cuttack on 30 August 2010.
- Training programme on Basic Statistics and Application of SPSS from 30 August to 06 September 2010 at Recruitment and Assessment Centre (RAC), Defence Research and Development Organization (DRDO), Delhi
 - Dr. Seema Jaggi: Correlation and Regression Analysis and Testing of Hypothesis and also conducted practical sessions on these topics using SPSS
 - Dr. Cini Varghese: Nonparametric Tests and also conducted practical session using SPSS
 - Sh. Eldho Varghese: Descriptive Statistics and conduct practical session on 'Descriptive Statistics' using SPSS.
 - Dr. A.R.Rao - i) Multivariate analytical techniques: PCA, factor analysis, cluster analysis and ii) Exercises on multivariate analytical techniques using SPSS

PARTICIPATION

Conferences / workshops / seminars / symposia etc

The scientists of the institute participated in the following:

- XI AICRP, Workshop at NRCSS, Ajmer during 05 -06 July 2010
- Conference on National Consultation on Seed Spices Biodiversity for Export Perspective, Potential, Threats and their Solution.”
- Training workshop on Decision support Tools for Agriculture Risk and Management at NCAP, New Delhi during 02-05 August 2010 conducted under the aegis of the NAIP project on Risk Assessment and Insurance Products for Agriculture.
- One day workshop on Center-State Systems in Agriculture under V-PAGe Project of NAIP on August 24, 2010 at NCAP, New Delhi.
- Regional workshop on FAO project on Establishment of National Information Sharing Mechanisms (NISM) on the implementation of global plan of action on 30 August 2010 at IASRI, New Delhi.
- 17th Annual Group Meeting of All India Co-ordinated Research Project on Rapeseed Mustard was organised at Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior during 01-03 September 2010

Meetings

- First meeting of the committee constituted “to look into the existing survey schedule for cost studies and suggest any modification and also to look into the methodological issues to include insurance premium and marketing and transport charges as cost items for generating estimates” at Krishi Bhawan, New Delhi on 09 July 2010.
- 381st Academic Council meeting on 09 July 2010 at IARI, New Delhi.
- Meeting of Board of Studies, CCS University, Meerut on 12 July 2010
- 2nd Meeting of Sub-Group of the Steering Committee on Research held on 13 July 2010 at IFFCO Office, Saket, New Delhi.

- Scientist from the Institute chaired 7th Technical Monitoring Committee meeting pertaining to Central Sector Scheme “Strengthening of Data base and Geographical Information System for the Fisheries Sector” organized by the Department of Animal Husbandry, Dairying and Fishery, Ministry of Agriculture, Government of India at Goa on 13 July 2010.
- 3rd Meeting of Sub-Group of the Steering Committee on Research held on 17 July 2010 at IFFCO Office, East of Kailash, New Delhi
- Meeting with DDGs, ICAR to discuss implementation of Establishment of National Agricultural Bioinformatics Grid (NABG) in ICAR on 20 July 2010 at IASRI, New Delhi.
- Second meeting for setting up Horticulture Information System (HIS) under the Chairmanship of Dr. H.P. Singh, D.D.G. (Hort.), ICAR on 21 July 2010 held at Krishi Bhawan. One Scientist made a presentation on the topic “Methodological issues relating to horticulture surveys in India” during the meeting.
- Two days meeting on “Consultation on Biotechnology Research in ICAR” during 26-27 July 2010 held at NASC Complex, New Delhi.
- Talk on Role of Biotechnology for Conservation and Use of Plant Genetic Resources by Dr. Emile Frison, Director General, Biodiversity International on 27 July 2010 at NASC Complex, New Delhi.
- Brainstorming meet on Application of bioinformatics on insects and their Resources on 09 August 2010 at NBAIL, Bangalore. Director of the Institute chaired the session on the following topics:
 - Sequence analysis
 - Gene expression
 - Computational Biology
 - Development of tools related to data analysis and design
 - Development of algorithms to identify gene/protein
 - Development of Protein Database
- Executive Council Meeting of Indian Society of Agricultural Statistics at IASRI on 10 August 2010.
- Meeting to discuss the manual on Agricultural Prices and Marketing under the Chairmanship of DG, CSO on 11 August 2010 at Sardar Patel Bhawan, New Delhi
- Meeting under the Chairmanship of Secretary (A&C), Ministry of Agriculture on 12 August 2010 held at Krishi Bhawan, New Delhi regarding finalization of Advance estimates of Cotton production and methodological issues relating to variation between official and trade estimates of Cotton production.
- Meeting of the Committee to look into various aspects of Slum Statistics/Census and issues regarding the conduct of Slum Census 2010 under the Chairmanship of Dr. Pronab Sen, Principal Adviser, Planning Commission on 26 August 2010 at, Nirman Bhawan, New Delhi.
- First meeting of the Steering Committee on Agriculture Census 2010-11 and Input Survey 2011-12 under the Chairmanship of Principal Advisor, Department of Agriculture & Cooperation to monitor the progress of Agriculture Census work in different States and to guide the sort out the technical issues arising in implementation of the Scheme at Krishi Bhawan, New Delhi on 27 August 2010.

- Meeting of the Plan and advise on infrastructure requirement, developing and finalizing specifications and recommend financial requirements of Bioinformatics Grid and MIS/FMS on 31 August 2010 at KAB-II, New Delhi.
- First meeting of the committee on Statistics of Agriculture and Allied Sector on 06 September 2010 at Sardar Patel Bhawan, New Delhi.
- Meeting arranged by DIPA for making a presentation on Centralized Data Centre for ICAR on 07 September 2010. at IASRI, New Delhi.
- Meeting of First India-US Agriculture Dialogue Steering Committee Working Groups III: Crop and Weather Forecasting on 14 September 2010 at Hyderabad House, New Delhi
- Meeting with Dr. Dath K. Mita, Ph.D. Crop Assessment Analyst, USDA States Department of Agriculture, Foreign Agricultural Service, Derrick Williams III, Director, Office of Global Analysis and David Leishman, Senior Allache for Agricultural Affairs, India, Bangladesh, Sri Lanka in connection with First India-US Agriculture Dialogue Steering Committee Working Groups III: Crop and Weather Forecasting on 20 September 2010 at Mausam Vibhag, New Delhi.
- Meeting of Component-I of NAIP and presentation on state of implementation, lesson learnt and key concerns on 28 September 2010 at IARI, New Delhi.
- Meeting of Bureau of Indian Standards on 29 September 2010 at Manak Bhawan, New Delhi.
- First meeting of the Committee on Statistics of Agriculture and Allied Sectors constituted by National Statistical Commission at Sardar Patel Bhavan, New Delhi on September 06, 2010.

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 **611044** times since 01 April 2008 and **975625** times since 05 September 2003.

CONSULTANCY/ADVISORY SERVICES PROVIDED

- Priya Shekhawat, a Ph.D. student from Rajasthan Agricultural University Bikaner was advised on the analysis of data pertaining to an experiment on Genetic Characterization and Diversity Study of Rathi and Tharparkar cattle breeds of Rajasthan conducted to select a suitable set of microsatellite markers for determining genetic diversity in two indigenous cattle breeds viz. Rathi and Tharparkar and to characterize the breeds on the basis of microsatellite markers. She was advised on computation of heterozygosity and polymorphism Information Content using allele frequency data.

Reorganisation of Divisions of Institute

Council vide their Office Order No.5(9)/2010-IA-II(AE) dated 02 August 2010 has made following changes in the Divisions at IASRI with immediate effect

- The “Division of Biometrics” is renamed as “Division of Biometrics and Statistical Modelling”.
- The mandate and activities of “Division of Forecasting Techniques” and “Division of Econometrics” are merged to form “Division of Forecasting and Econometrics Techniques”.

- A new centre namely “ Centre for Agricultural Bio-informatics” [CABin] has been created with the status of a Division at IASRI, New Delhi.

The Council has also accorded approval for re-designing the post of the “Head of Division of Econometrics” and filling as “ Head, Centre for Agricultural Bio-informatics”.

Now the Six Divisions at the Institute are:

1. Division of Design of Experiments.
2. Division of Biometrics and Statistical Modelling
3. Division of Computer Applications
4. Division of Sample Survey
5. Division of Forecasting and Econometrics Techniques and
6. Centre for Agricultural Bio-informatics [CABin]

PERSONNEL

Congratulations on your Appointment

Name	Designation	Effective Date
Sh. Somen Paul	Scientist	27-08-2010

Congratulations on your Promotions

Name	Promoted to	Date
Sh. Satya Pal Singh	T-5	01-01-2000
Sh. Hari Lal Rai	Driver(T-1-3)	31-07-2007
Sh. Bhavnesh Kumar	Tubewell Operator(T-5)	01-01-2008
Sh. KK Kesari	Tubewell Operator(T-1-3)	25-04-2008
Sh. Prem Shankar Rai	AAO	01-07-2010

Wish you happy Retired Life

Name	Date
Smt. Usha Ahuja, PA	31-07-2010
Sh. Survir Singh, SSS	31-07-2010
Sh. RP Jain, Scientist(SG)	31-08-2010
Dr. Alope Lahiri, Sr. Scientist	30-09-2010
Sh. Lal Mani Verma, Technical Officer	30-09-2010

Transfer

Name	To	Effective Date
Sh. VH Gupta, Scientist (Sr. Scale)	PIM Unit of ICAR	12-07-2010
Smt. satinder Pal, Technical Officer	ICAR, Krishi Bhawan	23-08-2010

Deputation

Name	To	Effective Date
Sh. Sanjay Jain, UDC	IASRI after completing deputation at Directorate of Maize Research, Pusa, New Delhi	12-07-2010
Sh. BJ Gahlot, Technical Officer	Telecom Regulatory Authority of India, Mahanagar Doorsanchar Bhawan, New Delhi	30-07-2010

OBITUARY

The Director, Staff and Students of IASRI deeply condole the death of Sh. Kunwar Pal Singh, Assistant who expired on 25 September 2010

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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