

Book reviews

Breeding Field Crops

V. L. Chopra (ed.)

Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi, 2001, Pp.580, Price : Rs. 450.00, ISBN 81-204-1435-7

"Impressive gains in genetic production potential of crops have resulted from conventional plant breeding. The imperative of making progressive improvements in productivity and stabilization of production through incorporation of resistance to biotic and abiotic stresses, however, continues. This will require that crop breeders not only introduce incisive frontier technologies into their armoury but also gain better and comprehensive insight into all aspects necessary for success of crop breeding enterprise". This is stated on the back cover of the book "Breeding Field Crops", the book under review, edited by Prof. V.L. Chopra, New Delhi, India. The editor feels confident that this book will provide, under one cover, the information and knowledge needs in an important area of Indian (in fact, all tropical) agriculture and will be a valuable resource book for the students and practicing plant breeders alike. The Preface of the book also states "India is often cited as a country that has made a remarkable success of its plant breeding efforts. Many, specially the students of plant breeding, are interested in the details of 'what' and 'how' of the achievements made. However, a book on the wide range of components that are necessary for breeding exercise is currently not available. This volume is an attempt to cover this gap".

Even a quick glance through the list of contents, contributors and the material presented in the chapters makes it abundantly clear that the book richly meets the objectives and expectations mentioned in the preface and back cover.

Having got the chapters of the book contributed by the established scientists of repute working on the particular crop with vast experience, the editor has ensured the authenticity and quality of information provided. 'Breeding Field Crops' deals with 14 important crops i.e., rice, wheat, maize, sorghum, pearl millet, pigeonpea, chickpea, mungbean, groundnut, Brassicas, sunflower, soybean, sugarcane and cotton. For each crop information is provided on area, production and productivity trends; origin and breeding system, covering taxonomy, genome evolution and floral biology; genetic resources relevant to breeding objectives; breeding

methods employed for development of varieties and hybrids; seed production and certification; characteristics of the successful varieties and hybrids developed, and suggested strategies for greater impact in future.

'Breeding Field Crops' (Theory and Practice) has a list of twenty one contributors for the fourteen chapters, each devoted to a crop. The fourteen chapters of this book along with the names and the affiliations of the authors are: 1. Rice (E.A. Siddiq & B.C. Viraktamath, Directorate of Rice Research, Hyderabad); 2. Wheat (V.S. Rao, Agharkar Research Institute, Pune); 3. Maize (B.S. Dhillon, National Bureau of Plant Genetic Resources, New Delhi and B.M. Prasanna, Indian Agricultural Research Institute, New Delhi); 4. Sorghum (N.G.P. Rao, Hyderabad and U.R. Murty, National Research Centre for Sorghum, Hyderabad); Pearl Millet (O.P. Govila, Indian Agricultural Research Institute, New Delhi); Sugarcane (Raman Kapur, Indian Institute of Sugarcane Research, Lucknow); Pigeonpea (A.N. Asthana, Indian Institute of Pulses Research, Kanpur); Chickpea (M. Ali, Shiv Kumar and R.P. Dua, Indian Institute of Pulses Research, Kanpur); Mungbean (S.P. Mishra, Indian Institute of Pulses Research, Kanpur); Soybean (S. Prakash Tewari, National Research Centre for Soybean, Indore); Oilseed Brassicas (P. R. Kumar, National Research Centre for Rapeseed Mustard, Bharatpur); Sunflower (K. Giri Raj, University of Agricultural Sciences, Dharwad); Groundnut (A. Bandyopadhyay, National Research Centre for Groundnut, Junagadh); Cotton (B.M. Khadi and V.N. Kulkarni, University of Agricultural Sciences, Dharwad). The names and affiliations of the contributors for the crop based chapters mentioned above clearly point out to the excellent choice of the editor of the book in terms of the Scientists and the Institutes. The fact that each of the crop has been dealt with by the well known active workers and authorities on each of these crops increases the value and usefulness of the book.

The treatment of subject matter in each chapter is really in depth of a higher level text and exhaustive with information on important scientific advances and

major achievements made in individual crops. The average length of each chapter is more than 40 pages. Information on chapters on some of the major crops like rice (86 pages), wheat (60 pages) and groundnut (60 pages) is particularly exhaustive and is based on the latest available scientific information/ literature. However, in spite of the length, the text is written in simple language and fervent style, has good flow and continuity in the chapters of the book.

The statements written in the Preface and back cover of the book about the veracity and quality of the information have been fully demonstrated. The editor's hope that book gives an account of the up-to-date research trends starting from origin up to major achievements in a crop also has also been fully met with. Up-to-date list of important cultivars/ hybrids/ genetic stocks with parentage and salient features given in each chapter would be of great source of available information to students, plant breeders and extension workers.

Most of the scientific information and subject material of the book chapters is an up-to-date meticulous compilation by the senior crop specialists of the country. Besides dealing with conventional breeding approaches, each chapter also presents the most important and latest aspects of use of non-conventional approaches like mutation breeding and use of biotechnological approaches like tissue culture, anther culture, genetic transformation and DNA marker technology in breeding of field crops. A glance through the references cited and listed at the end of each chapters makes it clear that the contributors of the chapters have taken serious pains to scan through and cite the latest and the most relevant published literature on breeding and genetic improvement research in that particular crop. This is evident from the fact that more than 200 references in two chapters (281 in sunflower and 223 in groundnut) and more than 100 in seven other chapters and less than 100 only in five chapters have been listed in the

references. Exhaustive references given at the end of each chapter would not only definitely prove very useful for those readers/ researchers who are interested in details of some specific aspects, beyond doubt, they also make this book an excellent up-to-date authentic source of literature reviewed on these field crops. Finally, a subject index at the end of the book has enhanced the utility of the book in quick referring to desired topics and sub-topics listed in the book. Presentation style of the book is really very attractive.

The book will be widely welcomed by students of plant breeding at all levels. It is also strongly recommended to students, teachers and scientists who may not be directly involved in crop breeding but are interested in biology, botany, agricultural botany and other related disciplines of agricultural courses to know and acquire a clear understanding of plant breeding in general and breeding field crops in particular. The book should serve as a teaching guide as well as a tool to provide information and motivation to students and researchers engaged in breeding of field crops.

The book is well prepared, attractively produced with perfect binding and a superb hard bound cover having an attractive colour photograph. The book is also well illustrated with relevant sharp line drawings and few black & white pictures and in spite of its large number of pages (Pp. 580), it is still very modestly priced (Rs. 450.00 only).

The Editor and the publishers deserve all appreciation from all in the global plant breeding family for bringing out this excellent up-to-date book on Breeding Field Crops. In view of its excellent quality and quantity of scientific contents, the book richly deserves a valuable addition in multiple copies in all agricultural colleges, universities and research institutes and of course a special place in the personal library of every plant breeder.

M. C. Kharkwal
Editor