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The food system of Kazakhstan

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ABSTRACT

The food system encompasses a range of activities and processes involved in the production, processing, distribution, consumption, and disposal of food products. It is linked to the well-being of citizens, serving as a pathway for ensuring food security, promoting economic growth, and fostering sustainable development. However, the modern food systems face many challenges due to rapid globalization, population growth, and mounting environmental challenges. Kazakhstan, as a state with a rich agricultural heritage, is a major producer and exporter of agricultural commodities. With its rich agricultural potential and strategic geographic location, Kazakhstan is well-positioned to play a role in addressing the challenges, though, numerous economic, social, and environmental factors should be considered.

***Keywords**: Food system; Kzakhstan.*

Editorial: The food system of Kzakhstan

The food system encompasses a range of activities and processes involved in the production, processing, distribution, consumption, and disposal of food products. It is linked to the well-being of citizens, serving as a pathway for ensuring food security, promoting economic growth, and fostering sustainable development (Bateman and Balmford, 2023; Zhang et al., 2022). However, the modern food systems face many challenges due to rapid globalization, population growth, and mounting environmental challenges (Omarbakiyev et al., 2023; Radchenko et al., 2023; Wrzecińska et al., 2023). Kazakhstan, as a state with a rich agricultural heritage, is a major producer and exporter of agricultural commodities. With its rich agricultural potential and strategic geographic location, Kazakhstan is well-positioned to play a role in addressing the challenges, though, numerous economic, social, and environmental factors should be considered.

This themed issue aims to shed light on the Kazakhstan's food system, its perspectives and methodologies that offer a comprehensive understanding of its complexities and opportunities. The papers featured in this issue explore themes that range from the development of the dairy industry and the implementation of agricultural clusters to the assessment of food security, land management practices, and the competitiveness of the agro-industrial complex.

At the core of Kazakhstan's food system lies its agricultural sector, which plays a central role in the country's economic development and food security (Kuralbayeva et al., 2023). The country's crop production is primarily focused on grains, such as wheat, barley, and corn. In recent years, the country increased emphasis on the cultivation of oilseeds, vegetables, and fruits. Livestock production has deep roots in Kazakhstan's cultural heritage and continues to play a crucial role in its food system. The vast grasslands and pastures support the breeding of cattle, sheep, and horses, contributing to the production of meat, dairy products, and wool (Bondarenko et al., 2023; Duisenbekova and Daniłowska, 2021).

Despite its rich agricultural heritage and natural resources, the country's harsh continental climate, characterized by extreme temperatures and limited precipitation, poses significant obstacles to agricultural production. Soil degradation, water scarcity, and the need for modernization of agricultural practices and infrastructure hold back the full realization of Kazakhstan's agricultural potential. Recognizing these challenges, the government of Kazakhstan implemented policies and initiatives aimed at supporting and developing the agricultural sector and took measures to promote domestic food production, reduce reliance on imports, and facilitate access to nutritious and affordable food for all segments of the population. The country recognized the importance of adopting eco-friendly agricultural practices, promoting the efficient use of natural resources, and reducing the impact of climate change on food production (Ismayilzada et al., 2023; Stepanenko et al., 2023).

The research presented in this special issue holds profound significance and potential for shaping the future trajectory of Kazakhstan's food system, while also contributing to the broader discourse on sustainable development, food security, and economic prosperity. D. Aisautov and G. Akimbekova in "Clusters as a tool for improving the efficiency of the dairy industry" explore the potential benefits of fostering collaboration, knowledge sharing, and resource optimization among industry participants through cluster-based approaches. The study reveals how the dairy sector can drive innovation and achieve sustainable growth. N.R. Auesbekova et al. focus on land management practices and their economic efficiency within agricultural organizations. Their article "Economic efficiency of on-farm land management in agricultural organizations" offers invaluable insights to inform decision-making processes and guide sustainable land management practices.

"Competitiveness of Kazakhstan's agrifood systems: Opportunities and growth factors" by G. Ayazbayeva et al. unravels the strengths, weaknesses, and opportunities that characterize Kazakhstan's agro-industrial complex. G. Ayazbayeva also studies the dynamics that shape Kazakhstan's ability to meet the nutritional needs of its population in "Analysis of the Food Problem in the Republic of Kazakhstan". In the meantime, A. Duisenbekuly et al. and A. Irkitbayeva et al. examine the effectiveness of state regulation and policy mechanisms in addressing food security challenges in Kazakhstan and neighboring regions. Their articles "Food security in Kazakhstan and Azerbaijan: Challenges and strategies for economic and sustainable development" and "Food security assessment: The example of the Almaty Region" offer recommendations for enhancing the impact of policy mechanisms and aligning them with international standards and best practices

"Assessing the impact of innovations in the food industry on labour productivity" by Zh. Mukhametzhanova et al. explores the influence of research and development investment, patent acquisition, and enterprise size on productivity and efficiency within the food production sector. "Ecological and economic efficiency of production and processing of milk on the example of enterprises of the Akmola Region" by Zh. Nurtayeva et al. offers a localized perspective on the environmental and economic challenges faced by dairy enterprises.

R. Yegemberdiyev et al. offer a way for optimizing the livestock sector, encompassing dairy cattle breeding, poultry farming, and other subsectors in their article "Mechanisms for improving the economic efficiency of livestock development in the Republic of Kazakhstan". In addition, paper "Ensuring sustainable agricultural development in Kazakhstan: Sources of funding" by G. Yessimkhan and N. Sartanova provides a comprehensive analysis of the normative-legal regulation of the agro-industrial complex of Kazakhstan, concerning financial relations within the sector. This paper identifies key issues and proposes solutions related to funding sources for sustainable agricultural development.

The interdisciplinary nature of the contributions, covering fields such as economics, agricultural sciences, policy studies, and environmental management, offers ground for further exploration and scholarly discourse. For policymakers and stakeholders, the presented findings offer a foundation for strategies and regulations that can enhance the resilience, sustainability, and competitiveness of Kazakhstan's food system. For academic researchers, this issue represents diverse methodologies, theoretical frameworks, and empirical evidence. The significance of this issue extends beyond the borders of Kazakhstan, as the lessons learned and best practices highlighted have the potential to inform and inspire similar efforts in other regions.

The research highlights the need for continued exploration and investigation to address remaining gaps and emerging challenges. Exploring opportunities for diversifying agricultural production could contribute to enhanced food security and economic growth. The rapid advancement of digital technologies and data analytics presents significant opportunities for optimizing and transforming food systems. The contributions of smallholder farmers and rural communities cannot be overlooked. Exploring the potential of public-private partnerships and incentive structures could facilitate the mobilization of resources for sustainable agriculture.

The journey through the pages of this issue has been a profound exploration of the complexities, challenges, and opportunities that lie at the heart of Kazakhstan's food system. The exploration of themes ranging from the dairy industry and agricultural clusters to land management practices, food security assessments, and the impact of innovations on productivity illuminated both challenges and opportunities. This issue lays the foundation for informed decision-making, strategic planning, and the implementation of innovative solutions that can drive positive change.

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