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## Present Status of Agricultural Statistics in India

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During last few decades Statistics has penetrated into almost all sciences like agriculture, biology, business, social, engineering, medical sciences, etc. Its wide and varied applications have lead to the growth of many branches, such as Industrial Statistics, Biometrics, Biostatistics and Agricultural Statistics.

In addition to the above, some new branches have also emerged as distinct entities or subjects with a bulk of statistical techniques specific to their application areas for example computational statistics, Data Mining, Data Analysis, Data Comprehension, Artificial Intelligence, Machine Learning, etc.

Agricultural Statistics comprises the area of statistical science that deals directly with the problems of field experimentation and interpretation of results in agricultural sciences. It was R.A. Fisher whose dedication and continued efforts put the statistical science on a strong mathematical foundation. The theory of experimental designs and other statistical techniques developed by Fisher constitute the backbone of the Agricultural Statistics. In advanced countries with established scientific tradition there is continuing concern with validity of data and validity of conclusions. In underdeveloped or even in developing countries the principle of authority is still dominant, the question of validity scarcely arises. Statistics, therefore, remains a matter of formal or administrative sanctions, anything having the official stamp must be accepted as authoritative. In a village economy the information available within the village or in neighboring villages is enough for all practical purposes. The question of comparability or computability does not arise. But now the scenario has changed after globalization and industrialization, the need of statistics of increasing coverage and accuracy becomes more and more insistent. India has already reached this stage; however, the statistical system in other developing countries is unable to meet the need.

The future of statistics needs to be discussed in view of recent development in information technology such as data mining, data communication and information processing networks and requirement of end users.

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The current statistical methodology based on probabilistic models and developed for the analysis of small data sets appears to be inadequate. That requires some methods to be put forward in the name of data mining for such purposes.

### **Indian Statistical System**

Collection and use of statistics for administrative purposes in India has a long history spread over many centuries. The *Arthashastra* and the *Ain Akbari* mention the practice of numerical data collection for purposes of statecraft in ancient and medieval India. The Mughal Kings had a system of collection and compilation of crop statistics to help them in land revenue collection.

Later on, Britishers created their own data generating system to serve their specific ends. During the British period, consolidation efforts were made for the collection of socio-economic data. Their system was restricted to a few specific areas, like trade and commerce, selected industrial products, population, some basic crop statistics and livestock.

The Indian Statistical System is one of the largest institutional framework having a vast wealth of information, not all of which gets due attention of decision-makers. It is one of the oldest and has a large network supported by competent persons and with adequate facilities for data management. The system claims a wide coverage of information items as well as of area and people.

A national statistical system should possess the four characteristics of a system viz. content, structure, communication and control and it should be able to address four things.

- Identify its long-term and short-term objectives as well as a strategy to achieve these objectives.
- Ensure a structure in terms of job-differentiation by recognizing different types of information to be collected and presented on the different aspects of information processing for which the responsibility and authority should be clearly vested in different groups of people.
- Establish clear lines of communication within itself to take care of collective responsibilities as well as prevailing environment.
- Review its contents, structure and communication regarding their effectiveness as well as efficiency and modify or control one or more of these as and when found necessary.

However, there is gap between theory and practice. There is gap between the means and the end in the absence of any clearly perceived purpose. There is lack of appreciation of the need of cross-examining the data, although it is the first responsibility of a statistician. Unfortunately, collection and scrutiny of primary information and handling of data were usually not liked by government officials and thus statistics was not considered a popular subject for acquiring skill and experience in pre-independence days. Just after independence in 1947, the system of data collection followed by the British people was found inadequate to meet the necessity of a strong database covering a variety of social and economical aspects. The existing system even did not provide the basic data required for estimation of national income and that is essential for assessing performance and progress of the economy. The immediate task, therefore, was to set up a statistical system capable of filling the large gaps in the data essential for formulating economic plans. A very important step in this direction was the creation of the Directorate of National Sample Survey in 1950. Its aim was to collect essential statistics related to the socio-economic conditions and agricultural production in India. Due to the sustained efforts of academicians and official statisticians, the Indian Statistical System has attained the height of the most comprehensive statistical system of a developing country.

In addition to the Department of Planning and Statistics and the Ministry of Agricultural, some other Government Departments, institutions and autonomous bodies and non-government organizations are also actively involved in the creation of large database. Many of them compile and publish information on agricultural Statistics and livestock population collected through periodic censuses.

### Some Suggestions for Future Planning

- The time has come to introduce educational programs appropriate for statistics as a fully developed new technology that calls for the utilization of a wide range of scientific knowledge to help in solving scientific or practical problems. As Fisher had pointed out, "a profession statistician, as a technologist must talk the language of both theoretician and practitioner". The education of a statistician, like that of other technologists, must have a broad base.
- The challenges in statistics education are never trivial, but offer opportunities inherent to the richness of statistics as a discipline. University structure should tend to encourage competition, cooperation among faculties and to reward the faculty for good teaching and research in statistics.
- The awareness in the statistical profession and importance of statistics education is the need of the hour. The commitment of teachers to their students and good practice of statistics will lay excellent foundation for the future. However, the challenge to increase awareness and acknowledgement across the country needs cooperation with mathematical sciences and other disciplines.
- The future of statistics needs to be discussed in view of recent development in information technology such as data missing, data communication and information processing networks and requirement of end users. The current statistical methodology based on probabilistic models developed for the analysis of small data sets appears to be inadequate and requires some methods to be put forward in the name of data mining for such purposes.
- A statistician must have rigorous training on the analysis packages such as SPSS, SAS etc. During the training periods he/she may be asked to handle practical problems, case studies or small research projects of applied nature. Training should also include the preparation of layout for field experiments and their actual implementation in the field.

### Conclusion

In the present note present status of agricultural statistics has been discussed and some ways and means for improvement have been suggested. The role of computer technology in research and management of agricultural statistics has also been explained briefly and brief curricula for UG and PG Programs in Agricultural Statistics of various universities and institutes has also been suggested.

### References

1. Proceedings of the National Workshop on Teaching/Training in Agricultural and Computer Applications held during Nov, 19-20.1985 at IASRI, New Delhi.
2. Proceedings of the Ninth National Conference of Agricultural Research Statisticians held during July 19-21, 1989, at Tamil Naidu Agricultural University, Coimbatore 2.
3. Proceedings of the Thirteenth National Conference of Agricultural Research Statisticians held during November 6-8, 2001, at Ludhiana.