

# Agronomic Research Management

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$T_0F_1$	$T_2F_3$
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$T_4F_1$	$T_0F_1$
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$T_4F_3$	$T_0F_0$
$T_2F_3$	$T_4F_0$
$T_2F_2$	$T_4F_2$
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$T_2F_4$	$T_4F_3$
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$T_0F_0$	$T_2F_3$
$T_0F_2$	$T_2F_2$
$T_0F_1$	$T_2F_1$
$T_2F_3$	$T_4F_1$
$T_2F_1$	$T_4F_2$
$T_2F_2$	$T_4F_0$
$T_2F_0$	$T_4F_3$
$T_4F_2$	$T_0F_2$
$T_4F_0$	$T_0F_1$
$T_4F_1$	$T_0F_4$
$T_4F_0$	$T_0F_3$

N.R. DAS

In the memory of my teacher  
**Late Dr. T.K. Gupta,**  
Professor of Agricultural Statistics,  
Kalyani University and  
Bidhan Chandra Krishi Viswavidyalaya,  
West Bengal

# PREFACE

During my research and teaching activities in different agricultural universities (Kalyani University and Bidhan Chandra Krishi Viswavidyalaya), I have observed that different postgraduate students, under different teachers (guides), in the same department, record their same item of observations in different ways, as a result the research findings vary; which is very detrimental to research programmes as well as research analysed data interpretations.

This happens due to lack of standard agricultural, particularly agronomic research book. Therefore, it is necessary for a 'field research book', where all sorts of research information will be available, starting from field research data recording to plant and soil analytical data in the laboratory, leading to statistical analysis, for reporting the research findings.

Conducting 'agronomic research' is one of the most important activities of the agronomists, who deal with the management of crops and soils, including cropping programmes. The agronomist, who manages crops and soils in the fields and laboratories, along with the statistical data analysis, gives interpretations and reports the findings of the experiments, is really the best agronomist. The agronomic research programmes have the impact in research and development (R&D) of agriculture in the country. So agronomic research is vital.

Considering different aspects in field research, the book entitled '**Agronomic Research Management**' has been written after 35 years of long research experience and this book deals with two volumes combined together. The volume one deals with research data collection from the fields, having six chapters (1-6) and the second volume deals with research data processing, statistical analysis and reporting the findings, having five chapters (7-11).

The chapters in this book, are as follows : (i) Planning of field experiments, (ii) Land preparation and fitting the layout, (iii) Execution of field research programmes, (iv) Intercultural operations for experimental crops, (v) Recording field data, (vi) Laboratory analysis of soil and plant samples and recording data, (vii) Data processing, (viii) Statistical analysis of data, (ix) Reporting of research findings, (x) Writing of research papers and theses and (xi) Agronomic research on some crops, technologies and crop with technology.

I feel, postgraduate students, research scholars, research scientists, research officers, teachers and technologists of all

agricultural universities and ICAR research institutes of the country, will be benefited with this book. I shall be very happy, if this book is fully utilised by those for whom it has been written.

I am very much thankful to my colleagues of Bidhan Chandra Krishi Viswavidyalaya, W.B.; North Bengal Agricultural University, W.B.; Tamil Nadu Agricultural University, T.N.; Andhra Pradesh Agricultural University, A.P.; Birsa Agricultural University, Jharkhand; Rajendra Agricultural University, Bihar; Viswa Bharati, W.B.; Calcutta University, W.B., Assam Agricultural University, Assam; Central Research Institute for Jute and Allied Fibres (CRIJAF), Barrackpur, W.B., who inspired me to write such new type of book, for the benefit of agriculture in the country. I thank specially Professor A.K. Das, Professor of Agricultural Statistics and Professor R.K. Basak, Professor of Agricultural Chemistry and Soil Science of Bidhan Chandra Krishi Viswavidyalaya, for their constructive suggestions to improve the book.

Most of the examples, given in this book, are from the research works of myself and my associates. Hence I am thankful to them. Special thanks are also given to my student Dr. N. Mukherjee, whose Ph.D. Thesis has been used here in this book.

At the end, I am thankful to my son Partha, daughter Aparna and wife Arati, for their direct or indirect help in writing this book.

Sabuj Niketan,  
Kalyani, West Bengal

**(N.R. Das)**

## **About the Book**

Development of agricultural productivity of the country depends on man power improvement, besides other factors. This man-power improvement again depends on training, education and research activities of the persons involved in the system. In order to uplift the training, education and research activities in agriculture of the country, this new book entitled, "Agronomic Research Management" has been written for the agronomists who are the pivots in agricultural teaching and research in the country, with the following eleven chapters:

- (i) Planning of agronomic experiments,
- (ii) Land preparation and fitting the layout,
- (iii) Execution of field research programmes,
- (iv) Intercultural operations for the experimental crops,
- (v) Recording field research observations,
- (vi) Laboratory analysis and recording data,
- (vii) Research data processing,
- (viii) Statistical analysis of data,
- (ix) Reporting research findings,
- (x) Writing research papers and theses and
- (xi) Agronomic research on some crops, technologies and crop-with-technologies.

Besides this, 83 tables, 12 diagrams and 9 line figures, have also been added to it.

I feel, postgraduate students, research scholars, research scientists, research officers, teachers and technologists of all agricultural universities and ICAR research institutes of the country, will be benefited with this book. The personnel involved in agricultural activities in agricultural departments of the states of India will also be benefited with this book.

I shall be very happy, if this book is utilized fully by those for whom it has been written.

**Author**

## About the Author

Professor N.R. Das, Ex-Professor of Agronomy, Department of Agronomy, Faculty of Agriculture, Bidhan Chandra Krishi Vishwavidyalaya, was born on February 1, 1939 at Vikrampur of Dacca (Now in Bangladesh) of undivided India. He was educated there up to Matriculation Examination and later came back to India for I.Sc. Studies in the Calcutta University. He later obtained his B.Sc.(Ag.), M.Sc.(Ag.) and Ph.D. degrees from Kalyani University, West Bengal. He was trained (D.W.P.) in the International Wheat and Maize Improvement Centre (CIMMYT) in Mexico.

Professor Das was appointed Lecturer in Agronomy in 1969 and as Wheat Agronomist in 1973 in Kalyani University and later as Research Agronomist in Bidhan Chandra Krishi Viswavidyalaya in 1975 and again he was brought back to the post of Wheat Agronomist of All-India Co-ordinated Wheat Improvement Project of Indian Council of Agricultural Research (ICAR) in the same University, after bifurcation of Kalyani University. Later in this Viswavidyalaya (University), he becomes the Professor of Agronomy (1981), Director of Research (1981) and Head, Department of Agronomy (1983).

During his 35 years of service as the teacher of both the Universities, he has contributed a lot in teaching, research and extension activities.

He has published more than 292 research papers, besides the extension publications (69) and research reports (45). He has conducted successfully many ICAR research Projects, IFFCO programmes etc. He has also successfully guided eight Ph.D. students who are now in posts of Indian agriculture. He helped in framing the degree and postgraduate degree courses of the Viswavidyalaya.

He is the member of different scientific societies/ associations/ organizations and he participated in different conferences/ workshops/ symposiums/seminars etc. at home and abroad. He received many honours/awards from the national and International societies/ organizations. Recently the International Biographical Research Foundation has honoured him with the 'FELLOW'.

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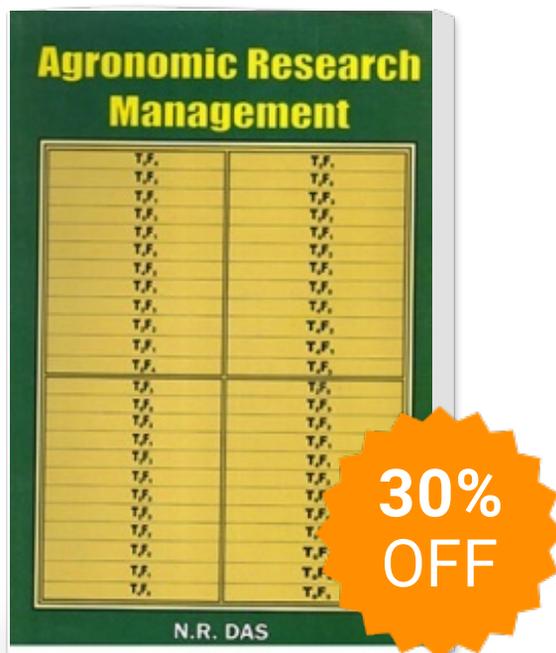
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