



## Book Reviews

### Plant Breeding: Principles and Methods

B. D. Singh, Kalyani Publishers, Ludhiana & New Delhi, Seventh Revised and Enlarged Edition, 2005, pp 1018; Rs. 295/- ISBN 81-272-2074-4

The present 1000 plus page book "Plant Breeding: Principles and Methods" costing only Rs. 295/- is the seventh revised and enlarged edition of the book Plant Breeding first published for B.Sc. (Ag.) students of Indian universities in 1983 by Dr. B. D. Singh, Professor, School of Biotechnology, Faculty of Science, Banaras Hindu University, Varanasi. A highly experienced and prolific writer of several books on genetics, plant breeding and biotechnology, Prof. Singh has attempted to focus on various principles and methods, breeding concepts and applications in this edition in a simple language with examples from the Indian context.

The voluminous book has a total of 41 chapters under ten major parts. **Part I.** General Considerations: 1. Introduction to Plant Breeding, 2. Domestication and Germplasm Conservation, 3. Plant Introduction, 4. Modes of Reproduction in Crop Plants; 5. Pollination Control I. Self-Incompatibility and Apomixis, 6. Pollination Control II. Male-Sterility; 7. Qualitative and Quantitative Characters and 8. Biometrical Techniques in Plant Breeding; **Part II.** Principles: Self-Pollinated Crops, 9. Selection in Self-Pollinated Crops, and 10. Hybridization: Techniques and Consequences; **Part III.** Principles: Cross-Pollinated Crops: 11. Genetic Composition of Cross-Pollinated Populations, 12. Selection in Cross-Pollinated Crops, 13. Heterosis and Inbreeding Depression; **Part IV.** Methods: Self-Pollinated Crops: 14. Mass Selection, 15. Pureline Selection, 16. Pedigree Selection, 17. Bulk Method, 18. Backcross Method, 19. Other Approaches to Breeding of Self-Pollinated Crops and 20. Effectiveness of Different Breeding methods for Self-pollinated Crops; **Part V.** Methods: Cross Pollinated Crops: 21. Population Improvement and 22. Hybrid Varieties; **Part VI.** Methods: Clonal Crops: 23. Clonal Selection and Hybridization; **Part VII.** Methods: Stress Resistance: 24. Breeding for Resistance to Abiotic Stresses I. Drought Resistance, 25. Breeding for Resistance to Abiotic Stresses II. Mineral Stresses, 26. Breeding for Resistance to Abiotic Stresses III. Heat and Cold Resistance, 27. Breeding for Resistance to Biotic Stresses I. Disease Resistance, 28. Breeding for Resistance to Biotic Stresses II. Insect Resistance; **Part VIII.** Methods: Special Approaches: 29. Ideotype Concept in Crop Improvement, 30. Breeding for Quality I. Protein Quality, 31. Breeding for Quality II. Oil Quality, 32. Mutations in Crop Improvement, 33. Polyploidy in Plant Breeding, 34. Distant hybridization in Plant Breeding, 35. Biotechnology in Crop Improvement, 36. Molecular Markers and Marker-Assisted Selection; **Part IX.** Evaluation and Multiplication: 37. Release of New

Varieties, 38. Quality Seed: Classes, Production Practices, and Maintenance; **Part X.** Miscellaneous Considerations: 39. Organization of Crop Improvement in India, 40. International Institutes for Crop Improvement in India, and 41. Intellectual Property Rights. There is also a very useful Glossary at the end of the book. The text in the chapters is supported by a number of tables, figures and illustrations, wherever necessary. Most of the chapters also have Questions and Suggested Further Reading at the end. Thus, the book under review, running into over 1010 pages, presents in its 41 chapters almost everything that a modern plant breeder requires - from mendelian to molecular approaches. The book, thus is a perfect synergistic coming together of standard plant breeding theory and what molecular biology offers to plant breeders in the new millennium. The field of plant breeding and crop improvement is currently undergoing a major change in terms of options, opportunities and practices and all this is adequately covered in the book under review.

The treatment of subject matter in each chapter is really in depth of a higher level text and exhaustive information on important scientific advances and major achievements made in individual topics in the field of plant breeding are included. Keeping in view the target audience of this text book, primarily graduate and post graduate students in the colleges and universities, the author has done well by avoiding large space in listing unnecessary references in each chapter and in lieu of that providing very useful questions as well as suggested further reading in plant breeding.

The book is well prepared with attractive photographs on paperback jacket to keep the cost most affordable, particularly to students. The author and the publisher deserve all appreciation for bringing out this excellent up-to-date book. Research workers, teachers as well as students of plant breeding at graduate and post graduate level will find the book very useful. In view of its excellent quality and quantity of scientific contents, the book richly deserves a valuable addition in libraries of all agricultural colleges, universities and research institutes and of course a special place in the personal library of every student of plant breeding.

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