

Analysis and Reflections on the Current Development of China's Excellent Agricultural Journals

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Abstract

[Objective] By analyzing the development status of China's excellent agricultural journals and high-starting-point new journals in the agricultural field, this study explores the development trends of China's agricultural journals, proposes insights for the development of China's agricultural journals, and provides a reference basis for the high-quality development of China's agricultural journals. **[Methods]** Taking the 19 agricultural journals selected for the "Excellence Program" in 2019 and agricultural journals selected for the high-starting-point new journal projects under the Excellence Program from 2019 to 2023 as research subjects, this study analyzes the development trends of China's excellent agricultural journals from four aspects: the disciplinary distribution in agricultural fields prioritized for the construction of excellent agricultural journals, domestic influence of journals, international influence of journals, and basic characteristics of high-starting-point new journals in the agricultural field, and summarizes the insights and development prospects for the overall high-quality development of China's agricultural journals. **[Results]** Compared with agricultural journals supervised by the China Association for Science and Technology, Chinese Academy of Sciences, and Ministry of Agriculture and Rural Affairs, the journals run by agricultural universities under the supervision of China's Ministry of Education are relatively weaker, exhibiting a phenomenon of "strong disciplines but weak journals", with fewer agricultural journals selected for the Excellence Program and high-starting-point new journal projects. In recent years, China's agricultural universities have comprehensively deployed in advantageous disciplines, with the number of high-starting-point new journals showing an upward trend. Simultaneously, by exploring blank areas in interdisciplinary fields, they have developed a batch of strong new journals, gradually achieving coordinated development between agricultural journals and disciplines. **[Conclusion]** Although the journal publishing power in China's agricultural field is relatively weak, the advantageous disciplines are evident, with journals possessing strong develop-

ment momentum and a robust upward trend. The prioritized development of China's excellent agricultural journals will drive the common development of the overall agricultural journals.

Full Text

Analysis and Reflection on the Development Status of China's Excellent Agricultural Journals

Abstract:

[Purpose] This study analyzes the development trends of China's agricultural journals by examining the current status of excellent agricultural journals and newly launched high-start journals in the agricultural field, proposing insights for the development of agricultural journals in China and providing a reference basis for their high-quality development. [Methods] Taking 19 agricultural journals selected for the 2019 "Excellence Plan" and agricultural journals selected for the high-start new journal project from 2019 to 2023 as research objects, this study analyzes the development trends of China's agricultural journals from four perspectives: the disciplinary distribution of prioritized agricultural fields for excellent agricultural journal construction, domestic journal influence, international journal influence, and basic characteristics of high-start new journals in agriculture. It also summarizes insights and development prospects for promoting the overall high-quality development of China's agricultural journals. [Findings] Compared with agricultural journals supervised by the China Association for Science and Technology, Chinese Academy of Sciences, and Ministry of Agriculture and Rural Affairs, journals run by agricultural universities under the Ministry of Education are relatively weak, exhibiting a phenomenon of "strong disciplines but weak journals." The number of agricultural journals selected for the Excellence Plan and high-start new journal projects is relatively small. However, agricultural universities in China have comprehensively deployed their advantageous disciplines in recent years, with the number of high-start new journals showing an upward trend. Simultaneously, by exploring blank areas in interdisciplinary research, a group of strong new journals has been developed, gradually achieving coordinated development between agricultural journals and disciplines. [Conclusion] Although journal operation in China's agricultural field is relatively weak, the advantages of dominant disciplines are evident, and journal development momentum is strong, showing a significant upward trend. The prioritized development of China's excellent agricultural journals will drive the common development of the entire agricultural journal ecosystem.

Keywords: Excellent agricultural journals; High-start new journals; High-quality development

Journals serve as crucial carriers for disseminating research achievements [1]. Studies indicate that China's R&D investment and SCI paper publications have grown synchronously, while publications in Chinese core journals show an opposite trend. The evaluation system that prioritizes SCI impact factors has led

to a massive outflow of high-quality manuscripts from China, causing Chinese scientific journals to seriously lag behind the rapid development of Chinese science [2]. As Zhu Zuoyan, Editor-in-Chief of *Science China*, stated: “We must enable Chinese science to take off together with China’s economy, and enable Chinese scientific journals to grow together with Chinese scientists.”

To build world-class scientific journals, the China Association for Science and Technology and six other ministries jointly implemented the China Science and Technology Journal Excellence Action Plan (hereinafter referred to as the “Excellence Plan”) in 2019 [3]. This represents the most extensive major special support initiative in China’s scientific journal history in terms of implementation strength, funding amount, and scope. Agricultural journals bear the important responsibility of disseminating new-era agricultural research achievements and play an irreplaceable role in promoting China’s agricultural modernization, accelerating industrial development, and serving national rural revitalization. However, most Chinese agricultural journals suffer from decentralized management, low digitalization levels, and a shortage of composite editorial talent [4-6], leaving their high-quality development still in the exploratory stage. Current research on agricultural journals generally focuses on clustering exploration [7], new media operations [8], digital publishing [9], case studies of individual journals [10-12], the relationship between journals and disciplines [13], and the role of agricultural journals in rural revitalization [14]. However, macro-level analysis of the overall development situation and future trends of China’s agricultural journals is lacking. Therefore, this study analyzes 19 agricultural journals selected for the 2019 “Excellence Plan” and high-start new journals in agriculture from 2019 to 2023, examining trends from four aspects: disciplinary distribution in prioritized agricultural fields, domestic influence, international influence, and basic characteristics of high-start new journals. It summarizes insights and prospects for the overall high-quality development of China’s agricultural journals, providing theoretical support and data evidence.

1. Research Objects and Methods

This study examines agricultural journals selected for the 2019 “China Science and Technology Journal Excellence Action Plan” and agricultural journals selected for the high-start new journal project announced on the China Association for Science and Technology website from 2019 to 2023. SCI 收录 status and open access information were analyzed through the WoS database retrieval and analysis platform and DOAJ journal directory. Journal supervisory units and publishers were obtained from official journal websites. Data from the 2022 *Chinese S&T Journal Citation Reports (Core Edition)* (hereinafter referred to as the *Citation Reports*) [15] and the *Chinese Academic Journal Impact Factor Annual Report (Natural Sciences and Engineering Technology)* [16] were selected to reflect domestic influence, including composite impact factors, influence index (CI), disciplinary impact indicators, disciplinary diffusion indicators, and JCR quartiles. The disciplinary diffusion indicator refers to the ratio of journals citing

the target journal to the total number of journals in its discipline within the statistical source range. The disciplinary impact indicator refers to the proportion of journals in the discipline that cite the target journal. International influence was evaluated using the 2022 *Chinese Academic Journal International Citation Annual Report (Natural Sciences and Engineering Technology)*, including international influence index (CI), total international citations, and international impact factor.

2.1 Disciplinary Distribution of Excellent Agricultural Journals

The “Excellence Plan” aims to build world-class scientific journals and represents the most significant special support initiative in China’s scientific journal history. The selected journals are industry leaders. Among the selected agricultural journals, the first-level disciplines covered include agricultural engineering, animal husbandry and veterinary medicine, crop science, plant protection, horticulture, and forestry. These fields are crucial for China’s agricultural economic development and represent key disciplines where China urgently needs to catch up with Western advanced science and technology. As shown in Table 1, the 19 selected agricultural journals belong to categories including animal husbandry and veterinary medicine (3 journals), botany (5 journals), crop science, horticulture, and comprehensive agriculture. This result indicates a serious mismatch between the disciplinary distribution prioritized by the “Excellence Plan” and the number of agricultural journals, exhibiting a “strong disciplines but weak journals” phenomenon, with substantial room for development in agricultural academic journals.

2.2 Analysis of Excellent Agricultural Journals’ Influence

As shown in Table 1, the total number of journals selected for the 2019 “Excellence Plan” was 285, with only 19 being agricultural journals. Among these, 66 journals (23.2%) were hosted by universities, while only 3 (1.05%) were hosted by agricultural universities. Thirteen agricultural journals were selected as echelon journals, *Artificial Intelligence in Agriculture and Information Processing in Agriculture* were selected as high-start new journals, *Horticulture Research* and *Journal of Animal Science and Biotechnology* were selected as leading journals, and *Journal of Integrative Agriculture* and *The Crop Journal* were selected as key journals, demonstrating a pattern of elite leadership with echelon follow-up. Among the 19 journals, 10 are English-language journals, all adopting the “borrowing a boat to go to sea” publishing model to achieve global content dissemination. WoS database retrieval shows that 7 of these 10 English journals are indexed by SCI/SCIE, and 6 offer open access. Only 3 agricultural journals are university-hosted, all by “Double First-Class” universities. The 3 journals in animal husbandry and veterinary medicine are all sponsored by the Chinese Association of Animal Science and Veterinary Medicine and supervised by the China Association for Science and Technology, while the rest are supervised

by the Chinese Academy of Sciences and Ministry of Agriculture and Rural Affairs, whose affiliated industry associations and national research institutes possess strong journal operation capabilities. This indicates that despite universities' large scale, broad disciplinary coverage, and significant advantages in first-class disciplines, their capacity to operate world-class scientific journals is relatively weak, with few selected journals in agricultural fields prioritized by the Excellence Plan.

2.2.1 Domestic Influence of Excellent Agricultural Journals

Table 2 shows that 14 of the 19 excellent agricultural journals are included in the *Citation Reports*. Among these 14 journals, 12 are in the Chinese Academy of Sciences JCR Q1 zone, 3 in Q2, and 2 in Q4. *Scientia Agricultura Sinica* ranks first among 38 comprehensive agricultural journals in the *Citation Reports* for core impact factor, total core citations, and comprehensive evaluation. *Acta Agronomica Sinica* ranks first among 22 agronomy journals for these same metrics. *Chinese Journal of Plant Ecology* ranks first among 12 botany journals. *Transactions of the Chinese Society of Agricultural Engineering* ranks first among 21 agricultural engineering journals for total core citations and comprehensive evaluation, and second for core impact factor. These results demonstrate that the 14 excellent agricultural journals included in the *Citation Reports* possess relatively high domestic influence.

2.2.2 International Influence of Excellent Agricultural Journals

This study selected the 2022 *Chinese Academic Journal International Citation Annual Report (Natural Sciences and Engineering Technology)* to evaluate the international influence of the 19 excellent agricultural journals. Among them, 12 journals were rated as “2022 China’s Most Internationally Influential Academic Journals” (Table 3), and 3 were rated as “2022 China’s Internationally Influential Excellent Academic Journals.” This indicates that all 19 excellent agricultural journals maintain good international influence.

Analysis of High-Starting New Journals in Agriculture from 2019 to 2023

In 2019, seven ministries jointly implemented the “Excellence Plan,” supporting the launch of 30 high-start new journals annually. This initiative selects journals by field, conducts forward-looking layout, and emphasizes leadership, supporting the creation of high-start scientific journals in traditional advantages, emerging interdisciplinary fields, strategic frontiers, and key common technology areas. It establishes dynamic monitoring, expert review, training and exchange mechanisms to promote leapfrog development. As shown in Table 2, over the four-year selection period, only 2 agricultural journals (6.7%) were selected among the 30 high-start new journals in 2019, with 13 university-hosted journals (43.3%), including *Information Processing in Agriculture* hosted

by China Agricultural University. In 2020, 3 agricultural journals (10%) were selected among 30, with 17 university-hosted journals (56.7%), including *Plant Phenomics* hosted by Nanjing Agricultural University. In 2021, only 2 agricultural journals (6.7%) were selected among 30, with 15 university-hosted journals (50.0%), including only one agricultural university. In 2022, 6 agricultural journals (12%) were selected among 50, with 29 university-hosted journals (58.0%), including only two agricultural universities. In 2023, 3 agricultural journals (6.1%) were selected among the high-start new journals, with 31 university-hosted journals (63.2%). University publishers clearly account for a high proportion (43.3%-63.2%) of selected high-start new journal projects, with most adopting open access. These results indicate that agricultural universities' journal operation momentum is relatively weak compared to non-agricultural universities, but as national support for agricultural journals increases—from 30 journals in 2019 to 49 in 2023—the proportion of agricultural high-start new journals is also rising.

Table 4 shows the basic situation of agricultural high-start new journals selected from 2019 to 2023. Most are open access, including *Artificial Intelligence in Agriculture* (Science Press, Chinese Academy of Sciences), *Information Processing in Agriculture* (China Agricultural University), *Plant Communications* (Chinese Academy of Sciences Center of Excellence for Molecular Plant Sciences), *Plant Phenomics* (Nanjing Agricultural University), *Grassland, Forage and Ecosystems* (Chinese Grassland Society), *Biochar* (Shenyang Agricultural University), *BioDesign Research* (Nanjing Agricultural University), *Animal Disease* (Huazhong Agricultural University), *Seed Biology* (Yazhou Bay Seed Laboratory, Hainan), *Stress Biology* (Northwest A&F University), *Water Biology and Security* (Institute of Hydrobiology, Chinese Academy of Sciences), *Zoological Research: Diversity Conservation* (Kunming Institute of Zoology, Chinese Academy of Sciences), *Civil Engineering Sciences* (Chinese Society of Civil Engineering), *Agrobiodiversity* (Yunnan Agricultural University), and *Food Production, Processing and Nutrition* (Jiangsu Academy of Agricultural Sciences).

2.4 Basic Situation of Newly Founded Agricultural Journals in 2022-2023

Since 2022, more agricultural researchers have joined the journal operation ranks, comparing specific fields with international journals, exploring blank areas in interdisciplinary research, and seeking opportunities to launch new journals. Agricultural universities under the Ministry of Education have gradually leveraged their advantages in animal husbandry and veterinary medicine, agricultural engineering, civil engineering, and food science to launch new journals, including China Agricultural University, Nanjing Agricultural University, Shenyang Agricultural University, Huazhong Agricultural University, and Northwest A&F University.

In 2022, Huazhong Agricultural University launched *Crop and Environment*. While many international journals cover crop genetics, molecular biology, genet-

ics, and breeding, few focus on physiological ecology and cultivation, especially high-impact journals. Therefore, *Crop and Environment* emerged to fill this gap. In 2023, the College of Veterinary Medicine at China Agricultural University officially launched the English journal *One Health Advances*, focusing on the collaborative development of interdisciplinary fields including veterinary medicine, food health, environment, and medical health. In November 2023, it was selected as a high-start new journal under the “Excellence Plan.” As shown in Table 5, most newly founded English journals identify blank areas in interdisciplinary research as their launch opportunity, are predominantly hosted by agricultural universities, adopt the “borrowing a boat to go to sea” publishing model, and offer full open access. From 2022 to the present, according to incomplete statistics, newly founded agricultural journals are not limited to those in Table 5, with many more in preparation. These timely new English journals are striving to refine and strengthen journals in basic and traditional advantage fields, as well as to compete for international academic discourse power.

3.1 Leveraging University Disciplinary Advantages to Achieve Coordinated Development Between Agricultural Journals and “Double First-Class” Initiatives

Currently, “first-class universities, first-class disciplines, and first-class journals” has become a consensus for future planning and development in “Double First-Class” universities, with journal soft power becoming one of the important indicators for national “Double First-Class” construction and evaluation [17]. Studies show that regarding domestic and international publications, top Chinese universities’ SCI publication growth rate far exceeds that of domestic core journals, which struggle to meet the needs of local universities and scholars in terms of quality and international influence, leading to substantial loss of high-quality research achievements [18]. “Double First-Class” universities all have academic journals, but the quality and publication volume are unbalanced, failing to meet researchers’ needs for career advancement. Scholars lack attention to university journals, while journals fail to build communication channels with scholars—this is a serious problem. This study’s data show that the 19 excellent agricultural journals selected for the Excellence Plan possess relatively high domestic and international influence, covering agricultural engineering, animal husbandry and veterinary medicine, crop science, plant protection, horticulture, and forestry—six disciplines also prioritized by the Excellence Plan. These journals stand out by leveraging first-class disciplinary platforms and academic resource advantages. To break through inherent models and achieve coordinated development between journals and disciplines requires proactive communication with researchers, integration into research teams, and organization of special issues or columns by academic leaders at national and global levels to attract high-quality papers. Journals should build distinctive, academic-level-based features, strengthen column characteristics, demonstrate journal identity, and actively publish the latest research achievements in featured, key, and brand

columns to further promote disciplinary construction and provide platforms for disciplinary development. Since 2023, *Journal of Tropical Biology* has invited disciplinary experts to serve as column editors for high-level, high-quality commissioned contributions, striving to build a distinctive journal. This column editor system is worth emulating by journal colleagues.

3.2 Exploring Interdisciplinary Blank Areas in Agriculture to Launch English New Journals

Research shows that among the 36 Class A first-class university construction universities in China, 192 first-class disciplines across 33 universities lack corresponding professional journals [18-19]. This indicates substantial room for improvement in the matching between university academic journals and first-class disciplines. This study finds a serious mismatch between the disciplinary distribution prioritized by the “Excellence Plan” and the number of agricultural university journals. To better serve disciplinary construction, China can compete for international academic discourse power by launching English new journals that explore blank areas in agricultural interdisciplinary research or fields where first-class disciplines lack journals. *Nature*, founded in 1869, is a historically significant, highly influential, and world-recognized leader among comprehensive natural science journals. Due to rapid scientific and technological advancement and *Nature*’s excellent management, submissions have increased dramatically, but only 10% are accepted [20]. As *Nature* cannot accommodate the growing number of excellent submissions, it has seized this opportunity to promote research development by continuously innovating and launching a series of *Nature* sub-journals in the most competitive fields, achieving serialized journal development [21]. *National Science Review* (NSR), a domestic first-class journal comparable to *Nature* and *Science*, has conducted substantial effective work by emulating *Nature*’s philosophy, column diversification, and journal serialization, significantly enhancing brand reputation.

This study shows that from 2019 to 2023, the number of selected high-start new journal projects demonstrates a strong, significantly rising development trend for China’s agricultural journals. Researchers fully utilize blank areas in agricultural interdisciplinary fields to launch new journals. To further promote Nanjing Agricultural University’s new goal of “building a world-class university with agricultural characteristics” and to “inherit human civilization, gather scientific discoveries, and lead scientific and technological development,” Nanjing Agricultural University launched its third English academic journal *BioDesign Research* in 2019, following *Horticulture Research* and *Plant Phenomics*. The journal leads disciplines by addressing global challenges in health, agriculture, and environment through rational or automated methods, achieving a qualitative leap from traditional small disciplines like horticulture (a branch of agronomy) to interdisciplinary plant phenomics (agronomy, agricultural engineering, and computer science) and cutting-edge fields spanning all biology (botany, zoology, microbiology, and human medicine) including synthetic biology and

systems biology. Nanjing Agricultural University's English journals are "leaders" among agricultural journals, and their unique philosophy and operation model are worth learning from. Shanghai Jiao Tong University's 2021 launch of the English new journal *Molecular Horticulture* targets first-class horticulture disciplines, promoting the intersection and coordinated development of basic and applied research.

3.3 Strengthening the Demonstration and Leading Role of Excellent Agricultural Journals to Drive Overall Development

The "Excellence Plan" aims to build world-class scientific journals. How other ordinary journals should continue developing based on their current status is a question worth exploring. Mr. Chen Haoyuan noted that cultivating world-class journals is a long-term, great systematic project. Universities should develop their own characteristics based on distinctive advantageous disciplines—all can be first-class, so positioning must be accurate, and blindly pursuing first-class status should be avoided [16]. Since the implementation of the "Excellence Plan," China's agricultural journals have entered a stage of strong, significantly rising development. This study's results show that excellent agricultural journals possess relatively high domestic and international influence, playing a leading and demonstrative role as flagship journals impacting international first-class status. Other ordinary agricultural journals can continuously progress by referring to the influence indicators of excellent agricultural journals according to their own development positioning, thereby driving the overall improvement of the entire agricultural journal cluster.

To build world-class scientific journals, China's scientific journals must first cluster together and share resources and technology to activate internal vitality. Journal clustering can optimize publishing resource allocation, enhance digital publishing levels, improve core competitiveness and international influence, and expand related personalized services. Journals at different levels can meet the needs of different reader and author groups while solving problems of small single-journal scale and low influence [22]. Many domestic journal publishers actively explore appropriate clustering models, such as the Science Press journal cluster, Chinese Medical Publishing Group, and China Aviation Journal Cluster [23], with the first two also receiving the 2019 "Excellence Plan" clustering pilot project [24]. China's agricultural journals have gradually developed the "China Agricultural Journals Network" platform suitable for cluster development in the agricultural field. With the leadership of excellent agricultural journals, mining and utilizing quality resources from existing journals can help the editorial team grow and enhance the overall influence and dissemination power of academic journals. We must create our own unique first-class journals and work together to achieve high-quality development of China's agricultural journals.

4. Development Prospects for China's Agricultural Journals

In recent years, the state has introduced a series of policies and measures supporting the development of domestic scientific journals, which have significantly improved publishing capabilities, service levels, and international influence. With the rapid development of agricultural science and technology and rural economy, China's agricultural journals have made remarkable progress and will certainly maintain this positive momentum. First, agricultural journals need to master digital technology and challenge digital transformation, such as future metaverse publishing models for agricultural journals, to continuously enhance influence and reader experience. Second, agricultural journals need to strengthen tracking of agricultural applications and frontiers and hotspots in basic science. The *2022 Global Agricultural Research Hotspots and Frontiers Report* identifies 71 agricultural research hotspots across nine major agricultural disciplines in 2022, with crop horticulture, agricultural resources and environment, and agricultural information and engineering showing significant advantages, while animal husbandry and veterinary medicine and agricultural product quality and processing lead with slight advantages, all ranking at the top. Agricultural journals should closely monitor agricultural frontiers and hotspots, seize more opportunities to publish valuable research results, and disseminate more advanced agricultural intelligent technologies and information in agricultural production to improve efficiency. Third, agricultural journals can collaborate with agricultural producers, governments, and academic institutions to conduct agricultural industry research and promote industrial development, such as research on rural e-commerce. They can organize agricultural exhibitions to showcase the latest industry progress and enhance their own influence and visibility. Fourth, agricultural journals can actively participate in formulating agricultural industry policies to provide suggestions and opinions for industrial development. Fifth, agricultural journals can conduct international cooperation and organize domestic agricultural journals to participate in international journal exhibitions, which helps absorb advanced foreign editorial techniques and management models, facilitates the integration and development of China's scientific and technological culture, and accelerates the internationalization of China's editing and publishing industry.

5. Conclusion

The "Excellence Plan" prioritizes the construction of leading disciplines with high-level paper output in China, providing layout and planning for building world-class scientific journals. This study summarizes the development status of China's excellent agricultural journals and high-start new journals and analyzes development trends. The research shows that agricultural universities exhibit a "strong disciplines but weak journals" phenomenon, but China's agricultural fields have prominent dominant disciplines and strong, dynamic journal development momentum. It is hoped that agricultural journal practitioners will

pay more attention to the integrated development of journals and disciplines, fully utilize university disciplinary advantages, strengthen the construction of featured, key, and brand columns to achieve distinctive journal operation, explore interdisciplinary fields in agriculture to launch new journals, and create a new situation for China's agricultural journal development.

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