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Special Issue Reprint

## Maize Cultivation and Improvement

**Edited by: Glauco Vieira Miranda**

This Reprint, “Maize Cultivation and Improvement”, presents a curated collection of recent scientific advances addressing the challenges and opportunities in modern maize research. The contributions highlight the integration of molecular genetics, quantitative breeding, stress physiology, omics technologies, agronomic management, and artificial intelligence to accelerate genetic gain and improve crop resilience. Maize remains one of the most important crops for global food, feed, and industrial production. However, increasing climate variability, resource limitations, and rising productivity demands require innovative and interdisciplinary approaches. The studies included in this Reprint illustrate how advances in genomics, proteomics, high-throughput phenotyping, and data-driven analytics are transforming maize improvement strategies.

This Reprint also emphasizes the convergence of biotechnology, statistical genetics, digital agriculture, and precision management to enhance breeding efficiency and field performance. Topics include functional gene discovery, genomic prediction, physiological responses to abiotic stress, meta-analytical synthesis of agronomic practices, and artificial intelligence-based crop monitoring. By combining fundamental biological insights with applied agricultural innovation, this Reprint provides a valuable reference for researchers, breeders, agronomists, and students interested in sustainable maize production and the future of crop improvement under changing environmental conditions.

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