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Mutagenesis in the Age of Next-Generation-Sequencing and Genome Editing

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Message from the Guest Editor

Mutagenesis is a proven technique for inducing a broad spectrum of DNA variations and has created thousands of improved varieties in many crops. The advancement in next-generation sequencing has enabled the simultaneous generation and mapping of millions of DNA markers to identify the causal mutations for the phenotype (trait) of interest. The rapid and exciting progress in genome editing in the last few years promises to revolutionize plant breeding. However, it is still unfeasible to create multitudes of mutations in each gene in a genome to determine the mutations that are beneficial to plants. Genome editing can be more efficient if the targeted mutations are known. With the continuous improvement in sequencing technologies and decrease in sequencing costs, it has already become feasible to rapidly screen useful traits and efficiently and affordably identify the causal mutations from a limited number of mutant lines, providing informative targets for genome editing. This Special Issue focuses on screening mutant populations for beneficial traits in crops and identifying the causal mutations underlying the relevant agronomic traits to provide targets for genome editing.



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Special Issue



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Message from the Editor-in-Chief

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