

Preface

The Indian Society of Agricultural Statistics was founded 67 years ago with the goal of providing a platform for disseminating research in Agricultural Statistics and also promoting research in agricultural sciences by synthesising statistical sciences with agricultural sciences. The society has had the honour of having Late Dr. Rajendra Prasad, the then Union Minister of Agriculture, as its founding President. Hon'ble Dr. Rajendra Prasad presided over the activities of the Society for its first 16 years, even after becoming the President of Republic of India. The Society benefitted immensely from his wisdom and guidance and ever since then has continued to grow in size and stature. The Society also had the benefit of being nurtured by many eminent and internationally renowned statisticians and agricultural scientists. The society has grown to its present stature by the untiring efforts of all its notable members. Dr. S. Ayyappan, Secretary, Department of Agricultural Research and Education and Director General, Indian Council of Agricultural Research, is the present President of the Society and under his vibrant and motivating leadership and illuminary vision the society has been venturing in newer areas of research.

The Society publishes a Journal called "Journal of the Indian Society of Agricultural Statistics" which contains articles dedicated to fundamental research in Agricultural Statistics as well as articles with innovative applications in agricultural sciences, aimed at meeting research challenges in emerging areas. Papers published in the Journal are reviewed by the American Mathematical Society under the Mathematical Reviews and by Zentralblatt MATH, Germany, Current Index to Statistics and CABI Abstracts. The Journal is available online at www.isas.org.in/jisas/ and all papers can be downloaded in full free of cost.

The next generation challenges in data analysis demand new statistical and computational methodologies and strategies. The most fundamental challenge comes from the scale ~ complexity and massive datasets, various curses of dimensionality. There has been an unprecedented exponential growth in dataset sizes. And most importantly this is happening in domains like climate change, microarray chips, genomics and biosciences, particularly molecular biology, fibre optics, network traffic, microprocessor, etc. The challenges, therefore, are the development and utilization of state-of-the-art statistical methods that provide best accuracy with fewest assumptions for answering scientific questions; the computational problems and methods involved in scaling up to big datasets; the development of infrastructure-suited software to make the application happen, data integration and trade-off between computational effort and power of analysis.

In order to encourage strengthening research in this all important area, during a meeting of the Research Advisory Committee held at Indian Agricultural Statistics Research Institute, New Delhi, Dr. Prem Narain appealed that the Institute should undertake research programmes that address the issues of high dimensional datasets keeping in mind the complexities of agricultural systems. In order to implement the suggestion, it was decided that to begin with, the Indian Society of Agricultural Statistics should bring out a special issue of the Journal of the Indian Society of Agricultural Statistics that contains invited research papers contributed by several experts around the globe. This special issue on "Statistical and Computational Methodologies for Massive Data Sets" is an outcome of this suggestion. This issue of the Journal would motivate Indian statisticians to plunge into this important area of research and would also provide at one place a wealth of information to begin with. We are thankful to all the authors who kindly accepted our invitation and contributed their research to this special issue. We hope that this issue would stimulate further research and discussions on this very important area of statistical and computational methodologies useful for analysis of high dimensional and voluminous datasets.

We thank profusely all the contributors and reviewers for their persistent support in meeting the deadlines that were necessary in order to bring out this special issue in time. We gratefully acknowledge the dedicated efforts of the Secretariat of the Society in helping the publication of this issue on schedule. We would also like to thank our respective organizations/Institutes/Universities for allowing to work on this important project.

We expect both data statisticians and theoretical statisticians to enhance and strengthen this Journal by their future research on this topic. We all enjoyed working in this project.

Guest Editors

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