



# Genetic Improvement of Field Crops

C.B. Singh | Dharendra Khare



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# Genetic Improvement of Field Crops

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## **FOREWORD**

The quality of seed is the major component for augmenting crop production. The extent to which a plant can harness the natural resources viz., solar radiation, carbondioxide, water and nutrients in terms of biological yield depends on its genetic constitution. Also, the degree to which the potential is executed depends on the plant population and the environment. The use of genetic and physical pure seed of selected variety therefore is obligatory to efficiently utilize the soil fertility, water resource and climatic conditions. Seed production and its testing is one of the most significant advances in agriculture of this century. A book on seed technology is much needed to acquaint producers with the latest technique of production and testing.

This book assembles the recent techniques of seed production and its testing with comprehensive set of instructions for important crops. Authors have well organized the available information and presented it in a systematic and how-to-do-it format. The figures and drawing used in the book make the text more apprehensible. This book will be of immense value to seed production specialists, quarantine officers, seed analysts, field inspectors, teachers and extension workers apart from the students. I am sure the book comprising of both theoretical and practical ramifications will render valuable service to the promotion of a better understanding of the subject.

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## **PREFACE**

Opportunities exist for increasing food production in a sustainable manner through the genetic improvement of field crops. One of the potential tools for improvement of the crop performance is the genetic alteration and selection. The ability to modify plant characteristics or select plants with desirable attributes, or both, has enormous implication for the potential productivity of a crop, sustainability of the crop and the cropping system along with the sustainability of agro-ecological environment as a whole. It requires detailed knowledge of individual crop.

Books on practical in plant breeding are meager. Students are normally unable to find the behaviour, problem, husbandry and solution of individual crop at one place. Therefore, the attempt is made to collect up-to-date information and write in how-to-do-it fashion by the scientists of repute working on the improvement of particular crop with vast experience.

The framework of the book is designed to serve as a ready reference in the classroom and laboratory and to bring the attention of the novice in plant breeding. The book comprises of 22 chapters and covers 16 crops. It brings all the information of field crops of Indian interest at one place. The problems of individual crop and methods to resolve are described in detail with clear objectives for the students of plant breeding. The text is designed in such a way that the instructor can insert his own experience and illustration throughout the course.

In persuasion of this book we acknowledge, the writers of different chapters, which provided information and base to this attempt in valuable manner. The manuscript has profited greatly from access to the very rich resources of Jawaharlal Nehru Krishi Vishwa Vidyalaya archive.

We thank to the authorities of JNKVV, Jabalpur for providing facilities to complete this endeavor and Messers Scientific Publishers (India), Jodhpur for their efficient help. Special appreciation is due to our family members for their support and patience.

We are sure the information provided shall be of practical use to many including researchers, teachers, students and people engaged in plant breeding. Readers must judge our success and we shall be honoured to have comments and criticisms.

Jabalpur  
1st March, 2002

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