



genes



Special Issue Reprint

Recent Advances in Genetics and Breeding of Major Staple Food Crops

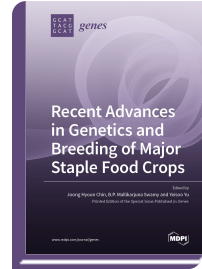
www.mdpi.com/books/reprint/4034

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ISBN 978-3-0365-0976-1 (Hardback)

ISBN 978-3-0365-0977-8 (PDF)

To meet the global food demand of an increasing population, food production has to be increased by 60% by 2050. The main production constraints, such as climate change, biotic stresses, abiotic stresses, soil nutrition deficiency problems, problematic soils, etc., have to be addressed on an urgent basis. More than 50% of human calories are from three major cereals: rice, wheat, and maize. The harnessing of genetic diversity by novel allele mining assisted by recent advances in biotechnological and bioinformatics tools will enhance the utilization of the hidden treasures in the gene bank. Technological advances in plant breeding will provide some solutions for the biofortification, stress resistance, yield potential, and quality improvement in staple crops. The elucidation of the genetic, physiological, and molecular basis of useful traits and the improvement of the improved donors containing multiple traits are key activities for variety development. High-throughput genotyping systems assisted by bioinformatics and data science provide efficient and easy tools for geneticists and breeders. Recently, new breeding techniques applied in some food crops have become game-changers in the global food crop market. With this background, we invited 18 eminent researchers working on food crops from across the world to contribute their high-quality original research manuscripts. The research studies covered modern food crop genetics and breeding.



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