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## Introduction

ICAR-Indian Agricultural Statistics Research Institute (IASRI) is a pioneer Institute of Indian Council of Agricultural Research (ICAR) undertaking research, teaching and training in Agricultural Statistics, Computer Application and Bioinformatics. Ever since its inception way back in 1930, as small Statistical Section of the then Imperial Council of Agricultural Research, the Institute has grown in stature and made its presence felt both nationally and internationally. ICAR-IASRI has been mainly responsible for conducting research in Agricultural Statistics and Informatics to bridge the gaps in the existing knowledge. It has also been providing education/ training in Agricultural Statistics and Informatics to develop trained manpower in the country. The research and education is used in improving the quality and meeting the challenges of agricultural research in newer emerging areas. The Institute has been awarded an ISO 9001:2008 certificate in the year 2013. ICAR Data Centre established at ICAR-IASRI acquired the certification for ISO/IEC 20000 & ISO/IEC 27001 in October, 2015.

ICAR Data Centre has been continuously providing the Unified Communication (Email, Audio, Video, Web conference etc.) and Webhosting service to ICAR and its Institutes.

The Institute has used the power of Statistics, as a science, blended judiciously with Informatics and has contributed significantly in improving the quality of Agricultural Research. To convert this vision into a reality, the Institute has set for itself a mission to undertake research, teaching and training in Agricultural Statistics and Informatics so that these efforts culminate into improved quality of agricultural research and also meet the challenges of agricultural research in newer emerging areas. The present main thrust of the Institute is to conduct

basic, applied, adaptive, strategic and anticipatory research in Agricultural Statistics and Informatics, to develop trained manpower and to disseminate knowledge and information produced so as to meet the methodological challenges of agricultural research in the country.

The Institute has made its presence felt in the National Agricultural Research and Education System (NARES). The Institute feels proud to have established the first supercomputing hub for Indian Agriculture, ASHOKA (Advanced Super-computing Hub for OMICS Knowledge in Agriculture). Linkages have been established with all National Agricultural Research organizations for strengthening statistical computing. For providing service oriented computing for the users, Indian NARS Statistical Computing portal has been developed. Appropriate statistical techniques have been developed and recommended to researchers through advisory services. The Institute is also becoming progressively a repository of information on agricultural research data with the establishment of a Data Centre. The Institute also occupies a place of pride in the National Agricultural Statistics System (NASS) and has made several important contributions in strengthening NASS, which has a direct impact on the national policies. The Institute has contributed significantly by providing excellent human resource to NARES in the country in the disciplines of Agricultural Statistics and Informatics for meeting the challenges of Agricultural Research in the newer emerging areas. Conducting post graduate teaching and in-service courses in Agricultural Statistics, Computer Application and Bioinformatics for human resource development is an important activity.

The Institute has made some outstanding and useful contributions to research in Agricultural Statistics in the fields like Design of Experiments, Statistical

Genetics, Forecasting Techniques, Statistical Modelling, Sample Surveys, Econometrics, Computer Applications in Agriculture, Software Development, etc. The Institute has conducted basic and original research on many topics of interest and has published number of papers in national and international journals of repute. The Institute has been providing and continues to provide support to the NARES by way of analyzing voluminous data using advanced and appropriate analytical techniques. It has also been very actively pursuing advisory services that have enabled to enrich the quality of agricultural research in the NARES. Besides, many projects funded by Government and Public Sector agencies like Department of Science and Technology, Directorate of Economics and Statistics, Ministry of Agriculture, Planning Commission, Ministry of Statistics and Programme Implementation (MoS&PI), Coconut Development Board have been undertaken. Some of these projects were taken on request from several Government agencies and others were awarded through competitive bidding. This has helped the Institute in resource generation as well. The Institute works in close collaboration with NARES organizations and many projects are being run in collaboration with All India Co-ordinated Research Projects and ICAR Institutes. Further linkages with the CGIAR organizations such as CIMMYT, IRRI and ICARDA have been developed. The institute has been recently awarded a study by Food and Agriculture Organization (FAO) under the Global Strategy to Improve Agricultural and Rural Statistics on improving methods for estimating crop area, yield and production under mixed, repeated and continuous cropping.

### Significant Research Achievements

A brief discussion on the research achievements of the Institute in different areas of Agricultural Statistics and Informatics are outlined below.

### Design of Experiments

The Institute has made many notable contributions in both basic research and innovative applications of the theory of statistical designs and analysis of experimental data. Some of the areas are:

- Designs for single factor experiments which include variance balanced, efficiency balanced, and partially efficiency balanced designs; designs for tests versus control(s) comparisons; designs for multi-response experiments; crossover designs; designs with nested structures; neighbour balanced designs; optimality and robustness aspects of designs.
- Designs for multi-factor experiments which include confounded designs for symmetrical and asymmetrical factorials; block designs with factorial structure; response surface designs, mixture experiments for single and multifactor experiments; orthogonal main effect plans; orthogonal arrays; supersaturated designs.
- Designs for bioassays; designs for microarray experiments and designs for agroforestry experiments.
- Diagnostics in designed field experiments.
- Computer aided construction of efficient designs for various experimental settings; etc.
- For dissemination and e-advisory on designed experiments, developed a Design Resources Server ([www.iasri.res.in/design](http://www.iasri.res.in/design)) which is being viewed throughout the globe and used extensively in NARES.
- Web solutions for generation of experimental designs and online analysis of experimental data for different experimental settings.
- The scientists of the Institute participate actively in planning and designing of experiments in the NARES and have also involved themselves in the analysis of experimental data.
- Basic research work carried out on balanced incomplete block designs, partially balanced incomplete block designs, group divisible designs,  $\alpha$ -designs, reinforced  $\alpha$ -designs, square and rectangular designs, nested designs, augmented designs, extended group divisible designs, factorial experiments, response surface designs, experiments with mixtures etc. have been adopted widely by the experimenters in NARES.
- Designs for factorial experiments such as response surface designs and experiments with mixtures have been used for food processing and value addition experiments; soil test crop response correlation experiments; experiments with fixed quantity of inputs and ready to serve fruit beverage experiments; etc.
- Analytical techniques based on mixed effects models and biplot developed for the analysis of data generated from Farmers Participatory Trials for resource conservation agriculture have been used by rice-wheat consortium for Indo-Gangetic plains for drawing statistically valid conclusions.
- Analytical techniques for the analysis of data from the experiments conducted to study the post harvest storage behaviour of the perishable

commodities like fruits and vegetables are being widely used in NARES.

- Planning, designing and analysis of data relating to experiments under AICRPs on (i) Integrated Farming System (IFS); (ii) Long Term Fertilizer Experiments (LTFE); (iii) Soil Test Crop Response Correlation (STCR); (iv) Rapeseed and Mustard; (v) Sorghum; (vi) Wheat and Barley and (vii) Vegetable Crops.

### Sample Surveys

The subject of sampling techniques helps in providing the methodology for obtaining precise estimates of parameters of interest. The Institute is involved in evolving suitable sample survey techniques for estimation of various parameters of interest relating to crops, livestock, fishery, forestry, horticulture, perishable commodities like flowers, vegetables and allied fields.

- Significant contributions have been made in theoretical aspects of sample surveys like successive sampling, systematic sampling, cluster sampling, sampling on successive occasions, sampling with varying probabilities, controlled selection, balanced sampling plans, ranked set sampling, nonsampling errors, analysis of complex surveys, various methods of estimation such as ratio, regression and product methods of estimation, use of combinatorics in sample surveys and of late small area estimation as well as use of calibration approach in developing improved estimators.
- The methodology for General Crop Estimation Surveys (GCES), cost of cultivation studies for principal food crops, cash crops and horticultural crops, Integrated Sample Surveys (ISS) for livestock products estimation, fruits and vegetable survey are being adopted throughout the country and many Asian and African countries.
- Methodology based on small area estimation technique for National Agricultural Insurance Scheme, also called Rashtriya Krishi Bima Yojana, suggested by the Institute has been pilot tested in the country.
- The sample survey methodology for imported fertilizer quality assessment, estimation of fish catch from marine and inland resources, flower production estimation, area and production of horticultural crops estimation, etc. has been developed and passed on to the user agencies.
- Integrated methodology for estimation of multiple crop area of different crops in North Eastern Hilly

Regions using Remote Sensing data has been developed.

- Sampling methodology for estimation of post harvest losses has been successfully adopted in AICRP on Post Harvest Technology for Assessment of Post Harvest Losses of Crops/ Commodities.
- Reappraisal of sampling methodologies, evaluation and impact assessment studies like studies to make an assessment of Integrated Area Development programmes, High Yielding Varieties programmes, Dairy Improvement programmes, Evaluation of cotton production estimation methodology etc. have been undertaken. Most of the methodologies developed are being adopted for estimation of respective commodities by the concerned state departments.
- Institute is regularly publishing the Agricultural Research Data Book since 1996. It contains information pertaining to agricultural research, education and other related aspects compiled from different sources.
- For providing e-advisory and e-learning in sample surveys, initiated a Sample Survey Resources Server (<http://js.iasri.res.in/ssrs/>) which also provides calculator for sample size determination for population mean and population proportion among other material.

### Statistical Genetics and Genomics

The Institute has made significant contributions in statistical genetics/ genomics for improved and precise estimation of genetic parameters, classificatory analysis and genetic divergence etc.

- Developed procedures for estimation of genetic parameters; construction of selection indices; studying  $G \times E$  interactions; progeny testing and sire evaluations; detection of QTLs, classification of genotypes using molecular marker data, etc.
- The modification in the procedure of estimation of genetic parameters has been suggested for incorporating the effect of unbalancedness, presence of outliers, aberrant observations and non-normality of data sets.
- Procedures for studying genotype environment and QTL environments interactions have been used for the analysis of data generated from crop improvement programmes.
- The research work on construction of selection indices, progeny testing and sire evaluation have

been used for animal improvement programmes.

- The Institute has initiated research in the newer emerging area of statistical genomics such as rice genome functional elements information system; comparative genomics and whole genome association analysis. The establishment of a National Agricultural Bioinformatics Grid (NABG) is a landmark in this direction.
- A number of databases and web services have been developed which include pigeonpea microsatellite database, buffalo microsatellite database, genome sequence submission portal, biocomputing portal, livestock EST database, insect barcode database, tomato microsatellite database, goat microsatellite database.
- Supercomputing facility (High Performance Computing System) has been established for biological computing and bioinformatics.

### **Statistical Modelling and Forecasting for Biological Phenomena**

Statistical modelling of biological phenomena is carried out by using linear and non-linear models, non-parametric regression, structural time series, fuzzy regression, neural network and machine learning approaches.

- Developed models for pre-harvest forecasting of crop yields using data on weather parameters; agricultural inputs; plant characters and farmers' appraisal.
- Models have been developed using weather and growth indices based regression models, discriminant function approach, markov chain approach, bayesian approach, within year growth models and artificial neural network approach.
- Methodologies for forewarning important pests and diseases of different crops have been developed which enable the farmers to use plant protection measures judiciously and save cost on unnecessary sprays.
- Methodology developed for forecasting based on weather variables and agricultural inputs was used by Space Application Centre, Ahmedabad to obtain the forecast of wheat yield at national level with only 3% deviation from the observed one.
- Models developed for forewarning of aphids in mustard crop were used by Directorate of Rapeseed and Mustard Research, Bharatpur to provide forewarning to farmers which enabled them to optimize plant protection measures

and save resources on unnecessary sprays consecutively for three years.

- Forecasting of volatile data has been attempted through non-linear time series models. Such models were developed for forecasting onion price, marine products export, lac export, etc.
- Non-linear statistical models were developed for aphid population growth and plant diseases. Modelling and forecasting of India's marine fish production was carried out using wavelet methodology. The models developed have potential applications in long term projections of food grain production, aphid population, marine fish production, etc.
- The Technology Forecasting methods such as scenario creation, Delphi survey and cross-impact analysis, technology road-mapping, analytic hierarchy process (AHP) etc. have been employed in various sub-domains of agriculture.
- Created a web solution for estimation of compound growth rate and several other resources.

The Institute has made significant contributions in understanding the complex economic relationship of the factors like transportation, marketing, storage, processing facilities; constraints in the transfer of new farm technology to the farmers field under different agro-climatic conditions of the country.

- Some of the important contributions of the Institute are measurement of indemnity and premium rates under crop revenue insurance, production efficiency and resource use, impact of micro-irrigation, technological dualism/ technological change, return to investment in fisheries research and technical efficiency of fishery farms, the impact of technological interventions, price spread and market integration, price volatility and a study on the dietary pattern of rural households.

### **Information Communication Technology**

ICAR-IASRI is pioneer in introducing computer culture in agricultural research and human resource development in information technology in the ICAR. The Institute has the capability of development of Information Systems, Decision Support Systems and Expert Systems. These systems are helpful in taking the technologies developed to the doorsteps of the farmers.

- The Institute has developed information system for designed experiments which includes



agricultural field experiments, animal experiments and long term fertilizer experiments conducted in NARES as research data repositories.

- A comprehensive Personnel Management Information System Network (PERMISnet) has been implemented for the ICAR for manpower planning, administrative decision making, and monitoring. A Project Information and Management System Network (PIMSnet) was developed and implemented for concurrent monitoring and evaluation of projects. This is being developed as a Project Information and Management System for all ICAR projects. A National Information System on Agricultural Education Network in India (NISAGENET) has been designed, developed and implemented so as to maintain and update the data regularly on parameters related to agricultural education in India.
- Online Management System for Post Graduate Education has been developed and implemented for PG School, IARI, New Delhi. The Institute has taken a lead in the development of Expert Systems on wheat crop, maize crop and seed spices. AgriDaksh has been developed for facilitating the development of expert systems for other crops.
- Web based software for Half Yearly Progress Monitoring (HYPM) of scientists in ICAR (<http://hypm.iasri.res.in>) has been developed and implemented from April 2012 for online submission of data regarding the proposed targets and the achievements for the half yearly period. It enables to monitor online progress of the scientists, manpower status, research projects, prioritized activities and salient research achievements at institute/SMD/ICAR level.
- Realizing the need of integration of databases to prepare a comprehensive knowledge warehouse that can provide desired information in time to the planners, decision makers and developmental agencies, Integrated National Agricultural Resources Information System (INARIS) has been developed. The data warehouse comprises of databases on agricultural technologies of different sectors of agriculture and related agricultural statistics at district/state/national levels, population census including village level population data as well as tehsil level household assets and livestock census. Subject-wise data marts have been designed, multi-dimensional data cubes developed and published in the

form of on-line decision support system. It is being developed as knowledge data warehouse through the development of Knowledge Management for Agricultural Research and Technologies (KMART). The system also provides facility of spatial analysis of the data through web using functionalities of Geographic Information System (GIS).

- Strengthened Statistical Computing facilities in NARS, helped in capacity building in the usage of high end statistical computing and developed Indian NARS Statistical Computing Portal for providing service oriented computing to the researchers of NARES, which has paved the way for publishing agricultural research in high impact factor journals.
- A number of software and web solutions have been developed for the agricultural research workers: Statistical Package for Agricultural Research (SPAR) 2.0, Statistical Package for Block Designs (SPBD) 1.0, Statistical Package for Factorial Experiments (SPFE) 1.0, Statistical Package for Augmented Designs (SPAD) 1.0, Software for Survey Data Analysis (SSDA) 1.0, Statistical Package for Animal Breeding (SPAB) 2.1, Online Analysis of Block Designs, Web Generation and Analysis of Partial Diallel Crosses, Web Generation of Designs Balanced for Indirect Effects of Treatments etc.
- A Vortal has been designed and developed to facilitate online management of all training programs [Centre for Advanced Faculty Training (CAFT), Summer-Winter Schools (SWS) and Short Courses (21/10 days duration)] under Capacity Building Program (CBP) sponsored by Agricultural Education Division, ICAR.
- For providing transparency in day to day work of the ICAR/Institute, ICAR-ERP system has been implemented with the Financial Management, Project Management, Material Management, Human Resource Management and Payroll System modules. The system is hosted on IASRI website and can be accessed through URL <http://icarerp.iasri.res.in>. It can also be visited through <http://www.iasri.res.in/misfms/>.

### Human Resource Development

One of the thrust areas of the Institute is to develop trained manpower in the country in the disciplines of Agricultural Statistics and Informatics for meeting the challenges of agricultural research in the newer emerging areas.

- The Institute conducts degree courses leading to M.Sc. and Ph.D. in Agricultural Statistics, M.Sc. and Ph.D. in Computer Application and M.Sc. in Bioinformatics in collaboration with Indian Agricultural Research Institute (IARI), New Delhi. Ph.D. degree in Bioinformatics has also been initiated from academic session 2014-15. The Institute has so far produced 191 Ph.D. and 336 M.Sc. students in Agricultural Statistics, 120 M.Sc. students in Computer Application and 11 M.Sc. students in Bioinformatics.
- The Institute is functioning as a Centre of Advanced Studies in Agricultural Statistics and Computer Application (CAS) re-named as Centre of Advanced Faculty Training (CAFT). Under this programme, the Institute organizes training programmes on various topics of interest for the benefit of scientists of NARES. These training programmes cover specialized topics of agricultural sciences. So far, 66 training programmes have been organized under the aegis of CAS/CAFT and in all a total of 1172 participants have been benefited.
- The Institute conducts the Senior Certificate Course in Agricultural Statistics and Computing. This course is of six months duration and lays more emphasis on statistical computing using statistical software. The course is divided into two modules viz. (i) Statistical Methods and Official Agricultural Statistics, and (ii) Use of Computers in Agricultural Research, of three months duration each. In all 89 participants have completed both the modules, 42 have completed module-I and 23 have completed module-II since 1997.
- There is another form of training course, which are tailor made courses and are demand driven. The coverage in these courses is need based and the courses are organized for specific organizations from where the demand is received. The Institute has conducted such programmes for Indian Council of Forestry Research, Indian Statistical Service probationers, State Department of Agriculture and senior officers of Central Statistical Office and many other organizations.
- The Institute has also conducted several international training programmes on request from FAO, particularly for African, Asian and Latin American countries.
- The Institute has broadened the horizon of capacity building by opening its doors to the agro-based private sector. One such training

programme was organized for research personnel of E.I. DuPont Pvt. Ltd. The Institute has also conducted training programmes for the scientists/research personnel of CGIAR organizations such as ICARDA and Rice-Wheat Consortium for Indo-Gangetic plains.

### Infrastructural Development

As the activities of the Institute have expanded in all directions, the infrastructure facilities are also expanding. An important landmark in the development of the Institute was the installation of an IBM 1620 Model-II Electronic Computer in 1964. A third generation computer Burroughs B-4700 system was installed in March 1977 and then replaced in 1991 by a Super Mini COSMOS-486 LAN Server with more than hundred nodes consisting of PC/AT's, PC/XT's and dumb terminals all in a LAN environment. Later, COSMOS-486 LAN Server was replaced by a PENTIUM-90 LAN Server having state-of-art technology with UNIX operating system. Computer laboratories equipped with PCs, terminals and printers, etc. had been set up in each of the six Scientific Divisions as well as in the Administrative Wing of the Institute.

Keeping pace with the emerging technologies in the area of Information Technology (IT), the computing infrastructure have been constantly upgraded/replaced with newer platforms and versions. The computing environment in the Institute has latest computing and audio visual equipments i.e. High Performance Computing having 144 cores Intel HPC cluster, rack mount & redundant SMPS servers, workstations, desktops, laptops, netbooks, documents printing & scanning, DVD duplicator, visualiser and wireless multimedia projectors etc. The Institute is also well equipped with 100 MBps bandwidth fiber optics backbone wired and wireless networking campus.

The first supercomputing hub for Indian Agriculture ASHOKA (Advanced Super-computing Hub for OMICS Knowledge in Agriculture) established at IASRI, was dedicated to the Nation on 15 January 2014. In order to provide access to this advanced computing facility to researchers, a National Bio-Computing Portal has been launched through which authenticated users will be able to perform their biological data analysis. This portal consists of number of computational biology and agricultural bioinformatics software/workflow/pipelines which will be able to automate routine biological analytics in seamless manner. This super-computing hub consists of hybrid architecture with high performance computing having (i) 256 nodes Linux cluster with two

masters, 3072 cores and 38 Tera Flops computing, (ii) 16 nodes windows cluster with one master, (iii) 16 nodes GPU cluster with one master with 192 CPUs + 8192 GPUs and (iv) SMP based machine with 1.5 TB RAM. Also, this hub has approximately 1.5 Peta Byte storage divided into three different types of storage architecture i.e. Network Attached Storage (NAS), Parallel File System (PFS) and Archival. This hub also consists of super-computing systems (16 node Linux cluster with one master and 40 TB storage) at National Bureau of Plant Genetic Resources (NBPGR) New Delhi, National Bureau of Animal Genetic Resources (NBAGR) Karnal, National Bureau of Fish Genetic Resources (NBFR) Lucknow, National Bureau of Agriculturally Important Microbes (NBAIM) Mau and National Bureau of Agriculturally Important Insects (NBAII), Bangalore which forms a National Agricultural Bioinformatics Grid in the country.

There are various labs in the Institute for dedicated services like ARIS lab for training, Statistical computing lab, Student lab and Centre of Advanced Study lab. An Agricultural Bioinformatics Lab (ABL) fully equipped with software and hardware to study crop and animal biology with the latest statistical and computational tools was also established. Business Intelligence Server has also been installed for statistical computing for NARES. A laboratory on Remote Sensing (RS) and Geographic Information System (GIS) was created in the Institute. The laboratory is equipped with latest state-of-art technologies like computer hardware and peripherals, Global Positioning System (GPS), software like ERMapper, PCARC/INFO, Microstation 95, Geomedia Professional, ARC/INFO Workstation and ERDAS Imagine with the funds received through two AP Cess Fund projects. This computing facility has further been strengthened with the procurement of ARC-GIS software.

Some of the important available software are SAS 9.2, 9.3, 9.4 JMP 8.0, 9.0, 10.0 JMP Genomics 4.0, 5.1, 6.0, SAS BI Server 4.2, SPSS, SYSTAT, GENSTAT, Data warehouse software – Cognos, SPSS clementine, MS Office 2007, Linux OS, MS Visual Studio.net, MS-SQL Server, Microsoft SQL DBMS, Microsoft Exchange 2013, Microsoft Lync 2013, Unix based AIX Operating System, Oracle, Oracle Fusion Middleware 12C, Oracle ERP Release 12.1.3, Macro-Media, E-views, STATISTICA Neural Networks, Gauss Software, Minitab 14, Maple 9.5, Matlab, Web Statistica, Lingo Super, Discovery Studio, CLC Bio, SAS Modules of Text Mining and Data Management & Integration, ArcGIS among others.

A laboratory has been created in the computer division to facilitate training. The laboratory is equipped with 25 desktop computers with digital board. It has centralized AC facility. Another video-conferencing lab has been setup to facilitate video-conferencing. Network Operating Centers (NOC) have been created in the ground and second floor of the computer center building to manage the computing infrastructure and services. Auditorium of the institute has been renovated with latest infrastructure.

Local Area Network of IASRI has been strengthened with state of art Ethernet Passive Optical Network (EPON) with 344 nodes. The technology has triple play service Data, Video and Voice with modular planning. The networking services at IASRI have been further strengthened. The entire IASRI campus is Wi-Fi enabled with a high speed internet connection to allow the staff and students to access the internet no-matter wherever they are. The coverage of Wi-Fi is not only restricted to labs but also extends to all the areas including library, auditorium and hostels.

The Institute's domain service like Primary and Secondary DNS, Domain (iasri.res.in) Website (<http://www.iasri.res.in>), Live E-mail services, more than 462 network nodes and number of various Online Information Systems are being developed and maintained by the Institute.

The Library of ICAR-IASRI is considered as a well known and specialized library in terms of its resources in the form of print and electronic format in the field of agricultural statistics, computer applications, bioinformatics and allied sciences. It is recognized as one of the regional libraries under NARES with best IT agricultural library under ICAR system. During the XI Plan period, the library has undergone changes in terms of its resources. It has strengthened the resource base in terms of core foreign journals. With procurement of online and CD-ROM bibliographical databases the awareness for the use of databases has increased and users are able to access scientific information in the field of their interest quickly by clicking of a button. All house keeping activities of the library have been computerized and bar-coded and all bonafide library users have been issued electronic membership cards and all Ph.D. and M.Sc. Thesis have been digitized and given access to users through LAN. Library of the Institute got associated with CERA in terms of electronic document delivery services. The library reading room has been renovated with 5 split air conditioners to provide congenial environment for readers. All library users were given training to access on-line services available in the library.

ICT Infrastructure and Unified Messaging and Web Hosting facilities have been created. The facilities provide email solution for all employees of ICAR with features of unified messaging at desktop of users. Web hosting environment facilitates use of website/ applications developed by ICAR institutes.

There are three well furnished hostels, viz. Panse Hostel-cum-Guest House, Sukhatme Hostel and International Training Hostel to cater to the residential requirements of the trainees and students.

### Organizational Set-up

The Institute is having six Divisions, one Unit and three Cells to undertake research, training, consultancy, documentation and dissemination of scientific output.

### Divisions

- Design of Experiments
- Statistical Genetics

- Forecasting and Agricultural Systems Modeling
- Sample Surveys
- Computer Applications
- Centre for Agricultural Bioinformatics [CABin]

### Unit

- Institute Technology Management Unit (ITMU)

### Cells

- Prioritisation, Monitoring and Evaluation (PME) Cell
- Training Administration Cell (TAC)
- Consultancy Processing Cell (CPC)

### Financial Statement

The Institute was able to ensure optimal utilization of funds available in the budget. The actual utilization of the budget both under plan and non-plan is furnished as:

### Budget Allocation vis-à-vis Utilization (2015-16) Institute Plan & Non-Plan

Head of Accounts	(Rs. in lakhs)			
	Allocation		Expenditure	
	Non-Plan	Plan	Non-Plan	Plan
Pay & Allowances + Pension & other retirement benefits	2636.50000	0.00000	2591.73389	0.00000
TA	6.04000	6.25000	6.03981	6.24661
OTA	0.40000	0.00000	0.20816	0.00000
HRD	10.00000	0.77000	8.08345	0.74390
Fellowship	52.00000	0.00000	51.99891	0.00000
Research & Operational	10.00000	10.41000	9.20668	8.32171
Equipments	7.00000	17.64000	4.24361	17.58527
Information Technology	0.00000	0.00000	0.00000	0.00000
Furniture	0.00000	0.36000	0.00000	0.34538
Works	0.00000	25.00000	0.00000	25.00000
Library	0.00000	40.00000	0.00000	39.99702
Loan & Advances	6.00000	0.00000	3.96000	0.00000
Administrative Expenses	526.00000	75.19000	499.98369	75.06836
Guest House Maintenance	1.00000	1.55000	0.92961	1.54529
Other Miscellaneous	0.00000	203.83000	0.00000	203.83078
<b>Total</b>	<b>3254.94000</b>	<b>381.00000</b>	<b>3176.38781</b>	<b>378.68432</b>

### Staff Position (as on 31 March 2016)

Manpower	No. of posts sanctioned	No. of posts filled
Director	1	1
Scientific	130	64
Technical	215	65
Administrative	84	65
Canteen	14	8
Skilled Supporting Staff	78	40
<b>Total</b>	<b>522</b>	<b>243</b>

2 Technical Officials and 2 Skilled Supporting Staff who are having disabilities are being paid double amount of Transport Allowance and they are also being allowed additional rebate in Income tax as per rules.