

Inaugural Editorial: *Seed Biology*

Wei-Cai Yang^{1,2*}

¹ State Key Laboratory of Molecular Developmental Biology, Institute of Genetics and Developmental Biology, Chinese Academy of Sciences, Beijing 100101, China

² College of Advanced Agricultural Sciences, University of Chinese Academy of Sciences, Beijing 100049, China

* Corresponding author, E-mail: wcyang@genetics.ac.cn

Seed is the most important reproductive organ in plant. Since its first emergence approximately 370 million years ago, seed plant had overwhelming advantage to non-seed plants in reproduction, spreading and colonization in terrestrial land. Beside its essential function in the sexual reproduction of plants, seed is the most economically important agricultural product, offering necessity food for human and wildlife, nutritious feed for livestock. Seeds and grains also provide massive amount of raw materials for manufactured goods, such as coffee, starch, and oil. Seeds also play a pivotal role in development of fruits which supplement significant portion of food and nutrition for human and wildlife. As the climate change intensifies, sustainable production of seed-based food for projected nine billion people by midcentury become more challenging. Another dimension of challenges is that a rapidly increasing more affluent populations, such as in China, will seek more nutritious and healthy seed-based food and proteins that require ever-increasing seed-based feed for animals.

Because of their essential roles, human has started to select seeds in agrarian age by keeping larger seeds (grains and fruits). Modern seed research probably can be traced back to Mendel's genetic study on pea seed traits. In the last century, seed research has been primarily focused on endosperm (monocots) and embryo (dicots), the main storage compartments, and their dormancy and germination processes, or reproductive processes leading to the seed formation. With enormous research, agronomic crop yield has increased drastically, as shown in rice and corns, for examples. Recent unprecedented advances in multiple omics tools in conjunction with modern genetic, molecular, physiological, biochemical, and biotechnological approaches have pushed seed research to another wave of increment of crop yield, quality in an environment-friendly manner. This is evident with the publication increase (Fig. 1).

However, in contrast with active basic seed research, few academic journals have focused on publishing seed biology research, and the current seed-focused journals are largely application-centric. This calls for a professional journal with focus on the basic seed biology, and to fill this gap, I am pleased to announce the launching *Seed Biology*. This journal aims to become a rigorously peer-reviewed, flagship international journal, covering research on the following, but not limited to, the evolution of seeds, processes leading to seed formation such as sporogenesis and gametogenesis, pollination and fertilization, apomixis and artificial seeds, regulation

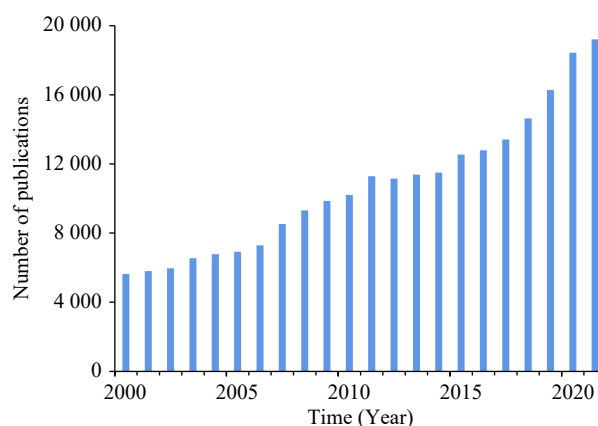


Fig. 1 Number of scientific publications of seed-related research in the years 2000-2021. "Seed" or "Grain" was used as topic for search in Web of Science (core collection). Top 10 plant seed closely-related research areas including Plant Sciences, Agronomy, Environmental Sciences, Ecology, Agriculture Multidisciplinary, Biochemistry Molecular Biology, Biotechnology Applied Microbiology, Horticulture, Genetics Heredity, and Forestry were selected for the refined results.

and manipulation of seed yield, nutrition and health related quality of endosperm, cotyledons, and the seed coat, seed dormancy and germination, seed interactions with environment and other microbes, roles of seeds in fruit developments, by using all cutting edge research approaches, including omics, genetics, biotechnology, and genome editing, cellular and molecular biology, physiology and environmental biology. *Seed Biology* will publish high-quality original research, reviews, perspectives and opinions in the golden open access mode, promoting fast submission, review and dissemination freely to the global research community.

We greatly appreciate the experts in the basic seed research community for unselfishly devoting their time to serve the advisory and editorial boards, and Maximum Academic Press (www.maxapress.com) for publishing the journal. We welcome all the support from the community by contributing high quality papers, by rigorously reviewing papers and by promoting the journal to your colleagues. With your support, we will build this journal as a leading journal in seed biology area to achieve the latest discoveries, as a venue to foster collaboration and information exchange and dissemination, for sustaining global environmentally sustainable seed-based food and feed supply.

Conflict of interest

The author declares that there is no conflict of interest.

Dates

Received 10 May 2022; Accepted 10 May 2022; Published online 16 May 2022



Copyright: © 2022 by the author(s). Published by Maximum Academic Press on behalf of Hainan Yazhou Bay Seed Laboratory. This article is an open access article distributed under Creative Commons Attribution License (CC BY 4.0), visit <https://creativecommons.org/licenses/by/4.0/>.