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Singh, R.J., Jahuar, P.P. (ed.): **Genetic Resources, Chromosome Engineering, and Crop Improvement. Cereals. Vol. 2. -** CRC Press, Taylor and Francis Group, Boca Raton - London - New York 2006. 442 pp. USD 159.95. ISBN 0-8493-1432-2.

The second volume of book series "Genetic Resources, Chromosome Engineering, and Crop Improvement" loosely continues with previous volume devoted to grain legumes. This volume consists of 13 chapters dealing with major cereal crops such as wheat, rice, maize, oat, barley, pearl millet, sorghum, rye and triticale. Each chapter provides a general comprehensive account of the crop, its origin, wild relatives, exploitation of genetic resources in gene pools through breeding and cytogenetic manipulation, and genetic enrichment using the tools of molecular genetics and biotechnology. The main accent is put to present stage of breeding technologies accompanied by advanced techniques of cytogenetics and physical mapping. Valuable compilations about, *e.g.*, genetic enhancement or cytogenetic manipulations in respect to each of cereals are given to map the current knowledge in the field. A broad overview is provided for readers about cytogenetic architecture of cereals, breeding strategies and techniques like polyploidization and hybridization. Molecular biology techniques (*e.g.*, RFLP, comparative mapping) are represented in connection with physical mapping of chromosomes or cytogenetic manipulation. Since the book is intended for scientists, professionals, and students interested in improvement of crops in general and cereals in particular, the ethical issues are not discussed. Text is supplemented by 15 pages of colour figures which nicely illustrate an impact of cytogenetic and breeding results.

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