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INDIAN AGRICULTURAL STATISTICS RESEARCH INSTITUTE (ICAR), LIBRARY AVENUE, PUSA, NEW DELHI-110 012



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 new web page "Analysis of Data" has been launched on Design Resources Server (www.iasri.res.in/design) to provide steps of analysis of data generated from designed experiments by using statistical packages like SAS, SPSS, MINITAB, SYSTAT, MS-EXCEL etc.

Considering the blocks of polygonal designs as samples and the treatments as units, a balanced sampling plan excluding adjacent units {BSA (m) plan} can be obtained by assigning equal probability of selection to the blocks. A computer algorithm has been developed to obtain polygonal designs. The plans generated by the modified algorithm may, however, have larger support sizes compared to the plans generated through polygonal designs. The linear programming has also been exploited to obtain both circular and linear BSA (m) plans by minimizing the probabilities of selection of samples containing adjacent units. This method is quite useful for obtaining smaller sampling plans and takes very less time.

A dissemination workshop on "Outliers in Designed Experiments" was organized.

A two days Hindi Karyashala for scientific/technical/administrative personnel of the Institute was also organised at the Institute.

Institute Research Committee (IRC) meeting was convened to discuss the progress of ongoing and new research projects.

The Institute celebrated its Annual Day and also participated in number of conferences/symposia/workshop etc. It is hoped that the contents of this document would be informative and useful for scientists in NARS. Any suggestions for further improving the contents of the newsletter would be highly appreciated.

(SD SHARMA)

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निदेशक की कलम से . . .

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

एस.ए.एस., एस.पी.एस.एस., मिनिटैब, सिस्टैट, एम.एस. -एक्सिल इत्यादि सांख्यिकीय पैकेजों की सहायता से डिजाइन किये गये परीक्षणों से प्राप्त आँकड़ों के विश्लेषण की प्रक्रिया उपलब्ध कराने के लिए डिजाइन रिसोर्स सेंटर (www.iasri.res.in/design) पर एक वेब पेज "एनालिसिस ऑफ डेटा" बनाया गया है।

बहुभुजी अभिकल्पनाओं के ब्लॉकों को प्रतिदर्श तथा उपचारों को इकाई मानते हुए, निकटवर्ती इकाइयों {BSA (m) प्लान} को न लेते हुए, ब्लॉकों को वरण की समान प्रायिकता देते हुए एक संतुलित प्रतिचयन योजना प्राप्त की जा सकती है। बहुभुजी अभिकल्पनाएँ प्राप्त करने के लिए एक संगणक एल्गोरिथम विकसित किया गया है। बहुभुजी अभिकल्पनाओं की सहायता से तैयार की गयी योजनाओं की तुलना में संशोधित एल्गोरिथम द्वारा तैयार की गयी योजनाओं में विस्तृत सपोर्ट आकार होते हैं। निकटवर्ती इकाइयों वाले प्रतिदर्शों के वरण की प्रायिकताओं को न्यूनतम करते हुए सरक्यूलर एवं रैखिक बी.एस.ए. (एम) दोनों योजनाएँ प्राप्त करने के लिए रैखिक प्रोग्रामिंग का उपयोग किया गया है। छोटी प्रतिचयन योजनाएँ प्राप्त करने के लिए यह विधि काफी उपयोगी है और इसमें बहुत कम समय लगता है।

"आउटलायर्स इन डिजाइन्ड एक्सपेरिमेंट्स" पर एक प्रसार कार्यशाला आयोजित की गयी।

संस्थान के वैज्ञानिकों, तकनीकी एवं प्रशासनिक कर्मियों के लिए एक द्वि-दिवसीय हिन्दी कार्यशाला आयोजित की गयी।

संस्थान में चल रही अनुसंधान परियोजनाओं की प्रगति तथा नयी अनुसंधान परियोजनाओं पर चर्चा करने के लिए संस्थान अनुसंधान समिति (IRC) की बैठक आयोजित की गयी।

संस्थान में वार्षिक दिवस मनाया गया और संस्थान द्वारा अनेक सम्मेलनों/संगोष्ठियों/ कार्यशालाओं इत्यादि में सहभागिता की गयी।

आशा है कि इस अंक की विषयवस्तु नार्स के वैज्ञानिकों के लिए सूचनाप्रद एवं उपयोगी होगी। इस समाचार पत्र की विषयवस्तु में भावी सुधार लाने के लिए आपके सुझावों का स्वागत है।



(सुखदेव शर्मा)

RESEARCH ACHIEVEMENTS

- A new page "Analysis of Data" has been launched on Design Resources Server (www.iasri.res.in/design). The purpose of this web page is to provide steps of analysis of data generated from designed experiments by using statistical packages like SAS, SPSS, MINITAB, SYSTAT, MS-EXCEL etc. The steps of analysis of incomplete block designs and resolvable block designs using SAS and SPSS have been uploaded on this page launched earlier on Design Resources Server (www.iasri.res.in/design). The steps for performing multiple comparison procedures and treatment contrast analysis are also given.
- Balanced sampling plans excluding adjacent units (BSA (m) plans) are useful for sampling from populations in which the nearer units provide similar observations due to natural ordering of the units in time or space. For BSA (m) plans, first order inclusion probabilities of all units are same and second order inclusion probabilities for pairs of adjacent units are zero and constant for other pairs of units. An important series of incomplete block designs called polygonal designs are useful for obtaining BSA (m) plans. Considering the blocks of polygonal designs as samples and the treatments as units, a BSA (m) plan can be obtained by assigning equal probability of selection to the blocks. A computer algorithm has been developed to obtain polygonal designs. Computer aided search of polygonal designs was made in the parametric range of $v \leq 40$, $b \leq 400$, $k \leq 7$ and $m \leq 4$. Computer aided search gave all the existing polygonal designs in the literature along with 75 new designs in this parametric range. Number of new designs obtained for $m = 1, 2, 3$ and 4 respectively are 14, 35, 18 and 8. The algorithm has the limitation that generation of polygonal designs for large v and k may take prohibitively longer time. It is important to note that all polygonal designs are BSA (m) plans but vice versa may not be true. BSA (m) plans may be obtained by assigning unequal probabilities of selection to the samples in the support. Hence, the computer algorithm developed for generation of polygonal designs has been modified to obtain BSA (m) plans directly comparatively in a short time. The plans generated by the modified algorithm may, however, have larger support sizes compared to the plans generated through polygonal designs. The linear programming has also been exploited to obtain both circular and linear BSA (m) plans by minimizing the probabilities of selection of samples containing adjacent units. This method is quite useful for obtaining smaller sampling plans and takes very less time. BSA (m) plans suffer from the drawback that the unbiased estimation of variance of Horvitz-Thompson estimator of population mean is not possible. To tackle this problem, a family of distance balanced sampling plans (DBSP) with the property that the second order inclusion probabilities are non-decreasing function of distance between the two concerned units is developed. Unbiased estimation of variance of Horvitz-Thompson estimator of population mean for DBSP is considered. The conditions for DBSP to be more efficient than simple random sampling without replacement (SRSWOR) and BSA (m) plans have been obtained. DBSP can give rise to a large number of sampling plans

depending on choice of the distance function. Three particular members of the family DBSP namely two points, three points and $\lfloor \frac{N}{2} \rfloor$ -points DBSP were investigated for suitable choice of distance function. It has been shown that if the assumption of decreasing correlation between the units as the distance between the units increases holds then the proposed plans are more efficient than other alternative sampling plans such as SRSWOR and BSA (m) plans. A class of incomplete block designs, called as distance balanced incomplete block (DSBIB) designs is introduced, whose blocks can act as a support of the DBSP. Existence and construction of DSBIB designs has also been given.

- Inclusion Probability Proportional to Size (IPPS) plans excluding adjacent (IPPSEA plans) units have been developed for sampling from populations where there is natural ordering of the units along with variability in sizes of the units. IPPSEA plans have been obtained by making use of binary, proper and unreplicated block designs and linear programming approach. The performance of proposed IPPSEA plans using Horvitz-Thompson estimator was compared with other alternative sampling plans such as SRSWOR, BSA (m) plans, probability proportional to size with replacement, Hartley and Rao's strategy, Rao, Hartley and Cochran's strategy and Sampford's IPPS plan using a real life population. It was seen that the proposed plan performs quite better compared to alternative plans. Unbiased estimation of Horvitz-Thompson estimator of population total is not possible in these types of plans because some of the second order inclusion probabilities are zero. To resolve this problem, one approximate variance estimation technique has been suggested.
- Stratified sampling is often used to draw a representative sample from a population. But stratification based on geographical contiguity may yield strata which are heterogeneous due to some other factors affecting characteristic under study. To deal with this, nested stratified sampling in which there are secondary strata within each primary stratum, has been developed for the estimation of finite population total and its variance. Optimum allocation of sample size in a particular primary stratum to secondary strata within that primary stratum and optimum allocation of total sample size to primary stratum in the population was discussed in detail. A condition for nested stratified sampling with arbitrary allocation to be more efficient than usual stratified sampling with arbitrary allocation was obtained. It was shown that nested stratified sampling with optimum, Neyman and proportional allocation is more efficient than usual stratified sampling with corresponding allocations. Conditions for nested stratified sampling to be more efficient than direct stratification under different allocations were obtained. A real life data set was used to study the performance of the proposed sampling plan. Feasibility of application of doubly nested incomplete block designs to nested stratified sampling was discussed in this context.

HUMAN RESOURCE DEVELOPMENT

- A dissemination workshop on "Outliers in Designed Experiments" was organized on



26 July 2007 at IASRI, New Delhi. The workshop was inaugurated by Dr. N.N. Goswami, former Vice-Chancellor, Chandra Shekhar Azad University of Agriculture and Technology, Kanpur. Dr. V.K. Gupta, ICAR National Professor gave a brief outline on "Outliers and their Presence in the Experimental Data". He also gave the motivation for taking up the project. Dr. Rajender Parsad, ICAR National Fellow made a presentation on "Diagnostics in Designed Experiments". Through two real life examples, he has shown that the assumptions of normality and homogeneity of error variances may be violated due to presence of outliers in the experimental data. Dr. L.M. Bhar, Principal Investigator gave comprehensive presentation on the findings of the project. Both of the Technical Sessions were chaired by Prof. Aloke Dey, Professor (Statistics), Indian Statistical Institute, Delhi. An exposure of Design Resources Server was also given to the participants by Dr. Rajender Parsad and Dr. V.K. Gupta. Dr. Rajender Parsad, ICAR-National Professor chaired the session on "Design Resources Server".

VISIT ABROAD

- Dr. U.C. Sud, Principal Scientist was deputed to attend the Third International Conference on "Establishment Surveys (ICES-II)" organised at Canada during 19-21 June 2007.
- Dr. (Smt.) Sushila Kaul, Senior Scientist was deputed to attend "EcoMod International Conference on Energy and Environment, Modelling" organised at Moscow, Russia during 13-14 September 2007.

PANORAMA OF ACTIVITIES

- Perspective Plan Vision-2025 document has been finalised and published.
- Submission of report by QRT team.

Annual Day Celebrations

- The Annual Day of the Institute was celebrated on 02 July 2007 in which Dr. J.S.P. Yadav,



former Chairman, Agricultural Scientists Recruitment Board, ICAR was the Chief Guest. Dr. Nawab Ali, Deputy Director General (Engg.), ICAR was the Guest of Honour. Dr. P.V. Dehadrai, former Deputy Director General (Fisheries), ICAR delivered the Nehru Memorial Lecture entitled "Modernity of Indian Aquaculture".

Nehru Memorial Gold Medal for the year 2003-06 was awarded to Km. Nisha Jha, M.Sc. (CA) student and for the year 2004-06 was awarded to Sh. Ranjit Kumar Paul, M.Sc. (Ag. Stat.) student.

- दिनांक 20 जुलाई, 2007 को निदेशक महोदय की अध्यक्षता में संस्थान राजभाषा कार्यान्वयन समिति की बैठक हुई जिसमें राजभाषा विभाग द्वारा जारी वार्षिक कार्यक्रम की प्रत्येक मद पर विस्तार से चर्चा हुई।
- Three meetings of the Grievance Committee of the Institute were held on 23 July, 25 August and 21 September 2007 under the Chairmanship of Prof. S.D. Sharma, Director, IASRI.
- One meeting of the Management Committee was held on 30 July 2007 under the Chairmanship of Prof. S.D. Sharma, Director, IASRI.
- The meeting of Institute Research Committee (IRC) was held during 17-18 August 2007 to review the progress of ongoing/new research projects.



- **हिन्दी चेतनामास**
संस्थान में सितम्बर, 2007 के दौरान हिन्दी चेतनामास का आयोजन किया गया। इस दौरान अनेक कार्यक्रम एवं प्रतियोगिताएँ आयोजित की गईं जैसे—काव्य-पाठ, शिक्षक दिवस, डॉ. दरोगा सिंह स्मृति व्याख्यान, शोध-पत्र-पोस्टर-प्रदर्शन प्रतियोगिता (हिन्दी में), प्रश्न-मंच, अंताक्षरी, वाद-विवाद, वर्तनी, हिन्दी आशुलिपि, प्रभागीय चल-शील्ड इत्यादि। हिन्दी एकक और प्रशिक्षण एवं प्रशासन प्रकोष्ठ के संयुक्त तत्वावधान में दिनांक 05 सितम्बर, 2007 को "शिक्षक दिवस" का आयोजन किया गया। इस अवसर पर मुख्य अतिथि प्रो. मदन गोपाल सरदाना को सम्मानित किया गया। 14 सितम्बर, 2007 को हिन्दी दिवस के अवसर पर "डॉ. दरोगा सिंह स्मृति व्याख्यान" का आयोजन किया गया। यह वैज्ञानिक व्याख्यान कार्यक्रम के अध्यक्ष डॉ. नवाब



अली, उपमहानिदेशक, कृषि अभियांत्रिकी द्वारा "कुपोषण दूर करने में सोयाबीन का योगदान" विषय पर दिया गया। हिन्दी चेतनामास के दौरान आयोजित शोध-पत्र-पोस्टर-प्रदर्शन प्रतियोगिता में वैज्ञानिकों द्वारा 7 शोध-पत्र प्रस्तुत किए गए तथा निर्णायकों द्वारा तीन श्रेष्ठ शोध-पत्रों का चयन किया गया।

हिन्दी चेतनामास के समापन समारोह के अवसर पर संस्थान में हो रहे हिन्दी कार्यों तथा चेतनामास के दौरान आयोजित विभिन्न कार्यक्रमों/प्रतियोगिताओं की झलकियाँ प्रस्तुत की गईं। समारोह के मुख्य अतिथि, कृषि अनुसंधान एवं शिक्षा विभाग के अपर सचिव एवं कृषि अनुसंधान परिषद के सचिव श्री अनिल कुमार उपाध्याय द्वारा सफल प्रतियोगियों को पुरस्कृत किया गया। इसके अतिरिक्त, सरकारी काम-काज मूल रूप से हिन्दी में करने के लिए प्रोत्साहन योजना के अन्तर्गत संस्थान के दो कर्मियों को नकद पुरस्कार प्रदान किए गए।

● हिन्दी कार्यशाला

दिनांक 29-30 अगस्त, 2007 को संस्थान के कर्मियों के लिए 'हिन्दी वर्तनी एवं व्याकरण' विषय पर एक द्वि-दिवसीय कार्यशाला आयोजित की गयी। कार्यशाला का उद्घाटन निदेशक महोदय द्वारा किया गया। कार्यशाला में केन्द्रीय हिन्दी संस्थान, आगरा की हिन्दी लोक शब्दकोष परियोजना के प्रधान सम्पादक, श्री अरविन्द कुमार द्वारा 29 अगस्त, 2007 को तथा संस्थान की राजभाषा प्रभारी एवं प्रधान, पूर्वानुमान तकनीक प्रभाग, डॉ. रंजना अग्रवाल ने 30 अगस्त, 2007 को व्याख्यान दिये। कार्यशाला में 38 प्रतिभागियों ने सहभागिता की। कार्यशाला का समापन संस्थान के निदेशक महोदय द्वारा किया गया तथा प्रतिभागियों को प्रमाण-पत्र वितरित किये गये।



PARTICIPATION OF INSTITUTE

In Conference/Workshop/Symposium/ Training etc.

Various scientists and technical personnel of the Institute participated in

- National workshop on "Improvement of Agricultural Statistics" organized by DES, Ministry of Agriculture, Govt. of India, New Delhi at NASC Complex, New Delhi during 05-06 July 2007.
- ICAR Foundation Day and Director's Conference held at NASC Complex, New Delhi during 16-18 July 2007.
- International seminar on "Conventional and Bio-technological Approaches for Sustainable Development in Sub-Himalayan Region (CBSAD-07) at IVRI, Mukteswar during 28-29 July 2007. One scientist of the Institute Chaired one of the Technical Session-II on "Society and Environment".
- National seminar on "Agrarian Distress: Problems and Remedies" during 01-02 August 2007 at NCAP, New Delhi.
- XIV Annual Group meeting of "AICRP-Rapeseed and Mustard" held at SKUAST, Jammu during 02-04 August 2007.
- Times India Strategy summit on "The Future Creates the Present" organized by Business and Economy at New Delhi on 07 August 2007.

- Policy dissemination workshop on “Agricultural Science and Technology Indicators in India” at NCAP, Pusa, New Delhi on 13 August 2007.
- Indian Animal Industry Expo-2007 at Pragati Maidan, New Delhi on 16 August 2007.
- Seminar on “Model based Design for Embedded Signal Processing System (MATLAB and SIMULINK)” organized by Cranes Software International Limited, New Delhi on 23 August 2007 at New Delhi.
- 46th All India Wheat and Barley Research Workers Meet held at College of Agriculture, Pune from 24-27 August 2007 jointly organized by Agharkar Research Institute, Pune and Mahatma Phule Krishi Vidyapeeth, Rahauri.
- National Conference on “Emerging Platforms for Agriculture Marketing” during 20-21 September 2007 at FICCI, New Delhi.
- Seminar on “Prospects of Food and Dairy Processing Industries in Eastern Region” at Banaras Hindu University, Varanasi during 28-29 September 2007.
- HLCC meeting of Directorate of Agriculture at Chandigarh on 26 September 2007.

LECTURES DELIVERED

- Dr. Rajender Parsad delivered two lectures on “SPSS: An Overview” at Department of Social Work, University of Delhi, Delhi on 11 August 2007.
- Dr. VK Bhatia delivered a lecture on “Statistical Methods for Analysis of Epidemiological and Clinical Data” on 15 August 2007 at AIIMS, New Delhi.
- Dr. VK Bhatia delivered a lecture on “Non-Parametric Tests” and Dr. Rajender Parsad delivered 10 lectures on the topics “Statistics: Introduction and Concepts; Statistical Packages: An Overview; Analysis of Variance; Correlation and Regression; Response Surface Methodology and Experiments with Mixtures” to the participants of the training programme on “Research Methodology and Statistical Methods” organized by Human Resource Development Centre, Council of Scientific & Industrial Research, Ghaziabad during 17-20 September 2007.
- Dr. AR Rao has been invited as a speaker to deliver a lecture on “SNPs, Splice Sites and Mutations” in a workshop on Bioinformatics organized by Computer Science Department, Delhi University on 28 September 2007.

HONOURS/AWARDS (पुरस्कार)

- Dr. Cini Varghese received the Lal Bahadur Shastri Young Scientist Award for the Biennium 2005-06 in the field of Social Sciences. An ad-hoc research scheme entitled “Experimental Designs for Agricultural



Research involving Sequences of Treatments” has been sanctioned under Lal Bahadur Shastri Young Scientist Award for a period of 2 years at a cost of Rs. 5,49,560.

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 501280 times since 05 September 2003.

SEMINARS DELIVERED

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

The details of Seminars Delivered

Category	Type of Seminar	Number
Student	Course	08
	Thesis	01
Scientist	General	01
	New Project	10
Total		20

PUBLICATIONS

Research Papers Published

- Chakravorti, Kalyan, Paul, Amrit and Alam, Wasi (2007). Application of clustering technique in mango and litchi germoplasm of West Bengal. *J. Interacademia*, **11(1)**, 34-39.
- Gupta, AK, Narang, MS, Jain, VK, Sud, UC and Tyagi, KK (2007). Estimation of area, production and productivity of flowers in Delhi. *Int. J. Agril. Statist. Sci.*, **3(1)**, 7-15.
- Gupta, VK, Dhandapani, A and Parsad, Rajender (2007). *Hadamard Matrices*. Monograph, IASRI, New Delhi.
- Jaggi, Seema, Varghese, Cini and Gupta, VK (2007). Optimal circular block designs for neighbourig competition effects. *J. Appl. Statist.*, **34(5)**, 577-584.
- Kumar, Rajendra, Singh, NP and Singh, Gyan (2007). Statistical investigation on use of application of micro nutrients with NPK in rice-wheat cropping system research, *Bhartiya Vaigyanik Evam Audhyogik Anusandhan Patrika*.
- Rai, Anil, Gupta, NK and Singh, Randhir (2007). Small area estimation of crop production using spatial models. *J. Model Assisted Statist. Appl.*, **2(2)**, 89-98.
- Rai, Anil, Saxena, BC and Bindal, Vijay (2005). Two phase sampling in multiple frame surveys. *J. Ind. Soc. Agril. Statist.*, **59(3)**, 187-191.
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- Satpati, Subrata Kumar, Parsad, Rajender and Gupta, VK (2007). Efficient block designs for dependent observations: A computer aided search. *Comm. Statist.-Theory Methods*, **36(6)**, 1187-1223.

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Book Chapters Published

- Rai, Anil (2005). Data Warehousing—An Introduction. *Bioinformatics and Statistics in Fisheries Research. II*, CIFA, 63-76.
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Research Papers Accepted for Publication

- Gupta, VK, Parsad, Rajender, Bhar, Lal Mohan and Kole, Basudev. Supersaturated designs for asymmetrical factorial experiments. *J. Statist. Theo. Prac.*
- Jaggi, Seema and Tomar, Jitendra Singh. Robustness of neighbour balanced complete block designs for correlated observations. *Ind. J. Appl. Statist.*
- Kumar, Jitendra, Nisar, K, Arun Kumar, MB, Walia, Suresh, Shakil, NA, Parsad, Rajender and Parmar, Balraj S. Development of polymeric seed coats for seed quality enhancement of soybean (*Glycine max*). *Ind. J. Agri. Sci.*
- Paul, Amrit Kumar and Bhatia, VK. On some aspects of estimation of heritability. *Ind. J. Anim. Sci.*
- Rao, AR and Prabhakaran, VT. Simultaneous selection of cultivars for yield and stability in crop improvement trials. *Ind. J. Genet.*
- सुभाष चन्द्र सेठी, सुरेन्द्र मोहन सूद, एवं सुरेन्द्र कुमार शर्मा। धान की खेती में जोत आकार का महत्व। *पत्रिका कृषि चयनिका*, कृषि अनुसंधान भवन, पूसा, नई दिल्ली
- Sharma, Anu, Varghese, Cini, Rao, AR, Gupta, VK and Pal, Soumen. SPRMD - A statistical package for cataloguing and generation of repeated measurement designs. *J. Ind. Soc. Agril. Statist.*
- Singh, RK, Prajneshu and Ghosh, H. A two-stage fuzzy least squares procedure for fitting linearized Von Bertalanffy growth model. *Ind. J. Fish.*
- Singh, Surendra, Bhar, LM and Paul, AK. A study of growth pattern of crossbred cattle under homoscedastic and heteroscedastic error variance conditions. *Ind. J. Anim. Sci.*
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- Sud, UC, Pal, Prasenjit and Sethi, IC. Estimating population mean square through predictive approach when auxiliary character is estimated. *J. Ind. Soc. Agril. Statist.*
- Tomar, Jitendra Singh and Jaggi, Seema. Efficient neighbour balanced block designs for correlated observations. *Metron*.



A view of Teacher's Day Celebration

Saleable Technologies

- Statistical Package for Factorial Experiments (SPFE 1.0)
- Statistical Package for Agricultural Research (SPAR 2.0)
- Statistical Package for Agricultural Designs (SPAD)
- Statistical Package for Block Designs (SPBD 1.0)
- Statistical Package for Animal Breeding (SPAB)



A view of Tree Plantation during Annual Day Celebration

Research Papers Presented in the Conference/Symposium/Workshop etc.

- Rajender Parsad and VK Gupta. Statistical Issues in Rapeseed-Mustard Varietal Trials based on the analysis of initial varietal trials conducted during 2006-07 was presented during XIV Annual Group Meeting of AICRP Rapeseed and Mustard held at SKUAST, Jammu during 02-04 August 2007.

Following invited papers were presented during the Conference in the Honour of Professor Alope Dey at Indian Statistical Institute, Delhi during 05-06 September 2007.

- Rajender Parsad, Ananta Sarkar, VK Gupta and Abhishek Rathore. Efficient designs for microarray experiments under fixed/mixed effects model.
- VK Gupta, Rajender Parsad and LM Bhar. Some thoughts on fractional factorial plans.

CONSULTANCY/ADVISORY SERVICES

- Sh. Narendra Panwar from National Bureau of Plant Genetic Resources was advised on the combined analysis of data pertaining to the experiment on genetic variability and stability analysis in *Ocimum* species conducted at four locations using a randomized complete block design with 30 cultivars each replicated thrice. There were 16 characters on which data were collected.
- Dr. Dharam Singh, Senior Scientist from NBSS & LUP, Delhi Centre was advised on the combined analysis of data pertaining to the experiment conducted to evaluate 4 cropping systems viz. rice-fallow, rice-pea, rice-potato and rice-mustard conducted in 2004 and 2005. The data were analyzed as rice equivalent yields and potato equivalent yields.
- Dr. Yashbir Shivay, Senior Scientist from Division of Agronomy was advised on the analysis of data pertaining to the experiments "Effect of zinc-enriched urea on productivity, zinc uptake and efficiency of aromatic rice-wheat cropping system" conducted to study the effect of various concentrations of zinc-enriched urea on

productivity of aromatic rice-wheat cropping system and on zinc concentrations of aromatic rice and wheat grain & straw and their uptake by the rice-wheat cropping system. He was advised on the use of Tukey's Honest Significant Difference and Duncan's Multiple Range tests.

PERSONNEL

Welcome to our new colleague

- Sh. Narender Kumar joined the Institute as AAO in the afternoon of 16-08-2007 after relieving from CSWCR&TI, Dehradun.

Congratulations on your promotion

- Smt. Shashi Jain, AAO w.e.f. 03-07-2007
- Sh. Dilip G. Khapekar, Assistant w.e.f. 02-07-2007
- Sh. Vinod Kumar, Assistant w.e.f. 02-07-2007
- Sh. Anis Wadhwa, UDC w.e.f. 02-07-2007
- Sh. Raj Kumar Verma, UDC w.e.f. 02-07-2007
- Smt. Suman Popli, Stenographer Gr.-III w.e.f. 20-08-2007
- Sh. Daulat Ram, Junior Clerk w.e.f. 25-08-2007
- Sh. Satyavir Singh, LDC next higher grade under ACP Scheme

Wish you happy retired life

- Sh. MR Vats, Scientist(SG) w.e.f. 31-07-2007
- Sh. SK Sharma, Assistant w.e.f. 31-07-2007
- Sh. Prakash Lal, Technical Officer(T-7-8) w.e.f. 31-08-2007
- Sh. Madan Mohan, Scientist(SS) w.e.f. 30-09-2007
- Sh. DC Pant, Technical Officer(T-9) w.e.f. 30-09-2007
- Sh. Meer Singh, Technical Assistant(T-3) w.e.f. 30-09-2007

Reversion

- Smt. Shashi Jain, AAO has been reverted to the post of Assistant w.e.f. 16-08-2007

Resignation

- Ms. Sonali Dass, Scientist w.e.f. 07-09-2001

फार्म संबंधी सभी समस्याओं पर विशेषज्ञ की सलाह के लिये प्रातः 6.00 बजे से रात 10.00 बजे तक सभी सातों दिन टोल फ्री नम्बर 1551 पर डायल करें।

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