



भाकृअनुप - भारतीय कृषि सांख्यिकी अनुसंधान संस्थान
लाइब्रेरी एवेन्यू, पूसा, नई दिल्ली-110 012



ICAR – Indian Agricultural Statistics Research Institute
Library Avenue, Pusa, New Delhi-110 012

डॉ. उमेश चन्दर सूद
निदेशक

Dr. Umesh Chander Sud
Director

No. Dir/IASRI/Training/SJ/07/2017

Dated: July 28, 2017

To

Directors of ICAR Institutes/ NRCs/ Project Directors/ National Bureaux/Project Directorate/Vice Chancellors of SAU's/ Vice Chancellors of CAU's

Subject: Training Programme on **Experimental Designs and Statistical Data Analysis** for Scientific Personnel


Sir/Madam,

ICAR-Indian Agricultural Statistics Research Institute is conducting a Training Programme on **Experimental Designs and Statistical Data Analysis** during 11-20 September, 2017 under the HRM unit of ICAR. The aim of this training programme is to familiarize the participants with statistical analysis of experimental data for making valid inferences and to help them in upgrading the research, teaching and training skills. It will also provide a common forum for the agricultural scientist to interact and exchange experiences to make research and education more relevant to the current needs.

You are requested to kindly nominate one or two scientists/teachers of your institute who fulfill the eligibility criteria as given in the enclosed brochure for participating in the above training. In all, 25 participants will be selected for this course. **The nomination of the sponsored candidates through filled in application form enclosed with the brochure may please be sent to Dr. Seema Jaggi, Course Coordinator so as to reach her latest by August 11, 2017 on the address given below:**

Dr. Seema Jaggi
Principal Scientist, Head(DE) & Course Coordinator
ICAR-Indian Agricultural Statistics Research Institute,
Library Avenue, PUSA, New Delhi- 110012.
E-mail: seema.jaggi@icar.gov.in

Yours sincerely,


(U.C. Sud)

Copy to:-

All Directors / Vice Chancellors/ DDG's, ICAR / ADG (HRM), ICAR



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Director

दिनांक: जुलाई 28, 2017

सं: निदेशक/भा.कृ.सां.अ.सं./प्रशिक्षण/एस.जे./07/2017

सेवा में,

भा.कृ.अनु.प. के संस्थान/रा.अनु.केन्द्र/परियोजना निदेशालय/ब्यूरो के निदेशक/ राज्य कृषि विश्वविद्यालय के कुलपति /केन्द्रीय कृषि विश्वविद्यालय के कुलपति

विषय: वैज्ञानिकों के लिए परीक्षण अभिकल्पनाएँ एवं सांख्यिकीय आँकड़ों के विश्लेषण पर प्रशिक्षण कार्यक्रम के संबंध में।

श्रीमान/श्रीमती,

भा.कृ.अनु.प.-भारतीय कृषि सांख्यिकी अनुसंधान संस्थान, 11-20 सितंबर, 2017 के दौरान एच.आर.एम. यूनिट, भा.कृ. अनु.प. के अंतर्गत परीक्षण अभिकल्पनाएँ एवं सांख्यिकीय आँकड़ों के विश्लेषण पर एक प्रशिक्षण कार्यक्रम आयोजित कर रहा है। इस प्रशिक्षण कार्यक्रम का मुख्य उद्देश्य, प्रतिभागियों को परीक्षात्मक आँकड़ों के विश्लेषण एवं कृषि अनुसंधान आँकड़ों से वैद्य निष्कर्ष प्राप्त करने के लिए सांख्यिकीय विश्लेषण तकनीकों से अवगत कराना तथा अनुसंधान, अध्यापन एवं प्रशिक्षण के अपग्रेडेशन में उनकी मदद करना है। इससे कृषि वैज्ञानिकों को एक सांझा मंच भी मिलेगा जिसके फलस्वरूप उन्हें एक दूसरे के साथ अपने अनुभवों को बाँटने का मौका भी मिलेगा जिससे अनुसंधान एवं शिक्षा का स्तर, वर्तमान आवश्यकतानुसार और अधिक तर्कसंगत बनेगा।

आपसे अनुरोध है कि कृपया आप अपने संस्थान से एक या दो वैज्ञानिकों/अध्यापकों को उक्त प्रशिक्षण कार्यक्रम में प्रतिभागिता करने हेतु मनोनीत करें जो ब्रोशर में दिए गये निर्धारित पात्रता संबंधी मापदण्डों को पूरा करते हों। इस कार्यक्रम के लिए 25 प्रतिभागियों को चुना जाएगा। प्रायोजित प्रत्याशियों का नामांकन ब्रोशर के साथ संलग्न प्रपत्र में भरकर डॉ. सीमा जग्गी, पाठ्यक्रम संयोजक के पास अगस्त 11, 2017 तक निम्न पते पर भिजवाने की कृपा करें।

डॉ. सीमा जग्गी,

प्रमुख वैज्ञानिक, प्रभागाध्यक्ष (प.अ.) एवं पाठ्यक्रम संयोजक

भा.कृ.अनु.प.-भा.कृ.सां.अ.सं., लाइब्रेरी एवेन्यू, पूसा,

नई दिल्ली-110012

ई-मेल seema.jaggi@icar.gov.in

भवदीय

यू.सी.सूद
(यू सी सूद)

प्रति:

सभी निदेशक/ कुलपति /उप महानिदेशक (शिक्षा)/उप महानिदेशक, भा.कृ.अनु.प./सहा.महानिदेशक (एच.आर.एम.), भा.कृ.अनु.प.

Training Programme on Experimental Designs and Statistical Data Analysis

under the HRM unit, ICAR
for the Scientific personnel

(September 11 - 20, 2017)

Course Coordinators

Dr. Seema Jaggi and Dr. Arpan Bhowmik

"To call in the statistician after the experiment is done may be no more than asking him to perform a postmortem examination: he may be able to say what the experiment died of."

-Ronald Aylmer Fisher



ICAR-Indian Agricultural Statistics Research Institute
Library Avenue, Pusa, New Delhi-110012
(www.iasri.res.in)



Introduction

Data analysis plays a crucial role in any scientific investigation. It is through the data collected from designed experiments that valid inferences are drawn about any newly developed technology. The use of efficient and cost effective designs and appropriate statistical techniques for analyzing the data are very crucial to obtain a meaningful interpretation of the investigation. The subject is now well developed and with the help of statistical software, one can handle any kind of analysis. It is very vital for the researchers, particularly agricultural researchers to be acquainted with the efficient design of experiments, modern statistical techniques and use of statistical software.

This course, therefore, aims to update the analytical skills of the agricultural researchers in ICAR and to provide them with an opportunity to study and learn some of the design of experiments and analytical techniques of experimental data. The course is practical oriented and more emphasis would be given on interpretation of the results. It employs a combination of lectures and exercises using advanced statistical software like SAS and SPSS etc.

Objectives

- To update the analytical skills of the agricultural researchers
- To provide them with an opportunity to study and learn the efficient design of experiments and analytical techniques of experimental data.
- To familiarize in the use of statistical software useful for experimental data analysis

Course Contents

The course has been structured in a series of modules with classroom lectures and practical using statistical software emphasizing on Experimental Designs and Statistical Data Analysis and the use of statistical software packages. The main focus of the course will be on the statistical issues in agricultural research and algebraic details will be avoided as far as possible. Besides laying the focus on concepts and applications, the focus would also be concentrated on analysis of data using statistical packages.

Course material will be provided to all participants. The participants are requested to bring with them one or two data sets of their own research. These data sets may be analyzed using appropriate statistical analytical techniques and the results may be discussed during the course. There will be ample opportunity for every participant to express his/her research experiences in the field of their

The course content will be divided into four modules as follows:

Module I: Fundamental Statistical Tools for Data Analysis

- Descriptive Statistics
- Exploratory Data Analysis
- Testing of Hypothesis (t-test, F-test, Chi-Square)
- Data diagnostics and Transformation of Data
- Non-parametric Tests
- Correlation
- Regression

Module II: Design of Experiments

- Planning and Designing of Experiments
- Uniformity Trials
- Basic Principles of DOE
- Overview of Basic Designs
- Multiple Comparison Procedures
- Contrast Analysis
- Incomplete Block Designs
- Resolvable Designs
- Groups of Experiments
- Analysis of Covariance

Module III: Statistical Software Packages for Data Analysis

- MS Excel
- SPSS
- SAS
- Design Expert

Module IV: Designs for Multi-Factor / Response Experiments

- Factorial Experiments
- Split and Strip Plot Designs
- Response Surface Designs
- Multi-response Experiments
- Repeated Measures Data

Venue

ICAR-Indian Agricultural Statistics Research Institute,
Library Avenue, Pusa, New Delhi-110 012.

Duration

September 11-20, 2017 (10 Days)

Climate at Delhi

The climate in Delhi is pleasant during September.

ICAR-IASRI, New Delhi (<http://www.iasri.res.in>)

ICAR-IASRI is a premier Institute, established in 1959, mainly responsible for conducting research and imparting education/training in the field of Agricultural Statistics, Computer Applications and Bioinformatics. There are six divisions in the Institute and the Institute is equipped with the modern facilities that include:

- *Computing facilities:* The Institute has several computer laboratories well equipped with latest hardware and software packages along with modern teaching aids.
- *Library:* The e-library has rich collection of books and journals on Statistics, Computer Science, Bioinformatics and other related disciplines including on-line journals and bibliographic databases.
- *Guest house:* The Institute has a guest house with modest facilities to cater to the needs of the participants.

Eligibility

- Master's Degree in any discipline of Agricultural sciences/Animal sciences/Fishery sciences/ Statistics/ Computer Application.
- Working in a position not below the rank of Scientist in ICAR Institutes/ Assistant Professor in SAU's or CAU's.
- Working knowledge of Statistics and Computer.

Nominations

- Interested personnel fulfilling the eligibility conditions may apply through proper channel.

Financial Liability

- TA/DA of the participants will be met out from their respective institutes.
- Expenditure towards lunch, session tea, study material, contingency, etc. will be borne by the organizing institute from the HRD fund available.

Application Form

Training Programme on

"Experimental Designs and Statistical Data Analysis"

(September 11 - 20, 2017)

under the HRM unit of ICAR

1. Full Name (in block letter):
2. Designation:
3. Present employer and address:
4. Address to which reply should be sent (in block letters)
5. Permanent Address: _____

- Telephone No. (off.): _____ (Res.): _____
(Mob) _____ Fax No.: _____
- E-mail: _____
6. Date of Birth:
7. Sex (Male / Female):
8. Teaching/ Research / Professional Experience (mention post held during last 5 years and number of publications)
9. Marital Status: Married/Unmarried
10. Mention if you have Participated in any training (Summer/ Winter School/ Short Course, etc.) during last 5 years under ICAR / other organizations:
11. Academic Record:

Exam. passed	Subjects Main / Subsidiary	Year of Passing	Class rank/ Distinction etc.	University / Institution
Ph.D. Masters degree Other (specify)				

12. Discipline:
13. Level of knowledge of Statistics, Design of Experiments and Computer usage:

Signature of the Applicant with Date

14. Recommendations of the forwarding Institute

Signature of the forwarding Authority
with Seal and Date

CERTIFICATE

It is certified that the information furnished above is correct. Traveling allowances and dearness allowances for the entire period of stay during the training will be paid by this office.

Signature of the sponsoring Authority
with Seal and Date

Number of participants : 25

Last Date for Receipt of Applications : August, 11, 2017

Information to Selected Candidate : August 16, 2017

NOTE

Participants from SAUs/ CAUs will have to pay a fee of Rs. 6500/- per person.

All correspondence may be addressed to:

Dr. U.C. Sud,

Director, ICAR-IASRI

E-mail: director.iasri@icar.gov.in,

Fax: 011-25841564

or

Dr. Seema Jaggi,

Head (DE) and Course Coordinator

Division of Design of Experiments,
ICAR-IASRI

E-mail: seema.jaggi@icar.gov.in

Mob: 09873169418

or

Dr. Arpan Bhowmik,

Scientist and Course Coordinator,
ICAR-IASRI

E-mail: Arpan.Bhowmik@icar.gov.in;

arpan.stat@gmail.com,

Mob: 09968700360