



Teaching and Training of Agricultural Statistics

V.K. BHATIA

**Indian Agricultural Statistics Research Institute,
Library Avenue, Pusa, New Delhi-110 012, India**

www.iasri.res.in

vkbhatia@iasri.res.in; vkbhatia7251@yahoo.co.in

director@iasri.res.in; vkb7251@gmail.com

Global Strategy for Improving Agricultural Statistics

Three Pillars

- **Establishment of a minimum core data set**
- **Integration of agriculture into national statistical system**
- **Sustained efforts to build capacity and improve governance of statistical activities at all levels**

Need for Training in Agricultural Statistics

Quality of Agricultural Statistics depends on

- **Accuracy**
- **Relevance**
- **Timeliness**
- **Comparability**
- **Availability and**
- **Accessibility**

All the above dimensions need the competence and knowledge of statistical tools and as such there is an urgent requirement of capacity building and training of the personnel authorized for data collection and analysis.

Different Components of Capacity Building

- **Formulate national strategies for the development of statistics**
- **Build a network of statisticians and supporting staff including data collectors**
- **Educate staff on statistical methodology for sampling, survey design, data compilation and data analysis**
- **Develop and maintain the master sample frame, implement the new survey framework and develop the data management system**

Information about Trainees

- **Information on various attributes of the trainees is must before finalization of any training programme**
- **Number of persons to be trained**
- **Background knowledge of persons**
- **Level of trainees**
- **Availability of the trainees for training**
- **Duration of training**
- **Aptitude to acquire knowledge**
- **Incentives for the training**
- **Availability of financial resources**

Characteristics of Training Provider

- **Competent and qualified faculty**
- **Reputation and recognition of institution**
- **Well equipped laboratories facilities**
- **Upto date and enriched library**
- **Capable to imparting field training**
- **Modern class rooms fitted with audio visual gadgets**
- **Good seminar hall and other infrastructures**
- **International standards hostel facilities**
- **Capable of customisation of the training**
- **Facilities for e-learning**

Indian Agricultural Statistics Research Institute (IASRI)

- **Formal and Informal Training Modules**
- **Short Term Certificate Courses**
- **Long Term Courses Leading to M.Sc/ Ph.D. degrees**
- **Ad-hoc Training Programmes**
- **Customized, Demand Driven and Tailor Made Courses**
- **Designing of Different Training for Various Levels**
- **Formulation of Advanced Level Courses on Specialized Topics like Small Area Statistics, Sampling for Multiple Frames, Multivariate Traits, **Remote Sensing and GIS****
- **Regular Summer/ Winter Schools on Specific Areas**
- **E-Learning and E-Courses**

Short Term Certificate Course

- **Senior Certificate Course In Agricultural Statistics And Computing**
 - Main aim is to train the participants in the use of latest statistical techniques as well as use of computers and software packages
 - This course is for the benefit of research workers engaged in handling statistical data collection, processing, and interpretation
 - Employed in research Institutes, Agricultural Universities and State Government Agriculture/ Animal Husbandry/ Fisheries/ Food Departments, etc.
 - Participants from foreign countries are welcomed.
- **Two Independent Modules of Three Months Duration**
 - Statistical Methods and Official Agricultural Statistics,
 - Use of Computers in Agricultural Research,
 - Sampling Techniques,
 - Econometrics and Forecasting Techniques,
 - Design of Experiments and Statistical Genetics.

Longer Duration Training Leading To M.Sc. / Ph.D. Degrees Programmes

Post Graduate Degree Courses

- **Ph.D. in Agricultural Statistics**
- **M.Sc. in Agricultural Statistics**

Areas of Specialization

- Sample Surveys
 - Design of Experiments
 - Statistical Genetics
 - Statistical Modelling
 - Crop Forecasting Techniques
- **M.Sc. in Computer Application**

Admission of Foreign Students

Admission:

- Foreign students seeking admission shall forward their applications through their respective Embassies / Missions at New Delhi or
- Through the respective Indian Missions abroad to the Government of India / Secretary, DARE, Krishi Bhawan, New Delhi -110 001.

Eligibility:

- Foreign students are exempted from appearing in the written test and interview. Admission shall be made on the scrutiny of the biodata and on the recommendations of the Professor of the concerned discipline.

International Fellowships:

- The Indian Council of Agricultural Research (ICAR) provides fellowship to overseas nationals having Master's degree in Agriculture and allied sciences for the "ICAR International Fellowships (ICAR-IFs)". The ICAR-IFs are available for pursuing doctoral degree in agriculture and allied sciences, in the identified priority areas, to overseas candidates for study in the best Indian Agricultural Universities (AUs) in the ICAR-AUs system. Detailed guidelines, priority areas of study and application proforma can be seen from ICAR website.

ICAR International Fellowships

India - Africa Fellowships:

- To support the agricultural Human Resource Development in Africa through formal education of African Scientists/ faculty, India has started to offer 75 fellowships each year for M.Sc. and Ph.D. Degree programmes in agriculture for 4 years.

India-Afghanistan Fellowships:

- To support the agricultural Human Resource Development in Afghanistan, India will offer 115 fellowships each year for M.Sc. and Ph.D. Degree programmes in agriculture to the faculty members and fresh students for five years to the Afghan nationals to study in India.
- The ICAR-IFs are available for pursuing doctoral degree in agriculture and allied sciences, in the identified priority areas, to overseas candidates for study in the best Indian Agricultural Universities (AUs) in the ICAR-AUs system. Detailed guidelines, priority areas of study and application proforma can be seen from ICAR website.

National/ International Training Programmes

- **Programmes under Centre of Advanced Faculty Training**
- **Summer/Winter Schools in Agricultural Statistics and Computer Applications**
- **Customised Training Programmes**
- **International Training Programmes**
- **Training for Corporate Sector**
- **Ad Hoc Training Programmes**

International Training Programmes

- The Institute conducts several customised international training programmes on request from international organisations like FAO, AARDO, CGIAR, ICARDA, CIMMYAT, and for many African, Asian and Latin American countries. Recently the following trainings were organised.
- An International training Programme on **Advances in Design and Analysis of Experiments** at ICARDA, Aleppo Syria
- An International Training Programme on **Applications of Remote Sensing and GIS in Agricultural Surveys** sponsored by Afro Asian Rural Development Organization (AARDO)
- An International training programme on **Experimental Designs and Data Analysis** for the CAC Staff at Tashkent
- Training Programme on **Applications of Remote Sensing and GIS in Agricultural Surveys** sponsored by AARDO is running

Customised Training Programmes

- These training courses are tailor made and demand driven. Recently, the following were organised for different organisations.
- A training programme on **Data Analysis with Statistical Tools** sponsored by Central Statistical Organization (CSO)
- A refresher course on **Applications of Information Technology in Statistical Computing and Data Dissemination Techniques** for in-service ISS officers and senior officers of State Governments/UT for Central Statistical Organization (CSO)
- A refresher training course on **Research Methodology for Official Statistics** sponsored by CSO, for Indian Statistical Service (ISS) officers and other middle level statistical personnel
- A refresher training programme on **Small Area Estimation** for the Indian Statistical Services and other senior officers of States/Union Territories
- A refresher training programme on **Agricultural Statistical System in India** for Statistical Personnel of States/UTs/PSUs
- Training programme on **Use of STATA, R and SPSS software packages**
- Training for **corporate sector**

Role and Requirement for Survey Statistician

- Use of statistical theory and techniques to the survey planning,
- Organization and finalisation of programs for
 - Collection of data
 - Verification,
 - Adjusting,
 - Processing,
 - Summarizing,
 - Analyzing and
 - Presenting reports
- Planning and execution of the census of agriculture and complete surveys of any type and size
- Detailed practical plans for
 - Data processing systems;
 - Design systems to control incoming data collection materials;
 - Develop scheduling and data management procedures; and
 - Programming for a variety of tabulation methods and summarization of data.
- Prepare estimates relating to acreages, production of farm crops, number of livestock and its products, fisheries, stocks of agricultural commodities & prices

Training Needs for the Conduct of Sample Surveys

Training is required for almost all concerned with the conduct of sample surveys

- Senior managers responsible for the conduct of survey
- Professional Statisticians
- Others professionals including ICT personnel
- Technical personnel for designing questionnaire
- Supervisors
- Field investigators
- Field enumerators
- Staff for data compilation
- Statistical personnel for data processing and analysis
- Statistical staff for preparation and presentation of reports

Training Needs

Steps for conduct of Sample Surveys	Training Needs at Various Levels
Planning, Formulation of Problem, Objectives and Scope of the Survey	Technical officials needs to be trained
Sampling Design, Construction of Sampling Frame, Population Taken. Sample Size, Sample Selection	Training to be imparted to high level officials and technical officials
Data Collection, Methods of Collecting Data, Designing and Testing of Schedules , Instruction Manuals	Technical Officials as well as field supervisors, field investigators/ enumerators/ primary workers
Scrutiny, Editing and Tabulation of Data	Training to be imparted to data processing staff
Processing and Presentation of Data	Technical officials needs to be trained
Data Analysis according to the Survey Designed Estimation Procedure	Technical officials to be trained for data analysis using statistical and survey software
Interpretation of Data and Writing of Report, Presentation of Results	Technical officials needs to be trained for this purpose

E-Resources and E-Learning

Design Resource Server

<http://www.iasri.res.in/design>

- Useful for Experimenters
- Useful for Research Statisticians
- Other Useful Links
- Viewed by researchers from 867 cities 97 countries in 6 continents
- An eLearning Solution for Agricultural Education using MOODLE

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- The Fifth International Conference on Agricultural Statistics
- FAO
- World Bank

References

- An Era Of Excellence - Indian Agricultural Statistics Research Institute Publication (2009)
- Dahiya, Shashi (2009). eLearning Solution for Agricultural Education using MOODLE. IASRI Annual Report, 44-45.
- Indian Agricultural Statistics Research Institute Annual Report (2009-2010)
- Indian Agricultural Statistics Research Institute, International Training Manual (2009-2010)
- Jaggi, Seema, Bhatia, V.K. and Malhotra, P.K. (2009). Teaching and Training Activities at IASRI. *IASRI- An Era of Excellence*, IASRI Golden Jubilee Publication, 185-190.
- Malhotra, P.K. and Goyal, R.C. (2009). Information and Software Development at IASRI: An Overview. *IASRI-An Era of Excellence*, IASRI Golden Jubilee Publication, 161-184.
- Mishra, Prachi and Sud, U.C. (2010). Training Needs for Sample Surveys.
- Prasad, R and Gupta, V.K . (2009). Design Resources Server, IASRI, New Delhi.

Wishing
AGRICULTURAL STATISTICAL SYSTEM
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SOUND, EFFECTIVE, USEFUL AND ICT
ENABLED
STATISTICAL LEARNING ENVIRONMENT
for
GOOD GOVERNANCE

Thanks