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Editorial: Enhancing food security and trade resilience in sustainable agricultural systems

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food security, sustainable agriculture, international trade, agricultural policies, food sovereignty

Editorial on the Research Topic

Enhancing food security and trade resilience in sustainable agricultural systems

Food security is a critical global challenge, influenced by complex interactions between agriculture, trade, and market dynamics. As countries navigate the impacts of climate change and economic fluctuations, sustainable agricultural practices become essential for ensuring a stable food supply. International trade agreements, such as the China–Pakistan Free Trade Agreement and the pathways established by the Belt and Road Initiative, significantly shape domestic agricultural economies. Understanding how these agreements affect food access, sovereignty, and production sustainability is crucial for developing resilient food systems.

Despite the recognized importance of these interconnections, there is limited research that comprehensively examines the interplay between trade policies and sustainable agricultural practices in supporting food security. Many existing studies focus on individual aspects, neglecting the integrated nature of these systems. This Research Topic aims to fill this gap by exploring how trade dynamics, local agricultural strategies, and policy frameworks can enhance food security and resilience. By synthesizing diverse case studies and analyses, we aim to identify best practices and effective pathways to strengthen both trade and local agricultural sustainability in various contexts.

This Research Topic welcomes papers that provide insights into the complex relationship between trade and food security within sustainable agricultural frameworks. Contributions are invited on the following subthemes:

- The impact of trade agreements on domestic agricultural markets.
- Strategies for integrating sustainable practices into trade frameworks.
- Case studies illustrating successful agricultural exports and their implications for food security.
- The balance between international trade and food sovereignty.
- Policy recommendations for fostering resilient agricultural systems in a global trade context.
- The impact of emerging technologies on agricultural systems or rural development.

This album is collected around these Research Topics. The six sections and 29 research papers included focus on the systematic role of trade policies and sustainable case practices in food security, overcoming the limitations of a single system or condition on food security. They integrate methods such as spatiotemporal big data analysis, large-scale field surveys, and scenario modeling to explore the impact of trade policies and sustainable practices on food security from multiple scales, perspectives, and time series. Among them, the section of “the impact of trade agreements on domestic agricultural markets” systematically analyzed the impact of free trade agreements on China’s agricultural imports and on the agricultural global value chain, and also studied the trade potential of food crops in countries along the Belt and Road and the vegetable exports of China Pakistan free trade agreements to Pakistan; The section of “strategies for integrating sustainable practices into trade frameworks” systematically analyzed the impact of institutional openness on the trade efficiency changes of China’s imports of agricultural products from Central Asian countries, the improvement of quality signals, the increased willingness of farmers to pay for cassava planting materials with quality assurance, and the acceleration of cassava variety turnover; The section of “case studies illustrating successful agricultural exports and their implications for food security” systematically analyzed the relevant empirical research on vegetable exports from Pakistan and the empirical analysis of Saudi Arabia’s demand for imported raw coffee; The section of “the balance between international trade and food sovereignty” systematically studied the dynamic impact of international price fluctuations on China’s soybean market prices, the spatial distribution and influencing factors of China’s overseas agricultural land investment projects under the background of food security, as well as Chile’s food sovereignty, food security, and international trade; The section of “policy recommendations for fostering resilient agricultural systems in a global trade context” systematically analyzed the solutions to the reduction of rural population in black soil areas, the development goals of wheat in Kenya, and the impact of industrial and commercial capital and urbanization on food security; The section of “the impact of emerging technologies on agricultural systems or rural development” systematically studied the impact of new technologies on agricultural or rural development at different scales, including rural areas, Lanling County, Jiaozuo City, Bihar and China.

The number of submissions for this album exceeded our expectations. We would like to express our academic respect and sincere gratitude to all the authors who submitted the album. Since the establishment of this album, a total of 29 articles have been published, studying relevant cases of agricultural sustainable development and food security in multiple regions and countries including the United States, Pakistan, Africa, Europe, Central Asia, and China, generating positive research results. The album has attracted over 160 authors to submit and publish, and since its release, it has attracted 11,000 downloads, with an overall view count and download count of over 54,000, achieving a wide academic impact.

This album is only a preliminary exploration of interdisciplinary research on sustainable development in agriculture or rural areas. During this submission process, we strongly realized that under the dual pressures of global climate change and food security, interdisciplinary research has become the core path to solving the challenges of sustainable development in agriculture or rural areas. I hope that the publication of this album can serve as a starting point for interdisciplinary research on the intersection of sustainable development in agriculture or rural areas and food security. In the new era, in order to achieve sustainable agricultural development and food security, it is necessary to handle the relationship between ecological environment protection and economic and social development with higher positioning, wider vision, and more refined means, systematically enhance the ability of agricultural or rural ecological environment to support high-quality development, and promote the benign interaction between multiple factors in agriculture or rural areas. We look forward to more scholars continuing to pay attention to and actively participate, making academic contributions to building sustainable agricultural development and food security.

Author contributions

FG: Writing – original draft, Writing – review & editing.

Conflict of interest

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