

Competitiveness of Kazakhstan's agrifood systems: Opportunities and growth factors

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ABSTRACT

The purpose of this study is the assessment of the competitiveness of the agro-industrial complex of Kazakhstan and the analysis of potential growth opportunities. Retrospective, dynamic, and structural analysis are the basis for assessing the current state of the agro-industrial sector. The analysis revealed weaknesses in the logistics infrastructure and a preponderance of antiquated and depreciated agricultural equipment, impeding production and quality. Despite the fact that investments were made easier by official support programmes, sector profitability remained poor. Modernising production assets, combining smallholder farms, and encouraging sustainable practices to boost long-term competitiveness are some of the major prospects found.

Keywords: Agribusiness; gross output; crop and animal husbandry; food industry; agricultural products; agro-industrial complex.

1 Introduction

Understanding the essence of competitiveness, its key components, and levels of implementation determines the effectiveness of management decisions aimed at increasing the ability to compete in a dynamically evolving market environment. One of the key elements of the economy is the agro-industrial complex, which acts not only as a factor in domestic and foreign trade activity but also plays a fundamental role in shaping the economic security of the country. The study of the competitiveness of this branch of the economy, in particular the agrifood complex, is an extremely important and relevant area, both for business and government agencies and the scientific environment.

This study defines competitiveness as the capacity of businesses and industries to thrive in a market setting by producing goods that consumers want to buy and selling them at a reasonable price. In agricultural businesses, competitiveness is demonstrated by the ability to produce increasing output volumes, make investments in upgrading assets, enhance processes, weather market shocks, and gain market share either domestically or internationally (Mamaeva et al., 2020). In order to improve the agro-industrial complex's competitiveness, a number of critical requirements must be satisfied. First, to address the widespread problem of old, depreciated equipment that reduces productivity and quality, agricultural firms must engage in innovation and modernization of production facilities. Secondly, economies of scale, logistics, and bargaining power can be enhanced by combining the dispersed smallholder farms and households into bigger agricultural cooperatives or clusters. Creating a strong infrastructure for distribution and transportation is also necessary to move goods from farmers to customers in an effective manner (Chen et al., 2022). Long-term competitiveness will also be increased by implementing sustainable development strategies that encourage resource efficiency and environmental stewardship. The most crucial point is that the state must continue to strategically support projects like public-private partnerships, investment subsidies, and service digitization in order to provide the ideal environment and economic incentives.

When studying the competitiveness of agrifood systems, it should be taken into account that it is formed at several levels that complement each other, since competitive products produced by enterprises determine their ability to expand, invest, and innovate, which will shape the competitiveness of such an enterprise. And accordingly, the totality of such enterprises, in combination with the state management policy, forms the competitiveness of the economy (industry) as a whole (Kerimkhulle et al., 2023). Most of the classifications of competitiveness are repeated. British researchers Stoica et al. (2016) highlighted micro-level, regional, and macro-level (national) competitiveness. According to the same principle, but with a slight difference, American scientists Delgado et al. (2012) classify competitiveness by distributing it to the product level (product differentiation), micro-level (enterprises, business entities), regional and national levels, and interstate, which determines foreign economic activity and global competitiveness.

The competitiveness of a particular national economy and its business environment are crucial for the economic, political, and social development of the country (Baikin et al., 2017; Trusova et al., 2021). Competitiveness can be analysed using a range of single-factor and multi-factor competitiveness indicators that contribute to the quantitative assessment, and the analysis of internal and external determinants of competitiveness. The appropriate levels of measurement and analysis of competitiveness, whether from the standpoint of a company or a country, are the subject of constant debate (Ruzekova et al., 2020).

American researcher Stevenson (2008) notes that it is based on the "product level," the most important determining factor of competitiveness, which is the determination of the desires and needs of consumers for a particular product or service. However, this is implemented through the real and potential ability and the ability of the enterprise to design products that are more attractive in terms of price and non-price characteristics than similar products of external and internal competitors. Competitiveness is a characteristic that is a manifestation of the degree of implementation of the potential ability to form, retain, and use sustainable competitive advantages of a business entity, considering dynamic processes and phenomena, and the level of stability of competitive advantages is determined by the probability of their imitation by competitors (Al-Rwashdeh, 2016).

In order to obtain relevant analysis results regarding the factors of competitiveness growth, it is necessary to consider the specific features of the Kazakhstani food market. A significant share of the food supply is carried out by importing. Therefore, reducing import-food dependence at the expense of domestic products is a very important task. A country's food independence can be achieved in two ways: the first involves self-sufficiency in food, and the second involves a combination of using the capacity of its own food industry and imported supplies. The solution to import substitution problems is possible by increasing the competitiveness of Kazakh agricultural enterprises through the introduction of innovations and the use of resource-saving technologies (Shalgimbayeva et al., 2022).

Considering all of the above, the purpose of the study is a relevant assessment of the competitiveness of the agro-industrial complex of the Republic of Kazakhstan. To achieve this goal, it is necessary to determine the essence of competitiveness and its components in relation to agrifood systems to analyse the main indicators, features, and trends in the functioning of the country's agrifood industry.

2 Materials and Methods

Both general scientific and specific methods, such as retrospective, dynamic, and structural analysis, were used in the research process. Retrospective analysis entailed looking back at data and trends from prior years to comprehend the evolution of the agro-industrial sector over time. The industry's current state has been moulded by a number of trends, growth trajectories, and turning points that this longitudinal method has helped discover. The goal of dynamic analysis was to evaluate shifts and variations in the agro-industrial complex's key economic indicators throughout a range of time periods. The study employed a dynamic analysis approach to uncover growth rates, periodic variations, and accelerations/decelerations in various metrics, including gross agricultural output, production volumes, productivity indices, and investment levels. This dynamic viewpoint was essential for projecting future changes. The content and relative quantities of the many elements that make up the agro-industrial complex were examined through structural analysis. Strengths, asymmetries, and dependencies within the industry were shown by structural analysis.

To define the terms necessary for the implementation of the objectives of the study, a comparative analysis of the literature was used, providing a definition or interpretation of what is meant by competitiveness and agrifood systems. This approach was used to form an exhaustive conceptual framework for determining the essence of competitiveness, in particular, with regard to agrifood systems. In addition, it allowed conducting a structured theoretical and methodological review, the results of which expanded and updated the base for further research.

The modern approach to the development of the structure of the agro-industrial complex has determined its system-forming elements, such as the sphere of logistics, the sphere of production of agricultural products, the processing and processing sphere, and the transport and logistics infrastructure of the industry. In this context, further analytical research was carried out. Due to the fact that the agro-industrial sector of Kazakhstan provides not only the internal resources of the state but also its position in the foreign market, dynamic analysis of statistical data characterising the development of the country's agrifood systems was used to determine the existing trends in the industry. The data were formed considering the relevance of indicators characterising the industry (agriculture, food, and processing systems) based on statistical groupings of information. The data sample has been formed over the past few years. The key indicator for analysing the dynamics of development was the gross output of agricultural, forestry, and fisheries products (services). This indicator characterises the total cost of products and services created in the agricultural sector, both for sale and for own consumption, and is based on the gross output of agricultural products and services produced in hunting, forestry, fishing, and fish farming.

To assess the development of the production of agrifood systems directly due to the increase in output, the physical volume index was used. This is a relative indicator that characterises the change in the volume of production in the industry in the compared periods and allows excluding the influence of the price factor (inflation). To evaluate the shift in the actual physical production volumes of Kazakhstan's agriculture, forestry, and fisheries output, the physical volume index was monitored over a number of years. It was contrasted with the comparable years' reported gross output figures expressed in monetary terms. The researchers were able to account for price increases and inflation by using this comparison. Using the results of the conducted analytical research, based on economic interpretation, the dominant trends in the agro-industrial sector of the economy of Kazakhstan are identified and characterised.

The share ratio of various parameters of the agrifood market is analysed using structural analysis. In particular, the share participation of agricultural enterprises, individual entrepreneurs, private farms, and households of the population in the gross output of agricultural products is determined. Factor analysis determined the significance of the influence of certain parameters that have a direct impact on the competitiveness of the agro-industrial complex of the republic. This quantitative technique isolates the impact of individual factors like infrastructure, technology, and subsidies while controlling for others. SWOT analysis was used to identify strengths that need to be nurtured and developed, weak characteristics that need to be improved, threats that challenge the functioning of the agro-industrial complex, and existing opportunities to identify catalysts for competitiveness growth. Using up-to-date methods of comparative analysis and assessment of the level of influence of indicators on the final result, the structuring and research of the main factors that determine the functioning of agrifood systems in Kazakhstan were carried out.

The systems approach, based on the economic system as a set of interrelated economic elements, or subsystems, forming a stable, functioning unity, is the basis for the systematisation and structuring of the obtained research results. The systems approach looks at the relationships and interactions between the several subsystems that make up the overall economic system, which gives a foundation for systematising and structuring the study findings. Priority areas for the development of the competitiveness of agrifood systems were developed considering the need to improve labour productivity, increase the volume of output of the agro-industrial complex, and provide socially significant food products of domestic production to consumers in the country. Scientific studies and papers by Kazakh and Ukrainian researchers, as well as foreign authors, in particular, from the USA, Great Britain, Korea, China, and Norway, statistical reports of the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan, data from the Ministry of Agriculture, official documents of government authorities, and analytical institutions, were used for the study.

3 Results and Discussion

When studying the essence of the concept of competitiveness, researchers proceed from the fact that they carry out the distribution depending on the possible levels of its implementation. The concept of competitiveness underlies the development of a business strategy and depends on several interrelated factors that cannot be considered separately. Each of these factors can be assessed by calculating certain indicators, while some of these indicators can be considered at different levels of aggregation: at the level of the firm, industry, region, country, or international level (Brin et al., 2020).

3.1 Factors impacting the competitiveness of agribusinesses

Korean scientists Moon and Peery (1995) note that competitiveness is often confused with productivity. Productivity refers to the internal capabilities of the organisation, and competitiveness refers to the relative position of the organisation in relation to its competitors. At the same time, it is emphasised that competitiveness can have completely different meanings at different levels of analysis: product, firm, industry, and country. Competitiveness at the product level is the ability of products to be more attractive to consumers, compared with other products of a similar type and purpose, due to better compliance with their quality and cost characteristics, as well as the requirements of this market and consumer estimates (Ostapenko, 2015). The competitiveness of products reflects the unique ability of an enterprise to surpass its competitors and maintain customer loyalty through a reasonable and efficient allocation of resources. This unique ability can highlight the company's products in conditions of difficult market competition, show the internal quality and efficiency of products, and cause consumers to associate with the brand (Yang, 2017).

3.1.1 *Competitiveness at the product level*

Chikán (2008) notes that the competitiveness of products is an opportunity to sustainably fulfil two most important tasks: satisfying consumer needs and achieving a high level of profit. This can be achieved by offering goods and services that consumers value higher than those offered by competing firms. In order to achieve this, the company must fix and adapt to changes in the external business environment and meet dynamic market criteria that the main competitors of this firm cannot meet. Thus, the competitiveness of products is determined by the capabilities of an enterprise that, having a certain set of facilities, labour, and financial resources, is able to produce products that will be comparable in their characteristics or have certain advantages over competitors' products (Kozhakhievaya et al., 2018). That is, the basis for the development of the competitiveness of products is their manufacturer – the subject of entrepreneurial activity (Abilmazhinova et al., 2015). Therefore, it is advisable not to single out the competitiveness of products at a separate level of research, except for the definition of the essence of this concept. It is necessary to consider this phenomenon in conjunction with the competitiveness of the enterprise, since the product of production is the result of a symbiosis of various characteristics of the subject of economic activity that directly determine the quality and price parameters that underlie competition with other goods (Chomanov et al., 2017).

3.1.2 *Competitiveness at the enterprise level*

In modern conditions, it is necessary to consider such factors determining competitiveness as having a comparative and temporary nature (dynamism). Hence, the competitiveness of an enterprise in a certain segment of the commodity or regional market acts as a generalising assessment of its competitive advantages in terms of the development of resource potential, the quality of satisfaction of consumer demand, and, based on this, the efficiency of the functioning of the economic system that has developed at a particular moment or during the evaluation period (Kerimkhulle et al., 2022). Porter (1985) defines competitiveness as the ability of a company to take advantage of market opportunities in order to take a position in which the firm can protect and competently use its available resources for its further growth, as well as the function of innovation and the ability to change and improve. It is also noted that competitiveness cannot be understood by considering the company separately. This comes from a variety of discrete actions that a firm performs in the development, production, marketing, delivery, and support of its product while functioning in a market environment. According to the researcher's model, the driving forces in a competitive environment are the threat of potential competitors entering the market, the power of buyers and suppliers, threats from substitutes (substitutes) of goods or services, and the level of competition between traditional competitors. These forces, to varying degrees, in the process of competition create both threats and potential opportunities for industry enterprises. Porter (1998) notes that, depending on the prevailing factors, market players are able to balance their strengths and weaknesses, thereby increasing or decreasing the level of their competitiveness and the competitiveness of the industry.

3.1.3 *Competitiveness at the industry level*

The development of competitive advantages is traditionally considered from the standpoint of foreign economic activity (absolute advantages of enterprises in the relevant industry, general advantages, the ratio of factors of production, global strategic competition) (Grishchenko et al., 2021). Thus, it can be concluded and agreed that the aggregate competitiveness of industry enterprises forms the overall competitiveness of a particular market. Thus, competitiveness

is defined by the Organisation for Economic Cooperation and Development as the degree to which a country or industry produces and achieves profitability equal to or greater than that of competitors. As for the international competitiveness of industries, this means the ability to produce and sell products at a lower price than the industries of competing countries (La Falce et al., 2020). Ukrainian researchers Vasyuta and Miroshnyk (2014) note that this is a concretisation of the aggregate ability of the industry enterprises to create, produce, and sell goods that are more attractive to consumers in terms of quality and price characteristics than products of similar foreign competitors, while ensuring consistently high rates of economic growth for the industry. The competitiveness of the industry and the country's economy is determined by the ability of companies in the field to increase their productivity as a necessity for improving the economic standard of living of residents of this country (Bontempo, 2022).

However, when determining the competitiveness of a particular industry, it is necessary to consider its specifics. In the field of agro-industrial production, there are many different enterprises that form certain systems, the combination of which makes up the agricultural production complex of the country. Agrifood systems are a set of activities and relationships that arise to determine what, how much, by what methods, and for whom food products are produced and distributed (Whatmore, 2002). According to Rundgren (2016), the agrifood system implies a set of various interactions between the processes of production, distribution, and consumption of finished products, considering the impact of environmental, socio-economic, and technological factors. Rogers et al. (2013) define agrifood systems as a set of subjects involved in the production, distribution, and consumption of food, the relationship between them, and the regulatory apparatus that controls these mechanisms. The determinants of the competitiveness of agrifood systems can determine the production conditions and the presence in the country of the factors of production necessary for the production of products (Asangalieva et al., 2015). These include skilled labour, industrial infrastructure, raw materials, climate, diverse state support, demand conditions and market features of a particular product or service, the presence of supporting or related industries, suppliers, and distributors, the company's strategy, its structure, including factors such as organisational and managerial climate, the level and nature of internal competition (Denissova et al., 2021).

Based on the above, the competitiveness of the agro-industrial complex, considering the specifics and social significance of the agricultural sector, should be determined by its competitive ability to function and develop in a market environment, effectively ensuring the reproduction processes in the agricultural sector. The level of competitiveness of agrifood systems is reflected in the volume, quality, and price of production of the main types of agro-industrial products per person, their positive dynamics, and the creation of conditions for the sustainable development of the national economic system in the long term (Shahini et al., 2023). Over the past decade, in the context of two areas of research – competitiveness and sustainable development, a third one has been formed: sustainable competitiveness. This is conditioned by the fact that globalisation challenges reinforce the need to reassess the basic factors (labour, land, capital) from a new perspective (Dumi et al., 2014). Climate change and sustainable development are also changing the role of natural resources to achieve the long-term competitiveness of agrifood systems. Finally, modern research very clearly describes the relationship between economic growth, international globalisation, sustainable development, well-being, and competitiveness (Cheba et al., 2020).

3.2 Agricultural production dynamics and structure

Recent studies show a significant and positive relationship between innovations in the field of sustainable development and the competitiveness of the firm (Hermundsdottir and Aspelund, 2021). For example, it was found that countries and enterprises demonstrate a growing trend towards sustainable development, which is conditioned by higher profitability, efficiency, and competitiveness. The study of the relationship between sustainable development and competitiveness is necessary not only to meet the academic need for knowledge, but it is also important for managers who seek to use business strategies based on innovations in the field of sustainable development to achieve competitiveness (Hermundsdottir and Aspelund, 2022). Based on all of the above, the competitiveness of agrifood systems is established by the competitiveness of the components that are part of the structure of their functioning (Figure 1).

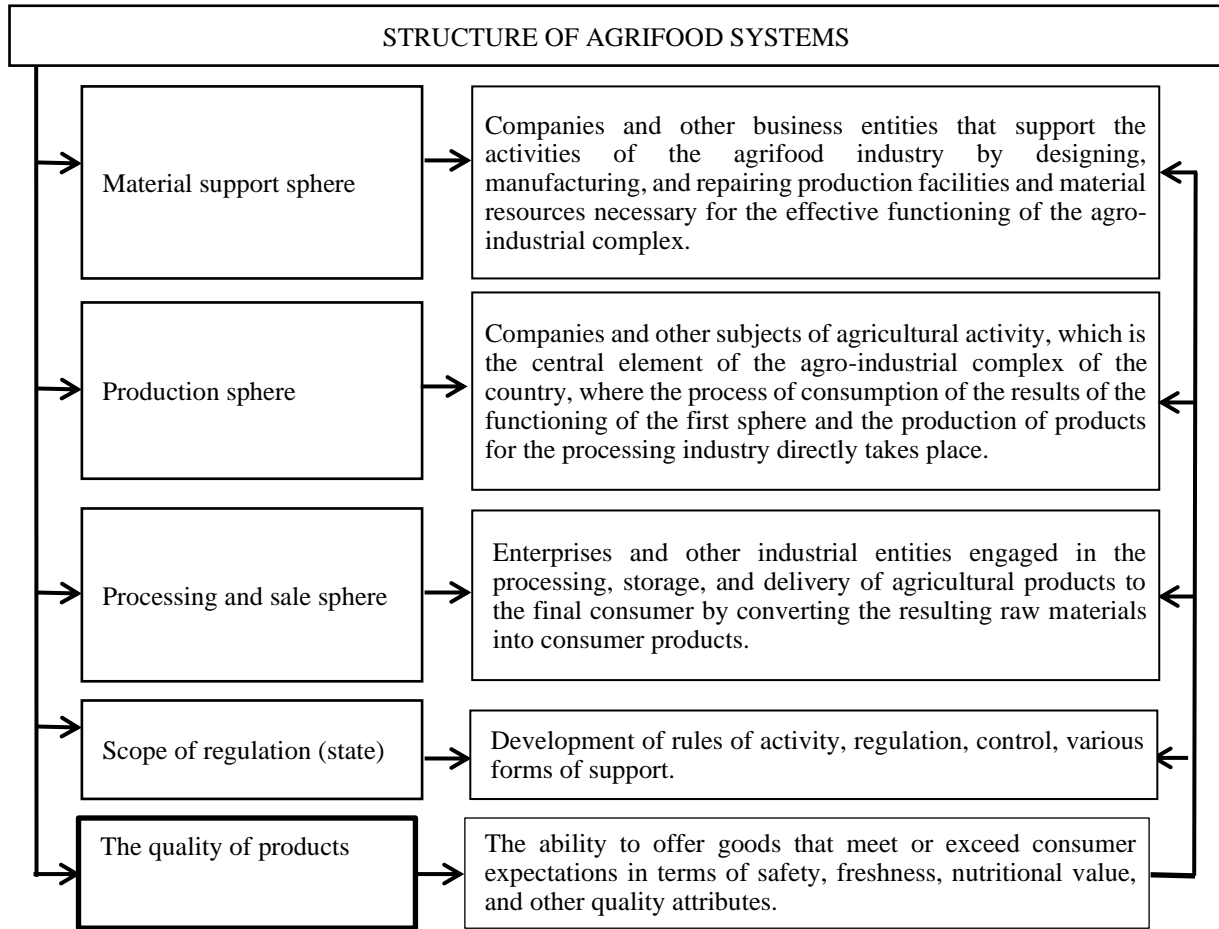


Figure 1. Structural elements of agrifood systems

In Kazakhstan, just over 189,400 agricultural vehicles were registered at the end of 2021 and the beginning of 2022. More than half of all registered agricultural machinery (51%, or 96.5 thousand vehicles) are tractors. Another 23.9% of the total amount is accounted for by trailed, mounted, and other similar equipment. These categories remain the oldest: the median age is 29 years and 33 years, respectively. At the same time, the average age of such equipment is lower than the median (22 years for tractors and 30.8 years for canopies and trailers). This suggests that the fleet of these types of agricultural machinery has been updated in recent years. About 20.6 thousand tractors (21.3% of their total number) registered in Kazakhstan were manufactured no earlier than 2015. In the case of sprayers, the proportion of relatively new equipment (aged no more than 6 years) is 49.7%, loaders – 49.8%, mowers – 34.1%. The oldest category is trailed and mounted equipment. 59.4% of their total (26.8 thousand units) was produced in the 1980s. Moreover, 10.7% (4.8 thousand units) are even older – they have been working since the 1970s. The median age of equipment in regions where its number exceeds 7 thousand units, as a rule, is about 30 years. The exception is the East Kazakhstan region, where the indicator is 18 years old. In general, in terms of 100 ha of crops, the regions with the highest energy capacity are those with a small planting area. There are 193.6 thousand vehicles registered at enterprises engaged in agriculture. Half of all trucks are at least 30 years old. In general, 35.6% of the equipment (of the total number registered for businesses engaged in agriculture) was produced in the period from 1986 to 1995 (First Credit Bureau, 2021).

3.3 Processing sector growth and investment trends

3.3.1 Gross output trends

The current situation, with a high level of equipment wear, depreciated and obsolete vehicles, and other factors of production capacity, negatively affects labour productivity, product quality, and its cost. All this reduces the competitiveness of both the products themselves and the subjects of economic activity and, accordingly, the industry as a whole. According to the latest official data of the Bureau of National Statistics (2024), the gross output of products

(services) of agriculture, forestry, and fisheries, expressed in millions of KZT, demonstrates positive dynamics for the period 2018-2022 (Figure 2).

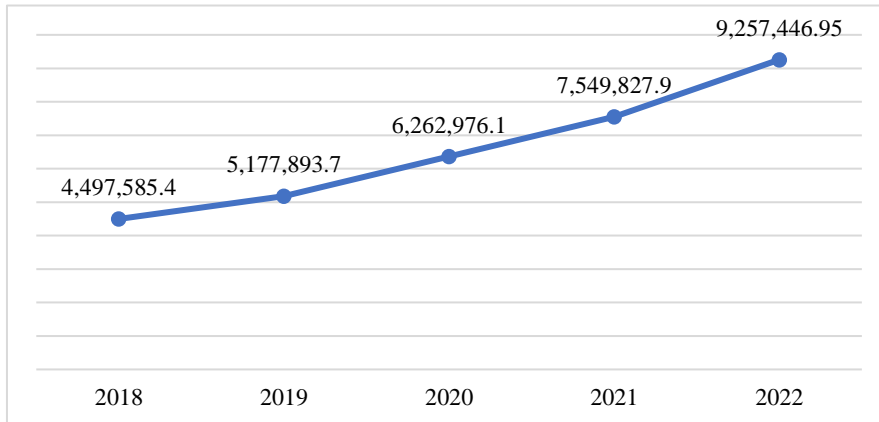


Figure 2. Gross output of products (services) of agriculture, forestry, and fisheries of the Republic of Kazakhstan, million KZT

In each studied period, there is a stable increase in the gross output (services) of agriculture, forestry, and fisheries in monetary units of measurement. Only in 2021 did this indicator increase by 18.63% compared to 2020, and in 2022, it also increased by 22.61% to 9,257,446.95 KZT compared to the previous period. However, after analysing the factors that affect the value of this indicator, which are prices and the physical volume of output, a negative trend can be observed (Figure 3) (Bureau of National Statistics, 2024).

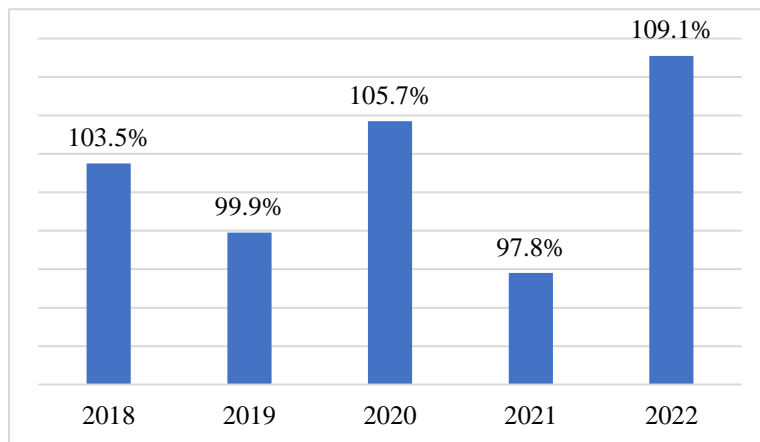


Figure 3. Indices of the physical volume of output of products (services) of agriculture, forestry, and fisheries (compared to the previous period) of the Republic of Kazakhstan

According to Figure 3, it can be stated that the growth of gross output (services) in agriculture, forestry, and fisheries was carried out mainly not due to the growth of the physical volume of gross output but was mainly a consequence of inflationary phenomena. In 2021, the physical volume of output decreased by 2.2% compared to 2020. In 2022, the agricultural sector of the republic, according to this indicator, made up for the lost time. The increase in output was 9.1% compared to 2021. However, all the same, the main increase in gross output (services) of agriculture, forestry, and fisheries, at 22.61%, was the price component, which increased this indicator by 13.51%.

The results of the analysis of the dynamics of the sown areas of the main agricultural crops from 1990 to 2021 in agricultural enterprises, peasant enterprises and farm enterprises demonstrate that in 1990 there were 7,120 ha of sown areas per 1 agricultural enterprise, and in 2021, respectively, 739.1 ha. The decrease in acreage attributable to one agricultural enterprise was 90%. On peasant farms, the area of acreage per farm from 2015 to 2021 decreased slightly – by 10%. However, the analysis of the structure of sown areas revealed an increase in the share of wheat in agricultural enterprises. In addition, from 2015 to 2021, the acreage of vegetables, melons, and root crops on peasant farms increased by 15%. The number of livestock and poultry in Kazakhstan did not reach this value even in 1990. There has been a redistribution of livestock by categories of farms: the share of agricultural enterprises has significantly decreased, a slight increase is noticeable in peasant farms, about half of the main livestock is contained in households

of the population. As a result, in Kazakhstan, the number of meat cattle is only 9% of the total number of livestock (Turgenbayev et al., 2023). In Germany and the USA, this indicator ranges from 16 to 80%, respectively. With proper use of the diversification potential of the agricultural sector of Kazakhstan, there are opportunities to ensure the stability of the domestic food market and access to foreign markets (Kamysbayev et al., 2022).

3.32 Structure of agricultural entities

In the structure of entities that ensure the establishment of the total cost of products and services created in the agricultural sector, both for sale and for their own consumption, the main share is made up of households (Table 1).

Table 1.
Structure of the gross output of agriculture, forestry, and fisheries of the Republic of Kazakhstan for 2018-2021.

Indicators	2018	2019	2020	2021
	Million KZT (%)			
Gross output of products (services) of agriculture, forestry, and fisheries, including:				
Agricultural enterprises	4,497,585.4 (100)	5,177,893.7 (100)	6,363,976.1 (100)	7,549,827.9 (100)
Individual entrepreneurs, peasant of farmer households	1,091,180.3 (24.26)	1,293,980 (24.99)	1,699,610.7 (26.71)	1,927,748.2 (25.53)
Households	1,317,352.9 (29.29)	1,607,788.5 (31.05)	2,033,585.4 (31.95)	2,420,164.4 (32.06)
	2,089,052.2 (46.45)	2,276,125.2 (43.96)	2,630,780 (41.34)	3,201,915.3 (42.41)

Analysing the data in the table, it can be seen that the share of individual entrepreneurs and peasant or private farms in the overall structure of agricultural output is gradually increasing. However, despite the decrease in the share of households in the population from 46.45% in 2018 to 42.41% in 2021, these subjects of agricultural activity are the dominant factor in the production of agricultural, forestry, and fisheries products in the Republic of Kazakhstan. Thus, it can be concluded that the main driving force in the production of agricultural products is the population of the country.

In this regard, one of the priority areas for increasing the competitiveness of the agro-industrial complex in Kazakhstan is the development of infrastructure in the system of product promotion from the manufacturer to the consumer. The main factors justifying the need to solve this problem are:

- the small-scale nature of agricultural production;
- the strengthening of the role of intermediaries in the process of promoting agricultural products from the producer to the consumer, which completely excluded the interconnection of agricultural processing, trade, and marketing enterprises;
- the low share of processing agricultural products, resulting in the lack of capacity utilisation of processing enterprises;
- the production of non-competitive products compared with imported.

The solution to the above problems is the unification of small forms of farming into agricultural cooperatives, which will contribute to the development of infrastructure in the system of product promotion from producer to consumer (Akimbekova and Nikitina, 2020).

Assessing the processing sphere of agrifood systems, it should be noted that food production, in monetary terms, has been showing a positive trend every year since 2017. Despite the decrease in the rate of food production in 2021 relative to 2020, the manufacturing and processing industry of the agrifood complex managed to increase production by 3.9% in 2022 (Table 2).

Table 2.
Dynamics of economic indicators in the field of food production of the Republic of Kazakhstan

Indicators	2017	2018	2019	2020	2021	2022
Volume of industrial production, KZT million	1,525,814	1,527,687	1,708,013	1,957,241	2,287,783	2,337,006
Industrial production index, in % of the previous year	105.1	100.9	103	103.2	101.9	103.9
Number of enterprises and industries	1,898	1,748	1,784	1,778	1,828	No data available
Profitability, in %	2.4	1.8	3.7	7.4	7.8	No data available
Investments in fixed assets, in % of the previous year	128.4	129.9	69	119.1	106.7	No data available

3.33 State support and investment subsidy programme

The number of enterprises in the field constantly varies, but is in the range of up to 1,900 units. The profitability of enterprises in the industry has increased significantly since 2020, by more than 50%, but remains at a relatively low level, providing, on average, no more than 7.8% for the study period 2017-2021. The priority component in this sphere is investments, which have grown significantly since the crisis of 2019. In particular, according to the Ministry of Agriculture of the Republic of Kazakhstan, 267 new investment projects worth 241.3 billion KZT were commissioned in 2022. As a result, during the reporting period, the volume of investments in fixed assets in agriculture increased by 6.9% and amounted to 855.7 billion KZT. The most important tool for developing the competitiveness of the country's agrifood systems is a variety of forms of state support (Trusova et al., 2018). In order to attract and develop investment funds, it is necessary to use regulatory methods aimed at improving the effectiveness of investment activities, which should meet the appropriate level of economic development of the state. The guarantee of food security directly depends on the volume of investments in the agricultural sector, which allows for creating additional jobs, taking leading positions in the regional market, and increasing export potential (Yuksel et al., 2022).

Thus, in 2021, 104.4 billion KZT was provided for the implementation of the investment subsidy programme (execution at the local level amounted to 104.3 billion KZT), which allowed to subsidise 24,189 investment projects of the agro-industrial complex and create 20,183 jobs. Investment subsidies cover 34 priority areas of the agro-industrial complex. The annual practice of implementing the investment subsidy programme shows that the main amount of budget funds, on average 50%, falls on the renewal of the agricultural machinery fleet. By the end of 2021, the main volume of budget funds of more than 67.7 billion KZT, or 65%, accounted for subsidising the purchase of agricultural machinery. The subsidy covers equipment purchased in 2019-2021. About 13.3 billion KZT, or 13%, is directed to subsidising investment projects in the field of animal husbandry. 23 billion KZT, or 22%, was allocated to support projects in the field of crop production. Within the framework of the state programme for the development of productive employment and mass entrepreneurship for 2017-2021, KZT 20 billion was allocated from the republican budget in 2021. Additional funds were allocated from the National Fund of the Republic, in the amount of 15.3 billion KZT, with a plan to issue 3,472 microcredits (Official Information Source of ..., 2022).

Since the most important element of state support is subsidisation, in 2022, an option has been developed that will minimise corruption risks in this area, consider the opinion of farmers as much as possible, and also provide the domestic market with sufficient food products. In general, about 10 subspecies of subsidies with low efficiency and high corruption components are cancelled. In addition, a norm is being introduced for counter obligations on the part of agricultural producers, in particular, for the supply of raw materials to the domestic market, including domestic processing enterprises (Abzhanova et al., 2022). Moreover, a free subsidy information system, gosagro.kz, was introduced to apply online. The goal of this digital platform is to make it easier and more efficient for farmers and agricultural enterprises to apply for and obtain government subsidies. It might lower bureaucracy, boost transparency, and improve the subsidy system's accessibility for producers around the nation by permitting online applications. When opposed to a manual application process that is paper-based, an online approach may also help lower the possibility of corruption.

3.34 Importance of food safety standards

Establishing precise standards and food security indicators is essential to directing the execution of a strong food safety strategy in Kazakhstan and boosting the competitiveness of its agro-industrial complex. Measuring and monitoring well-defined metrics related to elements like food availability, access, supply stability, and consumption on a regular basis is necessary. This makes it possible for decision-makers to pinpoint any possible weak points or gaps in the food system. Comprehensive food safety regulations that address allowable contamination levels, handling and processing guidelines, packaging and labelling specifications, and traceability systems are also required. Trade can be facilitated while consumer health is protected by creating standardised food safety regulations that are in line with international standards (Zheleuova et al., 2021). In order to guarantee a secure, wholesome, and dependable food supply chain, the government can develop focused initiatives, distribute funds wisely, and monitor advancements by employing an evidence-based, criteria-driven strategy. In the end, a clear benchmark-based food safety policy would increase customer trust, lower risks, and improve Kazakhstan's agricultural and food products' overall competitiveness both at home and abroad.

3.4 SWOT analysis of the agro-industrial complex

Based on the above analytical research, it is possible to draw conclusions regarding the possibilities of developing the competitiveness of the agro-industrial complex of the country using the SWOT analysis methodology. This allows for the building of a matrix of factors that both positively and negatively affect the functioning of agrifood systems, thereby determining their competitiveness and priority areas for their strengthening (Table 3). The factors of competitiveness of the agrifood systems of Kazakhstan, as structured in the table, summarise the analysis of the main trends and features of the functioning of the agro-industrial complex of the country. The agrifood sector is seriously affected by problems such as lack of resources, food losses, and waste generation along the supply chain (Ospanov et al., 2020; Tokysheva et al., 2022). In addition, the specific features of the climate and the loss of biodiversity determine an imperative paradigm shift towards a closed-cycle economy, since such an approach increases the competitiveness of the agro-industrial sector of the country (Esposito et al., 2020; Panfilova et al., 2020). The stimulation of strengths, such as constant and methodical state support for the sphere, the use of natural conditions, in conjunction with the emerging opportunities for the sustainable development of the agro-industrial complex, should be used to suppress weaknesses and reduce the impact of threats on the competitiveness of the country's agrifood systems.

Table 3.
SWOT analysis of the agro-industrial complex of the Republic of Kazakhstan in the context of its competitiveness

Strengths	Weaknesses
1. Presence of significant land areas that allow for the production of environmentally friendly agrifood products for the domestic and foreign markets. 2. Growth of production volumes in most areas of the agro-industrial complex, despite internal and external challenges. 3. Understanding the need for state regulation in the industry. 4. Permanent support programme for companies in the industry. 5. Digitalisation of state support (subsidies). 6. Development planning based on the approval of state programmes and projects.	1. High level of depreciation of fixed assets. 2. Predominant amount of outdated equipment. 3. Prevailing share of the population as producers of agricultural products, "scattered" throughout the country, which complicates the delivery of products to the final consumer. 4. Poorly developed logistics and transport infrastructure. 5. Low profitability in the industry and, accordingly, the difficult financial condition of rural producers.
Opportunities	Threats
1. Direction of efforts to develop the competitiveness of the domestic market and the creation of a cluster for the production of agricultural products in the region. 2. Investing in innovations and modernisation of production capacities of enterprises and other subjects of the agro-industrial complex. 3. Ensuring the sustainable development of the industry, which will contribute to improving competitiveness. 4. Consolidation of households of the population.	1. Narrowing of the possibilities of consumers of agricultural products both within the country and abroad, due to the military, political, and economic situation in the region. 2. Sectional policy of different countries. 3. Need to diversify supply and distribution channels.

3.5 Recommendations

However, the economic freedom and autonomy of the regional processing sector of the agricultural industry are noteworthy; this is of particular importance not only in the direction of socio-economic development but also in the improvement of competitiveness tools and factors of socio-economic stability. Consequently, the sustainable development of regional agro-industrial systems should be aimed at increasing the careful use of the territory with minimal impact of negative territorial factors on competitiveness and food security (Shahini et al., 2022). In this regard,

a regional approach should be applied to ensuring food security due to the dependence of states on each other in the supply of food and agricultural products (Musa and Basir, 2021). Thus, in addition to direct subsidies, it is advisable to use budgetary funds from state aid on the terms of a public-private partnership for the further development of the independence of agriculture, the processing industry, and the logistics infrastructure of agricultural production. This approach will help increase the level of competitiveness in the industry.

The creation of agricultural industrial clusters is the basis for the development of regional brands of agrifood production as well as an effective way to increase the value of regional brands and the competitiveness of agricultural products in the country (Liu and Xia, 2022). One of the directions in this area should be the development of regional logistics centres for the concentration and further distribution of agricultural products, which would allow faster and more efficient delivery of products from the farms of the population of the country to the final consumer. In modern conditions, an important aspect that needs to be developed is the digital interaction of the state with market entities (Silagadze, 2022). The goal of digital public administration should be to facilitate activities and increase the level of satisfaction of market participants. Thus, the role of digital governance at the present time should largely consist of assistance and not direct regulation (Tiwari, 2022). This will simplify obtaining the necessary information, allow making decisions faster, and thus increase their efficiency and competitiveness.

4 Conclusions

Competitiveness is one of the most important characteristics of a modern market economy. This term has applications at different levels of the economic system. It is advisable to consider the enterprise at the central level, since the totality of its material, financial, human, and other resources determines its production potential and forms the competitiveness of products based on key parameters: price and quality. Accordingly, the aggregate of the competitiveness of enterprises is the competitiveness of the industry and of the industry as a whole.

The research highlights the crucial significance of augmenting the competitiveness of agricultural firms for the wider economy of Kazakhstan. Results throughout the entire agro-industrial value chain are shaped by how agribusinesses operate, produce, profit, and ultimately survive in a dynamic market environment, as the investigation has demonstrated. The analysis shows that there are still significant flaws preventing Kazakhstan's agriculture industry from being as competitive as it may be due to the country's high proportion of small, dispersed producers, slow adoption of new technologies, and inconsistent state support systems. A top priority for economic growth should be rapidly increasing the productivity, quality, and adaptability of agricultural enterprises through targeted investments, infrastructure upgrades, policy reforms, and public-private partnerships. This is because downstream activities such as processing, distribution, exports, and gross domestic product (GDP) contribution depend on strong farm-level performance. To unlock further industrial potential and enable broad-based rural development over the long and short terms, it is imperative to optimise the core reproduction, profit-generating capability, and market responsiveness of the nation's numerous agricultural companies.

The high rate of depreciation and preponderance of antiquated equipment used in agricultural output is one significant restriction that has been emphasized. Due to lower productivity, lower product quality, and higher production costs brought on by the roughly 50% of machinery that is over 25 years old, competitiveness is weakened. The study highlights how important it is to make investments in order to update and upgrade manufacturing assets and equipment. The inadequately established logistics and transportation infrastructure is another identified problem that makes it more difficult to get agricultural products from dispersed smallholder farms to customers. The poor profitability levels in the sector, which are a reflection of the challenging financial circumstances faced by many rural agricultural producers, are another finding of the study. Their capacity to invest and become more competitive is hampered by this. Although the study suggests that overcoming infrastructural deficiencies, technological obsolescence, and financial limitations remains crucial for boosting the competitiveness of Kazakhstan's agricultural goods and enabling the agro-industrial sector to develop to its full potential, state support programmes aim to address some of these issues.

Considering foreign economic and social challenges, it is necessary to increase the effectiveness of state support for the industry. It is advisable to switch from direct subsidies to public-private partnerships, which will contribute to the development of further entrepreneurial independence for agricultural entities, the processing industry, and the logistics component of the agricultural market.

The practical implementation of the above-mentioned opportunities and factors for the development of the competitiveness of agrifood systems in Kazakhstan, considering the dynamically developing global market, should be the subject of further scientific research in this line.

References

- Abilmazhinova, N.K., Abzhanova, S.A., Tayeva, A.M., Baybolova, L.K., Mukhtarkhanova, R.B. (2015). The use of antioxidants in the meat industry. *Research Journal of Pharmaceutical, Biological and Chemical Sciences*, **6** (5): 814-816.
- Abzhanova, S., Zhaksylykova, G., Kulazhanov, T., Baybolova, L., Nabiyeva, Z. (2022). Application of functional ingredients in canned meat production. *Food Science and Technology (Brazil)*, **42**: e61122. <https://doi.org/10.1590/fst.61122>
- Akimbekova, G.U., Nikitina, G.A. (2020). Priority directions of agro-industrial complex development in Kazakhstan. *Problems of the Agricultural Market*, **4**: 13-23.
- Al-Rwashdeh, M.H. (2016). Formation and state support of the competitiveness of crop production of agricultural enterprises. Unpublished doctoral dissertation, Poltava State Agrarian Academy, Poltava.
- Asangalieva, Z., Iztaev, A.I., Shaimerdenova, D.A., Abzhanova, S.A. (2015). Kazakhstan wheat as raw material for deep processing. *Research Journal of Pharmaceutical, Biological and Chemical Sciences*, **6** (6): 931-934.
- Baikin, A., Shalbolova, U., Kazbekova, L. (2017). Regional diversification of entrepreneurial activity in the Republic of Kazakhstan. *Espacios*, **38** (46): 35.
- Bontempo, P. (2022). Countries' governance and competitiveness: Business environment mediating effect. *RAUSP Management Journal*, **57** (1): 49-64.
- Brin, P., Nehme, M., Polančič, G. (2020). Corporate social responsibility as an instrument of increasing of a country's competitiveness. *Torun International Studies*, **1** (13): 131-150.
- Bureau of National Statistics. (2024). Gross output by monts (2018-2024). Available at: <https://stat.gov.kz/api/iblock/element/110217/file/en/> (accessed on January 19, 2024).
- Cheba, K., Bąk, I., Szopik-Depczyńska, K. (2020). Sustainable competitiveness as a new economic category – Definition and measurement assessment. *Technological and Economic Development of Economy*, **26** (6): 1399-1421.
- Chen, T.-C., Ibrahim Alazzawi, F.J., Mavaluru, D., Mahmudiono, T., Enina, Y., Chupradit, S., Al Ayub Ahmed, A., Syed, M.H., Ismael, A.M., Miethlich, B. (2022). Application of Data Mining Methods in Grouping Agricultural Product Customers. *Mathematical Problems in Engineering*, **2022**: 3942374. <https://doi.org/10.1155/2022/3942374>
- Chikán, A. (2008). National and firm competitiveness: A general research model. *Competitiveness Review*, **18** (1/2): 20-28.
- Chomanov, U., Zhumaliyeva, G., Tultabayeva, T., Mamaeva, L., Shoman, A., Kasimbek, R. (2017). The influence of bioadditive complex on the rheological properties of macaroni dough. *Journal of Engineering and Applied Sciences*, **12** (12): 3225-3232. <https://doi.org/10.3923/jeasci.2017.3225.3232>
- Delgado, M., Ketels C., Porter, M.T., Stern S. (2012). The Determinants of National Competitiveness. NBER working paper series 18249. Available at: <https://doi.org/10.3386/w18249> (accessed on January 19, 2024).
- Denissova, O., Konurbayeva, Z., Zakimova, A., Rakhimberdinova, M. (2021). Evaluation of import substitution potential of products from secondary raw materials of animal husbandry. *Journal of Environmental Management and Tourism*, **12** (2): 341-356. [https://doi.org/10.14505//jemt.v12.2\(50\).04](https://doi.org/10.14505//jemt.v12.2(50).04)
- Dumi, A.R., Sinaj, Z., S'eche, S.H. (2014). Evaluation and challenging environment comforting retail management and retail market performance in Albania. *Mediterranean Journal of Social Sciences*, **5** (2): 25-32. <https://doi.org/10.5901/mjss.2014.v5n2p25>
- Esposito, B., Sessa, M., Sica, D., Malandrino, O. (2020). Towards circular economy in the agri-food sector. A systematic literature review. *Sustainability*, **12** (18): 7401.
- First Credit Bureau. (2021). Analytical digest. Agricultural sector. Available at: https://www.1cb.kz/assets/doc/Info_Agro_Digest.pdf (accessed on January 20, 2024).
- Grishchenko, I., Biletska, N., Odintsova, O. (2021). The mechanism of formation of competitiveness of enterprises in modern economic conditions. *Economy and Society*, **34**.
- Hermundsdottir, F., Aspelund, A. (2021). Sustainability innovations and firm competitiveness: A review. *Journal of Cleaner Production*, **280** (1): 124715.
- Hermundsdottir, F., Aspelund, A. (2022). Competitive sustainable manufacturing – Sustainability strategies, environmental and social innovations, and their effects on firm performance. *Journal of Cleaner Production*, **370**: 133474.

- Kamysbayev, M.K., Moldashev, A.B., Berdykulova, G.M. (2022). Agro-industrial production of Kazakhstan: Issues of diversification as a priority direction of development. *Problems of the Agricultural Market*, **3**: 13-20.
- Kerimkhulle, S., Aitkozha, Z., Saliyeva, A., Kerimkulov, Z., Adalbek, A., Taberkhan, R. (2023). Agriculture, Hunting, Forestry, and Fishing Industry of Kazakhstan Economy: Input-Output Analysis. *Lecture Notes in Networks and Systems*, **596 LNNS**: 786-797. https://doi.org/10.1007/978-3-031-21435-6_68
- Kerimkhulle, S., Alimova, Z., Slanbekova, A., Baizakov, N., Azieva, G., Koishybayeva, M. (2022). The Use Leontief Input-Output Model to Estimate the Resource and Value Added. In: *SIST 2022 - 2022 International Conference on Smart Information Systems and Technologies, Proceedings*. Nur-Sultan: Institute of Electrical and Electronics Engineers. <https://doi.org/10.1109/SIST54437.2022.9945746>
- Kozhakhlyeva, M., Dragoev, S., Uzakov, Y., Nurgazezova, A. (2018). Improving of the oxidative stability and quality of new functional horse meat delicacy enriched with sea Buckthorn (*Hippophae Rhamnoides*) fruit powder extracts or seed Kernel Pumpkin (*Cucurbita Pero L.*) flour. *Comptes Rendus de L'Academie Bulgare des Sciences*, **71** (1): 132-140.
- La Falce, J.L., De Muylder, C.F., Santos, M.F. (2020). Competitiveness: Theoretical reflections and Relation with innovation. *Revista Horizontes Interdisciplinares da Gestã*, **4** (2): 1-21.
- Liu, Y., Xia, W. (2022). Promoting competitiveness of green brand of agricultural products based on agricultural industry cluster. *Wireless Communications and Mobile Computing*, **2022**: 7824638.
- Mamaeva, L., Yerbulekova, M., Askarbekov, E., Ashimova, P., Muratbekova, K. (2020). Intensification of fermentation process using natural sweeteners. *Journal of Hygienic Engineering and Design*, **30**: 137-141.
- Moon, H.C., Peery, N.S. (1995). Competitiveness of product, firm, industry, and nation in a global business. *Competitiveness Review*, **5** (1): 37-43.
- Musa, S., Basir, K.H. (2021). Smart farming: Towards a sustainable agri-food system. *British Food Journal*, **123** (9): 3085-3099.
- Official Information Source of the Prime Minister of the Republic of Kazakhstan. (2022). Development of agricultural sector for 2021 and plans for coming period. Available at: <https://primeminister.kz/en/news/reviews/itogirazvitiya-sfery-selskogo-hozyaystva-za-2021-god-i-plany-na-predstoyashchiy-period-22422> (accessed on January 20, 2024).
- Ospanov, A., Muslimov, N., Timurbekova, A., Mamayeva, L., Jumabekova, G. (2020). The amino acid composition of unconventional poly-cereal flour for pasta. *Periodico Tche Quimica*, **17** (34): 1012-1025.
- Ostapenko, A.V. (2015). Definition of the essence of the concept of industry competitiveness. *Biznesinform*, **5**: 15-23.
- Panfilova, A., Mohylnytska, A., Gamayunova, V., Fedorchuk, M., Drobitko, A., Tyshchenko, S. (2020). Modeling the impact of weather and climatic conditions and nutrition variants on the yield of spring barley varieties (*Hordeum vulgare L.*). *Agronomy Research*, **18** (Special Issue 2): 1388-1403.
- Porter, M.E. (1985). *Competitive advantage: Creating and sustaining superior performance*. New York, Free Press.
- Porter, M.E. (1998). *Competitive strategy: Techniques for analyzing industries and competitors*. New York, Free Press.
- Rogers, A., Castree, N., Kitchin, R. (2013). *A dictionary of human geography*. Oxford, Oxford University Press.
- Rundgren, G. (2016). Food: From commodity to commons. *Journal of Agricultural and Environmental Ethics*, **29**: 103-121.
- Ruzekova, V., Kittova, Z., Steinhäuser, D. (2020). Export performance as a measurement of competitiveness. *Journal of Competitiveness*, **12** (1): 145-160.
- Shahini, E., Korzhenivska, N., Haibura, Y., Niskhodovska, O., Balla, I. (2023). Ukrainian agricultural production profitability issues. *Scientific Horizons*, **26** (5): 123-136. <https://doi.org/10.48077/scihor5.2023.123>
- Shahini, E., Skuraj, E., Sallaku, F., Shahini, S. (2022). Smart Fertilizers as a Solution for the Biodiversity and Food Security During the War in Ukraine. *Scientific Horizons*, **25** (6): 129-137.
- Shalgimbayeva, K.B., Togzhigitova, K.B., Karymsakova Zh.K. (2022). Import substitution in agricultural sector as a factor of ensuring food security of the Republic of Kazakhstan. *Problems of the Agricultural Market*, **3**: 29-37.
- Silagadze, A. (2022). Contemporary Global Economic Trends: Transitional Economies during Covid-Depression. *Bulletin of the Georgian National Academy of Sciences*, **16** (3): 130-135. Available at: <http://science.org.ge/bnas/vol-16-3.html>

- Stevenson, W.J. (2008). *Operations management*. New York, McGraw Hill.
- Stoica, A., Horga, I., Ribeiro, M.T. (2016). *Culture and paradiplomatic identity: Instruments in sustaining EU policies*. Cambridge, Cambridge Scholars Publishing.
- Tiwari, S.P. (2022). Organizational competitiveness and digital governance challenges. *Archives of Business Research*, **10** (3): 165-170.
- Tokysheva, G., Makangali, K., Uzakov, Y., Kakimov, M., Vostrikova, N., Baiysbayeva, M., Mashanova, N. (2022). The potential of goat meat as a nutrition source for schoolchildren. *Potravinarstvo Slovak Journal of Food Sciences*, **16**: 398-410. <https://doi.org/10.5219/1763>
- Trusova, N.V., Karman, S.V., Tereshchenko, M.A., Prus, Y.O. (2018). Debt burden of the financial system of Ukraine and countries of the Eurozone: Policy of regulating of the risks. *Espacios*, **39** (39). Available at: <https://www.revistaespacios.com/a18v39n39/a18v39n39p30.pdf>
- Trusova, N.V., Oleksenko, R.I., Kalchenko, S.V., Yeremenko, D.V., Pasiaka, S.R., Moroz, S.A. (2021). Managing the intellectual potential in the business-network of innovative digital technologies. *Estudios de Economía Aplicada*, **39** (5): 1-15. <https://doi.org/10.25115/eea.v39i5.4910>
- Turgenbayev, K., Abdybekova, A., Borsynbayeva, A., Kirpichenko, V., Karabassova, A., Ospanov, Y., Mamanova, S., Akshalova, P., Bashenova, E., Kaymoldina, S., Turkeev, M., Tulepov, B. (2023). Development and planning of measures to reduce the risk of the foot-and-mouth disease virus spread (case of the Republic of Kazakhstan). *Caspian Journal of Environmental Sciences*, **21** (3): 561-573. <https://doi.org/10.22124/cjes.2023.6933>
- Vasyuta, O.P., Miroshnyk, M.V. (2014). Competitiveness of industry as a component of efficiency of the national economy. *BusinessInform*, **2**, 160-166.
- Whatmore, S. (2002). From farming to agribusiness: Global Agrifood networks. In: Johnston, R., Taylor, P., Watts, M. (Eds.), *Geographies of global change: Remapping the world in the late 20th century*. Oxford, Basil Blackwell, pp 30-40.
- Yang, Q. (2017). Study on the industrial cluster of tropical bananas based on gem model. *Acta Universitatis Cibiniensis*, **21** (1): 69-74.
- Yuksel, K., Nursoydin, M., Zhumanzarov, K.B. (2022). World experience of investing in agriculture: Adaptation to modern realities of the Republic of Kazakhstan. *Problems of the Agricultural Market*, **4**: 25-32.
- Zheleuova, Z.S., Uzakov, Y.M., Shingisov, A.U., Alibekov, R.S., Khamitova, B.M. (2021). Development of halal cooked smoked beef and turkey sausage using a combined plant extracts. *Journal of Food Processing and Preservation*, **45** (1): e15028. <https://doi.org/10.1111/jfpp.15028>