Maize Sciences: An Open Access Platform for Communicating Research Discoveries of Maize

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With the coming of the new year 2026, we are pleased to invite you to join us in celebrating the birth of a new maize journal, *Maize Sciences*, by reading this editorial. The journal is co-founded by the Jilin Academy of Agricultural Sciences (Northeast Agricultural Research Center of China), the National Technology Innovation Center for the Corn Seed Industry and the State Key Laboratory of Maize Bio-Breeding. Together with Higher Education Press, a leading publisher which empowers Chinese scholarship with confidence, we are launching *Maize Sciences* as an open access journal with the ISSN of 2097-7484.

Maize originated from teosinte, a wild grass native to the Americas, which was vastly different from modern corn, with few seeds enclosed in a hard shell and very low nutritional value. Approximately 9000 years ago, two types of teosinte cross-pollinated by chance, producing a variety that was easier to cultivate. From that time on, the Native Americans began to cultivate the plants for consumption. Over time, teosinte underwent genetic mutations, which caused the seed coat to become softer and more palatable. The Native Americans selected plants with larger ears, more seeds, and easier threshing for cultivation. Around 6200 years ago, evidence of maize pollen and cob fossils found in the Valley of Oaxaca, Mexico, proved that maize had been successfully domesticated and became an important food source for the local inhabitants. With its high adaptability, maize spread towards both north and south. Around 4700 years ago, maize appeared in South America. About 4000 years ago, it appeared in the southwestern United States of America, where local Native Americans developed a drought-tolerant variety. The modern maize was domesticated from teosinte in tropical Mexico and spread into temperate regions.

Nowadays, maize is becoming one of the world's major food crops. Its high and stable yield characteristics make maize a key crop for ensuring food security worldwide. Maize plays an important role in promoting the food resource for human beings and the development of animal husbandry. As the most popular raw material, maize is a significant element in industrial production and compound feed formulations. Moreover, it has been widely used in the medical field. Therefore, humans have been exploring improvements in the production efficiency of farming ecosystems by developing methods to enhance maize yields and reduce losses to meet the needs of the rapidly growing population. The development of maize scientific research and production is important for improving living standards and developing the economy. According to the statistical data, with the advancement of genetics and biotechnology, maize breeding entered a new stage in the 20th century, which was mainly focusing on hybrid breeding. Entering the 21st century, the development of molecular biology, genomics, gene editing technologies and various molecular marker tools has made maize breeding more efficient and precise. Transgenic technology endows maize with new traits by introducing foreign genes into its genome, such as enhanced pest resistance and improved nutritional composition. Gene editing precisely activates or inactivates specific genes, thereby achieving further improvement in maize quality and yield. The integration of artificial intelligence (AI) and life sciences has brought many revolutionary changes in medicine, health and agriculture. This also creates unprecedented opportunities for the global maize seed industry, including that in China. Professor Edward Buckler, a renowned maize geneticist, raised the concept of "Breeding 4.0", which emphasizes that modern crop breeding will be supported by multiple cross-disciplinary technologies, including gene editing and synthetic biology, genomics and

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bioinformatics, big data and AI. These technologies jointly enable intelligent and efficient acceleration of breeding cycles, and ultimately promote the revolutionary transformation of crop breeding from "art" to "science" and then to "intelligence".

Maize Sciences has been born to address the emerging scenarios described above. The mission of this journal is to lead the transformation and development of maize research to the new era, focusing on, but not limited to maize genomics and bio-breeding, precision management for maize whole growing process, soil ecology and nutrient cycling, maize physiology and stress response. *Maize Sciences* is not only committed to becoming an authoritative publication channel for China's maize scientific research achievements to "Go global", but also dedicated to forging an international exchange platform for the in-depth integration of scientific research resources across the global maize sector. With full conviction for the journal's promising future, we cordially invite you to join us on this journey. Together, we shall co-create a prosperous future for *Maize Sciences*! To fulfill our common mission of making the earth a better place for future generations, we hope that we will work together to advance maize science and research as well as we can, so as to share and exchange the latest achievements through an international platform specific for maize, no matter where we are.

For each journal, the academic quality of published papers is crucial to achieve its goal. At *Maize Sciences*, we particularly welcome the submission of review articles containing synthesized analyses/views and forward-looking perspectives, research articles reporting important advances, and resource articles reporting significantly improved techniques/methods or community-wide useful resources. These contributions cover a wide range of research topics and illustrate the diversity and complexity of maize research. *Maize Sciences* will publish comprehensive new theories, new ideas, and new technologies, and disseminate the latest research findings from multidisciplinary studies in both basic and applied research related to maize production. We hope you enjoy reading these articles and believe that they nicely showcase the vision and scope of maize-related science.

Finally, taking this opportunity, we would like to sincerely invite all scientists and professionals in maize research and related fields worldwide to submit manuscripts and share scientific research. We also extend our deepest gratitude to our advisory board, editorial board members, peer reviewers, and the editorial, production, and marketing teams. Your unwavering support across every stage of the journal's development has made this successful launch possible. We wish our editorial staff, management team, board members, and authors every success with the inaugural issue of *Maize Sciences*, and we hope our readers find great value in this first issue. We are committed to speeding up the peer review process while maintaining quality and fairness.

This is an exciting new chapter for maize science. We have full confidence that we will deliver innovative solutions to safeguard global food security. We look forward to collaborating with the global research community to support the growth of *Maize Sciences*, and to drive the flourishing of global maize development in the years ahead.

Li Xinhai

Editor-in-Chief, *Maize Sciences*

Corresponding author: Li Xinhai (lixinhai@caas.cn)