

Special Issue

Genetics and Molecular Breeding of Maize

Message from the Guest Editors

Maize is a cornerstone of global food security, underpinning diets and livelihoods across diverse agro-ecologies. Rapid population growth, climate volatility, and the need for sustainable production intensify the demand for high-yield, resilient maize varieties. Advances in genetics and molecular breeding—such as genome editing, high-throughput phenomics, and integrative genomics—offer powerful means to dissect complex traits and translate discoveries into better germplasm faster. The field sits at a pivotal intersection of basic biology and practical breeding, enabling precise trait dissection, accelerated variety development, and responsive deployment in farmers' fields. This Special Issue highlights how cutting-edge molecular tools can drive gains in yield, stress tolerance, nutritional quality, and resource-use efficiency; it aims to present and disseminate the most recent advances related to genetics and molecular breeding of maize. We consider contributions addressing the discovery, validation, and deployment of genetic and genomic resources, innovative breeding strategies, and integrated omics approaches that accelerate maize improvement in diverse environments.

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