IRSTI 06.71.07 **DOI 10.47649/vau.25.v76.i1.23**
UDC 332.1

A.M.Kazambayeva[1]* , S.M.Yesengalieva[2] , Sh.S.Salimbaeva[3] , G.K.Akhonova[4]

[1,2]NAO "West Kazakhstan Zhangir Khan Agrarian-Technical University"
Uralsk, Kazakhstan
[3]West-Kazakhstan Engineering-Technological
Uralsk, Kazakhstan
[4]NAO "West Kazakhstan University named after M.Utemisov"
Uralsk, Kazakhstan
e-mail: aigul_km@bk.ru

FOOD SECURITY IN KAZAKHSTAN: ANALYSIS OF THE CURRENT STATE AND STRATEGIES FOR SUSTAINABLE DEVELOPMENT

Abstract

This article assesses the present condition of Kazakhstan's agricultural sector, focusing on the production volumes of cereals, meat, and milk and the import volumes of crop and livestock products. The authors highlight the challenges arising from technological and economic issues and dependence on weather conditions. The purpose of the article is to analyze the state of food security in Kazakhstan, identify problems hindering development and suggest the need for strategic planning. These considerations help to understand the current barriers to improving food security and suggest ways to overcome them.

The article provides a detailed analysis of the dynamics of gross agricultural output from 2017 to 2023, noting steady growth in crop production, livestock production, and farming services. Significant increases in the production of cereals, meat, milk, and other products indicate the expansion and intensification of agricultural activities, likely due to the introduction of new technologies and improved processing methods. The paper identifies strengths, weaknesses, opportunities and threats to the country's food security through SWOT analysis. Among the strengths, agro-climatic diversity and increased production capacity are highlighted, while the main weaknesses are high import dependence and insufficient technological development. The analysis emphasises opportunities for increased exports and investment in agro-technology and points to threats related to climate change and economic instability. The article concludes that strategic planning and innovations in agricultural policy are necessary to ensure the sustainable development of the farming sector and strengthen food security in Kazakhstan. This approach will reduce dependence on imports, enhance resilience to external shocks, and contribute to the long-term development of the national economy.

Key words: food security, agriculture, markets, agrarian policy, technology, planning, territory.

Introduction

Food security is multifaceted and primarily linked to global changes and the condition of natural resources. Kazakhstan's potential for natural resource regeneration is notably limited [1]. Factors such as land erosion, genetic resource depletion, and the significant reduction of water sources necessitate reassessing agricultural development strategies to enhance sustainability.

The study aims to develop science-based approaches and strategies to improve food security in Kazakhstan by enhancing the spatial development of the agricultural sector and the introduction of modern agro-technologies. Objectives of the study: to analyse the current state of food security in Kazakhstan, including the dynamics of production of the primary type, to study the strengths and weaknesses of the agricultural sector, and to identify opportunities and threats of the fifth climate change, economic instability. Also, to propose measures to stimulate investment in the agricultural sector, domestic market and the development of small and medium-sized agrarian enterprises.

Hence, it is crucial to address the following problems. Firstly, there is a technological lag among agricultural producers, especially small-scale ones, with many large producers failing to adhere to proper production technologies. This results in decreased competitiveness of domestic products in terms of price and quality compared to imports [2, 3]. Small agricultural producers struggle to incorporate new technologies into their operations, and large farmers are either unaware of scientific advancements that could reduce production time and boost productivity or lack the

skilled personnel needed to implement these innovations. Financial and labour resources are essential to addressing this issue. To utilise these resources effectively, it is vital to determine the potential and directions for the spatial development of agriculture in the region.

Secondly, the development of domestic production is hindered by the increasing imports of agricultural products and foodstuffs. In Kazakhstan, approximately 60%-70% of agricultural goods are imported from the EU, the USA, and China, where the adoption of new production technologies is more advanced than in Kazakhstan [4]. Therefore, it is crucial to examine both international and local experiences in applying scientific research outcomes on the spatial development of agriculture to implement effective national and regional socio-economic and agrarian policies [5].

Thirdly, the increase in poverty in Kazakhstan restricts many citizens' access to a diverse range of food due to high prices. Determining the standard of living is a complex process. On the one hand, it depends on assessing the composition and scale of societal needs; conversely, it is constrained by the economy's ability to meet these needs. In international comparisons, the standard of living can be characterised by various aggregate and specific indicators: gross national income, the real income of the population, average and minimum wages, the level of pensions and their ratio to the subsistence minimum, the population's consumption of essential material goods, housing conditions, income and consumption differentiation, life expectancy, education levels, and more [7].

Current research is taking a toll on food security as we face challenges. For example, papers published in the Journal of Agricultural Science [8] show that climate change directly impacts the agricultural sector, requiring the development of technologies such as precision farming and digitalising agrarian production. Studies presented in the Central Asian Economic Review [9] analyse the situation in Central Asian countries, including Kazakhstan, on the food import side, increasing national economies' vulnerability. Despite agro-climatic diversity, poor development of agro-technologies and high dependence on external supplies create obstacles. These findings call for developing spatial development methods that will help Kazakhstan strengthen its food independence.

Achieving a specific level of economic development in a country determines the system of minimum social standards. This includes, for example, the legislative establishment of the subsistence minimum and the composition of socially essential services provided to citizens [10].

The calculation of the subsistence minimum is based on the consumer basket, and the approach to its formation varies globally. In Western practice, the subsistence minimum represents the income required to ensure a "decent standard of living" according to established consumption standards [11]. In Kazakhstan, the value of the subsistence minimum is a cost estimate of the consumer basket, which includes minimum sets of food, non-food products, and services [12]. Consequently, it is essential to develop several measures aimed at producing agricultural products in quantities that meet the recommended per capita consumption norms through domestic production, necessary insurance reserves, and, for certain products, export resources and stocks [13].

Fourth, global climate change diminishes the national food system's capacity to mitigate the impact of weather changes on the food supply across all regions of the country. Experts estimate that 2050 global warming will cause the average temperature in Kazakhstan to rise by 3 degrees. Consequently, desert areas could shift northward by 300-400 km, threatening the country's food security, particularly the production of cereals and meat [14].

Therefore, shifting from extensive to intensive use of natural resources is essential. Many countries participate in the global agricultural export market despite lacking favourable climatic conditions [15]. Research should examine food self-sufficiency's theoretical and methodological foundations in the Republic of Kazakhstan. This will support an intensive development approach for various sub-sectors, enhancing their production potential and improving resource use efficiency.

Fifth, the challenges obstructing the effective implementation of state financial support for agricultural producers include insufficient funding, difficulties in determining the appropriate level of farming subsidies, and more. Some experts advocate for state support for agricultural producers, particularly within the import substitution program [16]. Conversely, others argue that such support undermines the country's agriculture's efficiency, productivity, and competitiveness. Therefore, it is essential to develop criteria for evaluating financial tools for implementing regional socio-economic and agrarian policies to enhance food self-sufficiency in the country and its regions [17].

Materials and methods of research

During the study, key principles from the theory of spatial agricultural development, the neoclassical theory of food markets, and contemporary food supply theories were utilised. A variety of scientific research methods, including generalization and abstraction techniques, were employed to justify the priority directions for the rational use of economic mechanisms in applying scientific research results to the spatial development of agriculture [18].

The object of the study is the agrarian sector of the Republic of Kazakhstan, which includes crop production, livestock breeding, and agricultural services. The primary attention is paid to the analysis of the spatial rural economy, the specialisation of regions, and the structure of the production organisation. The study of gross output dynamics from 2017 to 2023 pays special attention to the factors affecting food security, such as climate change, technological development and integration processes.

The inductive method facilitated identifying trends and assessing the population's access to basic foodstuffs, pinpointing the sources of food reserve formation and the distribution system of food resources. Conversely, the deductive method was employed to devise measures that ensure the production of agricultural products in volumes adequate to meet the recommended consumption norms for essential food products through domestic production [19].

Economic and statistical analysis methods were utilized to ascertain the country's macroeconomic situation and analyse its dynamics and structure. The comparative analysis enabled the identification of the benefits of both foreign and domestic experiences in applying scientific research to the spatial development of agriculture, contributing to the implementation of effective national and regional socio-economic and agrarian policies [20].

The analysis of dynamic series of agricultural production enabled us to forecast the production volumes required to meet the population's demand and to create export resources.

The study's information base comprised legislative and regulatory acts of the Republic of Kazakhstan, along with official data from the National Bureau of Statistics of the Agency of the Republic of Kazakhstan on Strategic Planning and Reforms.

Results and their discussion

In contemporary settings, ensuring food security through domestic production reduces reliance on global market conditions. It allows for better utilisation of the agricultural sector's potential, as well as other sectors of the agro-industrial complex. Achieving self-sufficiency in raw materials and food significantly depends on improving the agro-industrial complex's territorial and sectoral division of labour. This involves the interconnected specialisation of regions and zones in producing specific types and volumes of products for local consumption and imports. The placement and specialisation of agricultural production across different zones and areas of the country represent two facets of the same process—a territorial division of labour [21].

In agriculture, the territorial division of labour is fundamentally based on a diverse array of natural and economic conditions, such as climate, soil types, topography, population density, availability of labour resources, development of transport infrastructure, and availability of storage and processing facilities. Specialisation, as a consequence of the division of labour, further intensifies this division [22].

Representatives of the classical economic school significantly contributed to developing the division of labour theory. By highlighting the benefits of the division of labour and illustrating

how it fosters economic growth, they proposed that nations failing to utilise their territorial advantages effectively would face decline [23].

In the modern context of food supply issues, this implies that countries with the potential for self-sufficiency must develop their agricultural production and ensure self-sufficiency in basic foodstuffs. If they do not, the ongoing globalisation of the world economy, while leading to more excellent stability, will come at the cost of diminishing the development of their agro-food markets and, in some cases, causing losses in the food sector [24].

The development of location theory is linked to the publication of a book in 1826. The core of this seminal work involved identifying patterns in the placement of agricultural production. The main principles of this theory are still used today to justify the territorial placement of industries [25].

Various researchers are credited with further developing the division of labour theory. Subsequently, the theory of industrial placement evolved through numerous works. The Marxist school explained the "origin" of the territorial division of labour by regional differences in production conditions, such as the presence or absence of suitable soil and climatic conditions (for agriculture), natural resources (for extractive industries), labour skills of the population, and other factors [26].

In contemporary economic literature, the concept of division of labor is categorized based on specific characteristics: the segregation of different types of labor into distinct activities, the organization of labor to enhance productivity, the integration of specialization and exchange of activities; and the self-development of labour types and forms in line with evolving needs and society's material and technical capabilities [27].

The division of labour impacts the development of various groups within economic activity by including a specific state of productive forces, their specialisation, and territorial distribution. This creates the foundation for further growth, encompassing both qualitative and quantitative changes in population needs and the structure of its economically active segment. The effectiveness of production relations resulting from the division of labour is evident in establishing a competitive socio-economic environment, coordinating economic activities, and expanding and deepening economic ties [28].

Examining production within Kazakhstan's agricultural sector is vital due to the sector's substantial contribution to the national economy, encompassing food security and job creation. Concurrently, considering global challenges like climate change, population growth, and the necessity for sustainable resource use, studying the dynamics of agricultural production is essential to assess the current state and determine the sector's development paths. This is critical for formulating an effective long-term development strategy for the agricultural industry [29].

Analysis of agricultural production helps to determine the current state and trends in the sector's development, which is critical for planning the sector's long-term strategy.

The dynamics of gross agricultural output reflect the industry's efficiency and ability to adapt to changing conditions and its potential for growth and modernisation. Given agriculture's strategic importance for the economy of Kazakhstan and for ensuring food security, the relevance of analysing this industry's production indicators is undoubted.

Let us analyse the data presented in Table 1. Table 1 shows the dynamics of gross agricultural production in Kazakhstan from 2017 to 2023. Total output, which includes crop production, livestock production, and services, has changed significantly over the period.

In general, the total gross output of agriculture increased steadily from 2017 to its peak in 2022, from 4 070 916,8 million tenge to 8 407 512,1 million tenge, indicating the active development of the agricultural sector. However, in 2023, the volume decreased to 7 625 150,9 million tenge, which may be due to external economic factors, climatic conditions, or external challenges in the sector.

Crop production gross output showed stable growth until 2022, reaching a maximum of 5808 259,8 million tenge. However, a decline to 4 552 416,7 million tenge was recorded in 2023, which

may be due to slow weather conditions, depletion of land resources, or reduced investment in this sector.

Livestock products globally increased from 2017, from 1 810 914,1 million tenge to 3 116 973,5 million in 2021. In 2022, there was a decline to 2 545 267,4 million tenge, and in 2023, there was a partial recovery to 3 012 510,4 million tenge. This may be due to changes in production technologies or demand for livestock products.

For agricultural services, there are fluctuations in this category, but the general trend indicates growth. From 10 835,8 million tenge in 2017, services increased to 14 162,5 million tenge in 2022, before declining to 11 606,6 million tenge in 2023. This may be due to a reduction in investment or a change in the structure of additional agrarian services.

The agricultural sector of Kazakhstan provides sustainable development until 2022, but in 2023, there is a decline in all categories. Therefore, it is necessary to increase the sustainability of agriculture, recommend the introduction of modern technologies and improve state support.

Table 1-Gross output of agricultural products (services) (all categories of farms), mln. tenge

Years	Gross output of agricultural products (services)	including:		
		gross crop production	gross livestock production	agricultural services
2017	4 070 916,8	2 249 166,9	1 810 914,1	10 835,8
2018	4 474 088,1	2 411 486,7	2 050 455,8	12 145,6
2019	5 151 163,0	2 817 660,6	2 319 496,7	14 005,7
2020	6 334 668,8	3 687 310,3	2 637 460,7	9 897,9
2021	7 515 433,5	4 387 236,5	3 116 973,5	11 223,4
2022	8 407 512,1	5 808 259,8	2 545 267,4	14 162,5
2023	7 625 150,9	4 552 416,7	3 012 510,4	11 606,6
Note: compiled by the authors based on source [30]				

Analysing the gross harvest of major crops is directly pertinent to Kazakhstan's food security, as it highlights key aspects of the agricultural sector's production capacity and sustainability. Understanding these indicators helps evaluate the country's ability to independently supply the population with essential food and its potential for agricultural exports.

An accurate analysis of the yields of cereals, oilseeds, potatoes, vegetables, and melons can reveal how efficiently land and other resources are utilised and the impact of external factors, such as climate change and economic conditions, on the country's agro-industrial complex. This is crucial for developing strategies to enhance food independence and reduce vulnerability to global market fluctuations.

Therefore, considering the significance of this data for strategic planning, analysing gross crop yields is essential for assessing and enhancing food security in Kazakhstan. It enables the identification of trends, forecasting of future production levels, and formulation of appropriate policy measures to stabilise and improve the agricultural sector. This directly contributes to the national economy's sustainable development and ensures the population's food needs are met.

Table 2 shows the changes in gross harvest of leading crops in Kazakhstan from 2017 to 2023. The results show both positive phenomena and fluctuations due to various factors.

In 2017, the gross cereal harvest amounted to 20 585,1 thousand tons. The maximum indicator was reached in 2022 – 22 030,5 thousand tons. This growth can be attributed to the introduction of new varieties, increased yields, and favourable climatic conditions.

However, in 2023, volumes declined to 17 096,6 thousand tons, 22.4% below the 2022 level. This may result from unfavourable weather conditions, such as drought or reduced planted areas.

The gross harvest of oilseed crops loses with unstable dynamics. In 2017, it amounted to 2359,3 thousand tons, peaking in 2022 at 3,051,3 thousand tons (+29.4% compared to 2017).

In 2023, the harvest fell to 2 1838,8 thousand tons (-28.5% compared to 2022). This may be due to a change in agricultural producers' priorities or lower yields due to harsh climatic conditions.

Potato production is projected to grow steadily since 2017, reaching a maximum of 4,080,5 thousand tons in 2022.

In 2023, losses totalled 2 046,8 thousand tons (49.8% compared to 2022). This consequence may be caused by a decrease in sown areas, weather conditions, or producers' interest in this crop.

Vegetable production is growing steadily. In 2017, the gross harvest was 3 791,1 thousand tons, which increased to 4 792,6 thousand tons in 2022 (+26.4%).

In 2023, the volume decreased to 4 425,9 thousand tons (-7.6% compared to 2022). Nevertheless, the indicator remains above the 2017 level, indicating the continued development of vegetable production despite temporary fluctuations.

The gross harvest of melons increased from 2 094,0 thousand tons in 2017 to 2 806,7 thousand tons in 2023 (+34.1%).

The maximum was recorded in 2022 (2 560,3 thousand tons), and 2023 shows an increase over the same years. This may indicate a stable demand for products and the introduction of new technologies in the cultivation of melon crops.

In general, most crops, including cereals, oilseeds, potatoes, vegetables and melons, showed an increase in gross soil yield until 2022, indicating active agricultural sector development. Almost all crops show a decrease in volumes in 2023, which may be due to persistent weather conditions, economic factors or a change in the structure of sown areas. Sustainable agro-technologies and modernisation of agricultural production are needed to mitigate the risks associated with climate change. These significant crops require government support to restore and increase their yields.

Table 2-Gross harvest of principal crops, thousand tons

Years	Cereals (including rice) and legumes	Oilseeds	Potatoes	Open and closed-ground vegetables	Gourds Bahche crops
2017	20 585,1	2 359,3	3 551,1	3 791,1	2 094,0
2018	20 273,7	2 693,6	3 807,0	4 081,9	2 142,5
2019	17 428,6	2 583,7	3 912,1	4 355,2	2 382,1
2020	20 065,3	2 556,5	4 006,8	4 590,9	2 425,1
2021	16 375,9	2 430,1	4 031,6	4 768,5	2 778,6
2022	22 030,5	3 051,3	4 080,5	4 792,6	2 560,3
2023	17 096,6	2 183,8	2 046,8	4 425,9	2 806,7
Note: compiled by the authors based on source [31]					

Examining data on livestock product production is crucial for assessing the status and dynamics of the livestock sector in the context of food security in Kazakhstan. Production indicators for meat, milk, eggs, wool, and karakul are directly tied to providing the country's population with essential food resources, making this analysis particularly relevant.

The rise in meat and milk production signifies the agricultural sector's enhanced capacity to meet the population's demand for high-quality protein products. Similarly, the dynamics of egg production reflect the country's self-sufficiency in a critical and affordable protein source. While changes in wool and karakul production are not direct indicators of food security, they can reveal trends in the livestock sector's development and the agricultural industry's overall economic situation.

Considering these data helps identify potential risks and vulnerabilities in the livestock sector that may affect food security. For example, a decline in production in a category may indicate problems requiring immediate attention and agricultural policy adjustments.

Understanding the dynamics of livestock production becomes crucial for planning agricultural sector strategies in the face of global challenges like climate change, population growth, and the need for sustainable development. This understanding is vital for ensuring the stability and growth of food resources in Kazakhstan. Table 3 shows the production volumes of the main types of livestock products in Kazakhstan from 2017 to 2023. The analysis reveals both

positive changes and declines in several categories. Meat production increased from 1 017,6 thousand tons in 2017 to a peak in 2022 at 1240,6 thousand tons (+21.9%). In 2023, the volume decreased to 1120,0 thousand tons (-9.7% compared to 2022). This decrease can be attributed to lower livestock numbers, lower emissions on the external market or higher feed costs.

Milk production steadily increased from 2017 (5503,4 thousand tons) to a maximum in 2022 (6368,2 thousand tons). However, it sharply declined to 3472,9 thousand tons in 2023 (45.5% compared to 2022). This drop may be caused by unfavourable climatic conditions, fodder problems, reduction of milking stock, or lower productivity of dairy farms.

Egg production increased from 5103,0 million eggs in 2017 to 5591,4 million in 2018. Then, it declined to 4420,6 million pieces in 2023 (-20.9% from 2018). The decrease in production can be attributed to rising feed costs, falling temperatures, or bird diseases.

Wool production remained stable with small relative fluctuations, ranging from 39,0 kt in 2017 to 41,2 kt in 2021. Volume declined to 35,6 thousand tons in 2022 but partially recovered to 36,6 thousand tons in 2023. tons. These changes may be due to a decrease in the number of sheep or a change in the number of points on the wool. Karakul production steadily declined from 8,1 kt in 2017 to 0,3 kt in 2023 (-96,3%). This indicates a sharp increase in the production of this product or significant difficulties in its production, such as a shortage of specialised animal breeds.

Most product categories show a steady energy growth until 2022, indicating the livestock sector's development. In 2023, all significant indicators (meat, milk, eggs) show a decline in production, especially noticeable in the milk category. This indicates problems within the sector, such as climatic or management problems.

Eliminating feed problems and improving availability will help stabilise milk and meat production. Introducing modern technologies in livestock production can also improve productivity and resilience to ongoing challenges.

Table 3-Production of selected livestock products

Years	Meat (in slaughter weight), thousand tons	Milk, thousand tons	Eggs, million pieces	Wool, thousand tons	Karakul, thousand pieces
2017	1 017,6	5 503,4	5 103,0	39,0	8,1
2018	1 059,4	5 686,2	5 591,4	39,2	3,0
2019	1 120,6	5 864,9	5 531,4	39,5	1,4
2020	1 168,6	6 051,4	5 065,8	40,2	1,3
2021	1 231,1	6 247,2	4 838,1	41,2	2,1
2022	1 240,6	6 368,2	5 052,2	35,6	0,4
2023	1 120,0	3 472,9	4 420,6	36,6	0,3
Note: compiled by the authors based on source [31]					

The overall analysis of the data shows that the livestock sector in Kazakhstan continues to develop, which has a positive impact on the country's food security, providing a steady increase in the production of essential food products. However, a significant decline in caracul production requires additional analysis to clarify the causes and identify the necessary corrective measures. In general, the growth in the production of meat, milk and eggs indicates the successful adaptation of the industry to market conditions and the population's needs.

However, it is essential to determine how imports complement or substitute domestic production to meet the population's needs for basic foodstuffs. Additionally, the impact of imports on the development of the domestic agricultural sector, including potential risks and opportunities for sustainable development, should be thoroughly assessed.

The impact of imports on food security in Kazakhstan is multifaceted and has both positive and negative aspects:

Positive aspects:

- Imports increase the range of food available to the population, improving nutrition and quality of life.

- Importing products can help stabilise domestic market prices, especially during crop failure or other domestic crises, reducing food insecurity risks.

- Imports of agricultural products and technology can facilitate the transfer of knowledge and expertise, improving domestic production in the long run.

Negative aspects:

- Heavy reliance on imports can make a country vulnerable to external shocks such as changes in world prices, political instability or trade restrictions.

- Imports, mainly if supported by low prices of foreign goods, can suppress the development of the domestic agricultural sector, reducing incentives for investment and innovation.

Dependence on imported food products also entails risks related to quality control and food safety, which may threaten public health.

Table 4- Imports of crop production goods, thousand tonnes

	2017	2018	2019	2020	2021	2022	2023
Dried fruits, mixed nuts	63,1	54,6	34,4	28,1	67,9	69,0	96,1
Apples, pears and quince, fresh	145,5	121,0	164,9	122,3	122,7	114,6	132,5
Citrus fruits, fresh or dried	55,3	81,4	71,9	67,3	70,7	97,7	139,3
Onions, shallots, garlic	93,2	157,4	143,5	168,3	230,2	217,7	210,8
Sunflower seeds	9,4	28,1	98,8	91,3	52,2	228,7	259,8
Barley	8,2	47,0	38,6	67,5	95,1	164,7	486,1
Wheat and meslin	38,3	86,7	359,1	697,5	1 351,1	1 818,5	2 615,6
Note: compiled by the authors based on source [32]							

An analysis of table 4, showing imports of crop products in Kazakhstan, reveals the following trends and changes for the period from 2017 to 2023:

Dried fruits, mixed nuts: imports of these commodities increased by 152,3% from 63,1 thousand tonnes in 2017 to 96,1 thousand tonnes in 2023, indicating growing demand for dried fruits and nuts in Kazakhstan.

Apples, pears and quince, fresh: imports fell by 8,9% from 145,5 thousand tonnes in 2017 to 132,5 thousand tonnes in 2023, which may indicate fluctuations in consumption or increased domestic production of these fruits.

Citrus fruits, fresh or dried: a significant increase of 251,9% is noticeable, reflecting the increased demand for citrus fruits in Kazakhstan.

Onions, shallots, and garlic imports of these vegetables increased significantly by 226,1%, possibly due to increased consumption or insufficient domestic production.

Sunflower seeds experienced the highest growth of 2754,3%, from 9,4 thousand tonnes in 2017 to 259,8 thousand tonnes in 2023, highlighting a significant increase in demand for these seeds, possibly for use in food and oil production.

Barley and meslin wheat were up 5960,3% and 6824,3%, respectively, highlighting a dramatic increase in imports of these cereals. This may reflect insufficient domestic production to meet market demands or an increase in the use of these cereals for feed and processing.

The data show Kazakhstan's growing dependence on imports of key crop products, emphasising the importance of strengthening the domestic agricultural sector to ensure food security. The significant increase in imports of grains and oilseeds points to the need to invest in domestic agricultural production, increase crop yields and improve infrastructure for storage and processing to reduce external dependence and strengthen the country's food independence.

Table 5- Imports of livestock products, thousand tonnes

	2017	2018	2019	2020	2021	2022	2023
Horses, mules and horses alive	2,3	0,8	0,6	2,9	2,1	3,2	2,9
Live cattle	2,6	7,5	19,5	8,5	8,0	4,8	6,4
Cattle meat, fresh or chilled	2,0	2,0	10,3	12,8	9,5	1,4	4,0
Cattle meat, frozen	14,1	13,1	16,1	12,3	10,0	5,2	7,3
Pork, fresh, chilled or frozen	2,4	2,0	1,7	4,5	6,6	7,8	6,7
Meat of horses (horse meat), donkeys, mules or horses, fresh, chilled or frozen	2,7	2,4	2,6	2,1	2,4	3,6	2,9
Fish, fresh or chilled, except fish fillets	0,6	0,5	0,9	0,9	1,7	2,6	1,9
Frozen fish	30,0	30,3	32,6	33,5	35,0	36,8	43,5
Crustaceans, in or without shell, live, fresh, chilled, frozen, dried, salted or in brine	0,8	0,6	0,8	0,9	1,7	1,6	1,9
Bird eggs, in shell, fresh, tinned or boiled	3,3	3,9	8,7	11,9	17,2	14,6	19,5
Intestines, bladders and stomachs of animals	0,5	0,7	0,6	0,5	0,7	0,7	1,3
Note: compiled by the authors based on source [32]							

An analysis of Table 5 showing imports of livestock products in Kazakhstan shows the following trends for the period from 2017 to 2023.

Live horses, mules and horses imports of these animals increased by 123,2%, which may indicate the growing demand for working and sport animals in the country.

Live cattle a significant increase of 244,6 per cent is noticeable, reflecting possibly increased consumption of meat and dairy products, as well as the need for genetic improvement of the domestic cattle population. Cattle meat (fresh/chilled and frozen) there was a 200,4 per cent increase in imports of fresh and chilled meat, while imports of frozen meat inCreased by only 52,0 per cent. This may indicate consumers' preference for fresh products and the growth of the consumer market. Imports of pork increased by 281,5 per cent, indicating an expansion of the pork market in Kazakhstan. Imports and significant growth in imports of fresh and chilled fish and frozen fish by 304,3 per cent and 145,1 per cent, respectively, reflecting the diversity of food preferences and the need for seafood. The 244,3% and 598,0% increase in imports of crustaceans and bird eggs, respectively, emphasises the increased demand for these foodstuffs.

Animal intestines, bladders, and stomachs: The 233,1 per cent increase in imports may reflect the processing industry's needs.

Imports of livestock products in Kazakhstan have increased significantly in most categories, reflecting the population's growing needs and possible shortcomings in domestic production. Growing imports may indicate the need to diversify food products and improve nutritional quality, but it also emphasises the need to develop the domestic agricultural sector to reduce dependence on imports and strengthen the country's food security.

Table 6- SWOT analysis of the current state of food security in Kazakhstan

Strengths	Weaknesses
Kazakhstan has a tremendous agro-climatic diversity that allows for the growing of a wide range of crops and the development of livestock breeding. The growth in the gross harvest of cereals, meat, milk and other products testifies to the country's potential to increase food production. Gradual improvement of agricultural infrastructure, including storage and processing, increases efficiency and reduces product losses.	The high share of food and agricultural imports, especially in high value-added sectors. Problems with soil depletion, overuse of water resources and land erosion may hinder further agricultural development. Insufficient adoption of modern technologies in the agricultural sector reduces productivity and resilience to climate change.
Opportunities	Threats

Opportunities to increase agricultural exports through improved quality and increased production. Attracting investments in agro-technology and digitalisation of agriculture to increase yields and production efficiency. Create agro-industrial clusters to integrate production, processing, and marketing.	Climate change could lead to worsening conditions for agriculture, lower crop yields and increased risk of natural disasters. Global economic instability can negatively affect food prices and the availability of imported inputs. Domestic and international political risks may affect the stability and security of the agricultural sector.
Note: compiled by the authors	

A SWOT analysis helps identify the key directions for developing and enhancing food security in Kazakhstan. Implementing strategies to address weaknesses and mitigate threats while leveraging existing strengths and opportunities can foster further sustainable development of the agricultural sector and enhance the country's food independence.

Recommendations may include the following:

Adapting agricultural practices, including the use of drought-resistant varieties and the development of land reclamation systems, is necessary to minimise the negative effects of climate change.

- The development of a comprehensive program provides for developing the agricultural sector to increase productivity and reduce dependence on external factors.

- Increased access to the international market also contributes to increasing the export capacity of domestic agricultural products, maintaining economic stability and preserving the country's image as a reliable exporter.

- Stimulating internal and external investment flow into the agro-industrial complex will help accelerate technological renewal and modernisation of production.

- Attracting investments for modernisation of the agro-industrial complex,

Increasing domestic and foreign investment in the agrarian sector is key to ensuring its growth.

- Strengthening the domestic market by supporting local producers and creating favourable conditions for developing small and medium-sized agrarian enterprises.

Thus, an integrated approach encompassing technological development, environmental sustainability, economic stability and social well-being will strengthen Kazakhstan's food security.

Providing the country's population with high-quality and safe food products in amounts sufficient to meet the physiological norms of consumption and demographic growth is a component of economic security as a whole and should be based on the concept of self-sufficiency in basic food types. To a large extent, self-sufficiency manifests not only in the location of individual industries but also in the production specialization of regions, the combination of industries in them, and inter-district and intra-district economic relations.

The spatial development of agriculture is largely determined by the country's macroeconomic situation, and any change in its administrative-territorial division will directly or indirectly affect the industry's state. For some regions, it may turn out to be a driver of agricultural development, and for others, on the contrary, a significant break.

СПИСОК ЛИТЕРАТУРЫ

1 Ахметов В. Этнопродукция и перспективы ее производства в сельских районах республики Башкортостан. Экономика сельскохозяйственных и перерабатывающих предприятий. - 2020. - № 12. - С. 34-37.

2 Zhussupova A.K, & Utibayeva G.B, & Zhunusova R.M., & Akhmetova D.T., (2021) Study of agricultural production and the volume of its financing. Herald of Science of S Seifullin Kazakh agro technical University. P.194-201.

3 Malyarenko O.I., Kushebina G.M. Sustainable development of the agro-industrial complex of Kazakhstan as the basis of the country's food security // АВУ. - 2022. - №1 (216).

4 Жилина И.Ю. Влияние изменения климата на глобальную продовольственную безопасность. Экономические и социальные проблемы России, 1 (53), - 2023, Р. 166-189..

5 Cui, Yunqi & Fu, Ni. (2022). Kazakhstan's Agricultural Economy after the Accession to WTO: Economic Transformation and Realistic Dilemma. Journal of Education, Humanities and Social Sciences. 1.

6 Kolomyts Oksana & Ivanova Inna & Velinov Eng. Emil. (2021). Functional and Spatial Development of Agricultural Subregional Localities.

7 Bentham J. An Introduction to the Principles of Morals and Legislation. N. Y.: In The Ut1ilitarians.

8 Impact of climate change on agriculture production and its sustainable solutions. Environmental Sustainability, June 2019, 2(2), 2. Available at: — URL: https://link.springer.com/article/10.1007/s42398-019-00078-w (accessed: 01.02.2024)

9 Ahmad Jameel & Russell Stuart. (2024). Food Security in Central Asia: Policy Initiatives and Sustainable Development Goals. Available at: — URL: https://www.researchgate.net/publication/38226494 (accessed: 25.06.2024)

10 Bobrovska Olena & Durman Mykola & Kravchenko Tetyana & Nekriach Anastasiia & Diegtiar Oleg. (2021). Management decisions to support and maintain the socio-economic development of the territories. Studies of Applied Economics. 39.

11 Суринов А.Е., Луппов А.Б. Влияние региональных различий стоимости жизни на национальные оценки неравенства по доходам. Экономика региона. - 2021. - Т. 17, Выпуск № 3. С. 814-827.

12 Egamberdiev Bekhzod. (2023). Social capital effects on resilience to food insecurity: Evidence from Kyrgyzstan. Journal of International Development. 36. Available at: — URL: https://onlinelibrary.wiley.com/doi/full/10.1002/jid.3826 (accessed: 25.08.2024) [in English]

13 Галиев Р.Р., Аренс Х.Д. Детерминанты продовольственного самообеспечения России и доступность продуктов питания // Проблемы прогнозирования. - 2021. - № 3(186).- С. 41-53.

14 Owino V. and Kumwenda Megan E, Tome Daniel. The impact of climate change on food systems, diet quality, nutrition, and health outcomes: A narrative review., Frontiers in Climate}, VOLUME 4, 2022

15 Sycheva Irina & Poltarykhin Andrey & Dymchenko Olga & Kurikov Vladimir & Solopova Natalia & Nepshekueva Tamara & Karpova Galina. (2022). The impact of human capital on the provision of agricultural products in the context of import substitution. Nexo Revista Científica. 35. P.356-366.

16 Алтухов А.И., Семенова Е.И. Проблемы пространственного развития территорий страны с низкой плотностью населения требуют приоритетного решения // Экономика сельского хозяйства России. - 2021. - № 4. - С. 9-15.

17 Nianko Viktoriia & Purtov Vladimir & Sergey Yekimov & Lopatynskyi Yurii & Nemtsova A. (2021). The problem of state support and increasing the investment attractiveness of agriculture. IOP Conference Series: Earth and Environmental Science. 839.

18 Alekseeva N & Tarasova O & Sokolov V & Mironova Z. (2022). State agrarian policy and the efficiency of its implementation at the regional level. IOP Conference Series: Earth and Environmental Science. 949.

19 Migunovand Rishat & Syutkina Anastasia. (2024). Classical and neoclassical economic theory: Fundamentals of regulation for the agricultural sector. BIO Web of Conferences. 82.

20 Губанова Е. В., Токмурзин Т. М., Банников С. А. Пространственное размещение сельского хозяйства: факторы, подходы исследований, эффективность // Вестник НГИЭИ. - 2023. - №4. - 143 с.

21 Nosov V & Zhichkin K & Zhichkina L & Novoselova S & Fomenko N & Bespamjatnova L. (2020). Subsidizing agricultural production of the region to achieve food security. IOP Conference Series: Earth and Environmental Science. 548.

22 Berdimurodov Usmon & Berdimuratov Parakhat & Farmonov Erkin & Khakimov Bakhodir & Razikov, Nuriddin. (2023). Formation and prospects of employment of labor resources in agriculture. E3S Web of Conferences. 365.

23 Xie Qiong & Hanafiah Mohd Hizam. (2023). Systematic Literature Review: the Sustainable Development of Small and Medium-Sized Enterprises Under the Trend of Globalization. International Journal of Professional Business Review. 8. Available at: — URL: https://www.researchgate.net/publication/371796129 (accessed: 25.08.2024).

24 Baer-Nawrocka Agnieszka & Sadowski Arkadiusz. (2019). Food security and food self-sufficiency around the world: A typology of countries. PLOS ONE. 14. e0213448.

25 Wang Yazhu & Duan Xuejun & Wang Lei. (2023). Evolution of rural multifunction and its natural and socioeconomic factors in coastal China. Journal of Geographical Sciences. 9. P. 1791-1814.

26 Zelepugin Anatoly D., Belousov Andrey V. SOCIO-ECONOMIC ASPECTS OF THE RATIONAL USE OF NATURAL RESOURCES // Economic Consultant. 2021. №3 (35).

27 Zakharchenko Oleg & Alieksieichuk Olena & Kliuchnyk Alena & Ширяєва Наталія & Kudlai Irina. (2020). State support of agricultural producers as a factor in increasing the competitiveness of the agricultural sector. Entrepreneurship and Sustainability Issues. 2020.8.1(47). P. 687-704.

28 Grebenkin Igor. (2020). Trends in Industrial Specialization and Development Dynamics in the Russian Regions. Economy of Region. 16. P. 69-83.

29 Норузи Н. (2021). Зеленая экономика: необходимое решение, которое необходимо принять. Универсальный журнал финансов и экономики, 1 (1), С.3–12.

30 Статистика сельского, лесного, охотничьего и рыбного хозяйства. Динамические ряды 1990-2022 гг. [Электронный ресурс]. URL: http://www.stat.gov.kz (дата обращения 01.02.2024)

31 Экспорт и импорт товаров продукции растениеводства. Динамические ряды 2017-2022 гг. [Электронный ресурс]. URL: http://www.stat.gov.kz (дата обращения 01.02.2024)

32 Экспорт и импорт товаров продукции животноводства Динамические ряды 2017-2022 гг. [Электронный ресурс]. URL: http://www.stat.gov.kz (дата обращения 01.02.2024)

ҚАЗАҚСТАННЫҢ АЗЫҚ-ТҮЛІК ҚАУІПСІЗДІГІ: АҒЫМДАҒЫ ЖАҒДАЙДЫ ЖӘНЕ ТҰРАҚТЫ ДАМУ СТРАТЕГИЯСЫН ТАЛДАУ

Аңдатпа

Мақалада астық, ет және сүт өндірісінің көлемін, сондай-ақ өсімдік шаруашылығы мен мал шаруашылығы өнімдерінің импортының көлемін талдай отырып, аграрлық сектордың ағымдағы жай-күйін қарастырады. Мақала авторлары технологиялық және экономикалық қиындықтардан туындайтын мәселелерге және ауа-райына тәуелділікке де назар аударады. Мақаланың мақсаты – Қазақстандағы азық-түлік қауіпсіздігінің жағдайын талдау, дамуға кедергі келтіретін проблемаларды анықтау және стратегиялық жоспарлау қажеттілігін ұсыну. Осы аспектілерді қарастыру азық-түлік қауіпсіздігін жақсарту жолындағы қазіргі кедергілерді түсінуге көмектеседі және авторлар оларды жеңу жолдарын ұсынады. Сондай-ақ мақала 2017 жылдан 2023 жылға дейінгі кезеңдегі өсімдік шаруашылығы мен мал шаруашылығы салаларында және ауыл шаруашылығы қызметтерінің көлемінің тұрақты өсуіне тоқтала отырып, ауыл шаруашылығы өнімдерінің жалпы шығарылымының динамикасына шолу жасайды. Дәнді дақылдар, ет, сүт және басқа да өнімдер өндірісінің едәуір ұлғаюы аграрлық қызметтің кеңеюі мен қарқындылығын көрсетеді, бұл жаңа технологияларды енгізу және өңдеу әдістерін жақсарту арқылы ғана болуы мүмкін.

SWOT талдауы арқылы мақалада елдің азық-түлік қауіпсіздігінің күшті және әлсіз жақтары, мүмкіндіктері мен қауіптері анықталған. Күшті жақтары арасында агроклиматтық әртүрлілік және өндірістік қуаттылықтың өсуі байқалады, ал негізгі әлсіздіктер импортқа жоғары тәуелділік және технологиялық дамудың жеткіліксіздігі болып табылады. Талдау агротехнологияға экспорт пен инвестицияны ұлғайту мүмкіндіктерін көрсетеді және климаттың өзгеруі мен экономикалық тұрақсыздыққа байланысты қауіптерді де көрсетеді.

Мақалада ауыл шаруашылығы секторының тұрақты дамуын қамтамасыз ету және Қазақстанның азық-түлік қауіпсіздігін нығайту үшін аграрлық саясаттағы стратегиялық жоспарлау мен инновациялардың қажеттілігі туралы қорытынды жасалған. Бұл тәсіл импортқа тәуелділікті азайтуға, сыртқы күйзелістерге төзімділікті арттыруға және ұлттық экономиканың ұзақ мерзімді дамуына ықпал етуге мүмкіндік береді.

Негізгі сөздер: азық-түлік қауіпсіздігі, ауыл шаруашылығы, нарықтар, аграрлық саясат, технология, жоспарлау, аумақ

ПРОДОВОЛЬСТВЕННАЯ БЕЗОПАСНОСТЬ КАЗАХСТАНА: АНАЛИЗ ТЕКУЩЕГО СОСТОЯНИЯ И СТРАТЕГИИ УСТОЙЧИВОГО РАЗВИТИЯ

Аннотация

Статья рассматривает текущее состояние аграрного сектора, в ней анализируются объемы производства зерновых, мяса и молока, а также объемы импорта продукции растениеводства и животноводства. Авторы статьи обращают внимание на сложности, возникающие из-за технологических и экономических вызовов, и зависимость от погодных условий. Рассмотрение этих аспектов помогает понять текущие препятствия на пути к повышению продовольственной безопасности и предлагает пути их преодоления. Цель статьи: проанализировать состояние продовольственной безопасности Казахстана, выявить проблемы, сдерживающие развитие и предложение необходимости стратегического планирования. В статье подробно анализируется динамика валового выпуска продукции сельского хозяйства с 2017 по 2023 год, обращается внимание на устойчивый рост в растениеводстве, животноводстве и предоставлении сельскохозяйственных услуг. Показано, что значительное увеличение производства зерновых, мяса, молока и другой продукции свидетельствует о расширении и интенсификации аграрной деятельности, вероятно, благодаря внедрению новых технологий и улучшению методов обработки.

Через SWOT-анализ в статье выявляются сильные и слабые стороны, возможности и угрозы для продовольственной безопасности страны. Среди сильных сторон отмечаются агроклиматическое разнообразие и рост производственных мощностей, тогда как основными слабостями являются высокая зависимость от импорта и недостаточное технологическое развитие. Анализ подчеркивает возможности для увеличения экспорта и инвестиций в агротехнологии и указывает на угрозы, связанные с климатическими изменениями и экономической нестабильностью.

В статье делается вывод о необходимости стратегического планирования и инноваций в аграрной политике для обеспечения устойчивого развития сельскохозяйственного сектора и укрепления продовольственной безопасности Казахстана. Такой подход позволит снизить зависимость от импорта, повысить устойчивость к внешним шокам и способствовать долгосрочному развитию национальной экономики.

Ключевые слова: продовольственная безопасность, сельское хозяйство, рынки, аграрная политика, технологии, планирование, территория.

REFERENCES

1 Ahmetov V. Etnoprodukciya i perspektivy ee proizvodstva v selskih rajonah respubliki Bashkortostan. *[Ethnoproducts and prospects for their production in rural areas of the Republic of Bashkortostan]*. Ekonomika selskohozyajstvennyh i pererabatyvayushih predpriyatij. 2020. № 12. P. 34-37. [in Russian].

2 Zhussupova A.K, & Utibayeva G.B, & Zhunusova R.M., & Akhmetova D.T., (2021) Study of agricultural production and the volume of its financing. Herald of science of S Seifullin Kazakh agro technical university. P.194-201. [in English]

3 Malyarenko O.I., Kushebina G.M. Sustainable development of the agro-industrial complex of Kazakhstan as the basis of the country's food security. АВУ. 2022. №1 (216). [in English]

4 Zhilina I.Yu. Vliyanie izmeneniya klimata na globalnuyu prodovolstvennuyu bezopasnost. *[The Impact of Climate Change on Global Food Security]*. Ekonomicheskie i socialnye problemy Rossii, no. 1 (53), 2023, P. 166-189. [in Russian]

5 Cui Yunqi & Fu, Ni. (2022). Kazakhstan's Agricultural Economy after the Accession to WTO: Economic Transformation and Realistic Dilemma. Journal of Education, Humanities and Social Sciences. 1. P.273-284. [in English]

6 Kolomyts Oksana & Ivanova Inna & Velinov Eng. Emil. (2021). Functional and Spatial Development of Agricultural Subregional Localities. [in English]

7 Bentham J. An Introduction to the Principles of Morals and Legislation. N. Y.: In The Ut1ilitarians. [in English].

8 Arora Naveen. (2019). Impact of climate change on agriculture production and its sustainable solutions. Environmental Sustainability, June 2019, 2(2), 2. Available at: — URL: https://link.springer.com/article/10.1007/s42398-019-00078-w [in English]. (accessed: 01.02.2024)

9 Ahmad Jameel & Russell Stuart. (2024). Food Security in Central Asia: Policy Initiatives and Sustainable Development Goals. Available at: — URL: https://www.researchgate.net/publication/382264941_Food_Security_in_Central_Asia_Policy_Initiatives_and_Sustainable_Development_Goals [in English]. (accessed: 25.06.2024)

10 Bobrovska Olena & Durman Mykola & Kravchenko Tetyana & Nekriach Anastasiia & Diegtiar Oleg. (2021). Management decisions to support and maintain the socio-economic development of the territories. Studies of Applied Economics. 39. [in English]

11 Surinov A.E., Luppov A.B. Vliyanie regionalnyh razlichij stoimosti zhizni na nacionalnye ocenki neravenstva po dohodam. [*The Impact of Regional Cost of Living Differences on National Estimates of Income Inequality*]. Ekonomika regiona. 2021. T. 17, vyp. 3. P. 814-827 [in Russian]

12 Egamberdiev Bekhzod. (2023). Social capital effects on resilience to food insecurity: Evidence from Kyrgyzstan. Journal of International Development. 36. Available at: — URL: https://onlinelibrary.wiley.com/doi/full/10.1002/jid.3826 [in English]. (accessed: 25.08.2024)

13 Galiev R.R., Arens H.D. Determinanty prodovolstvennogo samoobespecheniya Rossii i dostupnost produktov pitaniya. *[Determinants of food self-sufficiency in Russia and availability of food products]*. Problemy prognozirovaniya. 2021. № 3(186). P. 41-53. [in Russian]

14 Owino V., Kumwenda Megan E, Tome Daniel. The impact of climate change on food systems, diet quality, nutrition, and health outcomes: A narrative review. Frontiers in Climate, VOLUME 4, 2022. [in English]

15 Sycheva Irina & Poltarykhin Andrey & Dymchenko Olga & Kurikov Vladimir & Solopova Natalia & Nepshekueva Tamara & Karpova Galina. (2022). The impact of human capital on the provision of agricultural products in the context of import substitution. Nexo Revista Científica. 35. P.356-366. [in English]

16 Altuhov A.I., Semenova E.I. Problemy prostranstvennogo razvitiya territorij strany s nizkoj plotnostyu naseleniya trebuyut prioritetnogo resheniya // Ekonomika selskogo hozyajstva Rossii. 2021. № 4. P.9-15. [in English]

17 Nianko Viktoriia & Purtov Vladimir & Sergey Yekimov & Lopatynskyi Yurii & Nemtsova A. (2021). The problem of state support and increasing the investment attractiveness of agriculture. IOP Conference Series: Earth and Environmental Science. 839. [in English]

18 Alekseeva N & Tarasova O & Sokolov V & Mironova Z. (2022). State agrarian policy and the efficiency of its implementation at the regional level. IOP Conference Series: Earth and Environmental Science. 949. 012076. [in English].

19 Migunovand Rishat & Syutkina Anastasia. (2024). Classical and neoclassical economic theory: Fundamentals of regulation for the agricultural sector. BIO Web of Conferences. 82. [in English].

20 Gubanova E. V., Tokmurzin T. M., Bannikov S. A. Prostranstvennoe razmeshenie selskogo hozyajstva: faktory, podhody issledovanij, effektivnost [*Spatial distribution of agriculture: factors, research approaches, efficiency*]. Vestnik NGIEI. 2023. №4. 143 p. [in Russian].

21 Nosov V & Zhichkin K & Zhichkina L & Novoselova S & Fomenko N & Bespamjatnova L. (2020). Subsidizing agricultural production of the region to achieve food security. IOP Conference Series: Earth and Environmental Science. 548. [in English].

22 Berdimurodov Usmon & Berdimuratov Parakhat & Farmonov Erkin & Khakimov Bakhodir & Razikov Nuriddin. (2023). Formation and prospects of employment of labor resources in agriculture. E3S Web of Conferences. 365. [in English]

23 Xie Qiong & Hanafiah Mohd Hizam. (2023). Systematic Literature Review: the Sustainable Development of Small and Medium-Sized Enterprises Under the Trend of Globalization. International Journal of Professional Business Review. 8. Available at: — URL: https://www.researchgate.net/publication/371796129_Systematic [in English]. (accessed: 25.08.2024)

24 Baer-Nawrocka Agnieszka & Sadowski Arkadiusz. (2019). Food security and food self-sufficiency around the world: A typology of countries. PLOS ONE. 14. [in English].

25 Wang Yazhu & Duan Xuejun & Wang Lei. (2023). Evolution of rural multifunction and its natural and socioeconomic factors in coastal China. Journal of Geographical Sciences. 9. 1791-1814. [in English].

26 Zelepugin Anatoly D., Belousov Andrey V. SOCIO-ECONOMIC ASPECTS OF THE RATIONAL USE OF NATURAL RESOURCES // Economic Consultant. 2021. №3 (35). [in English].

27 Zakharchenko Oleg & Alieksieichuk Olena & Kliuchnyk Alena & Ширяєва Наталія & Kudlai Irina. (2020). State support of agricultural producers as a factor in increasing the competitiveness of the agricultural sector. Entrepreneurship and Sustainability Issues. 2020.8.1(47). P. 687-704. [in English].

28 Grebenkin Igor. (2020). Trends in Industrial Specialization and Development Dynamics in the Russian Regions. Economy of Region. 16. P. 69-83. [in English].

29 Noruzi N. (2021). Zelenaya ekonomika: neobhodimoe reshenie, kotoroe neobhodimo prinyat. *[Green Economy: A Necessary Decision That Must Be Made]*. Universalnyi zhurnal finansov i ekonomiki , 1 (1), P.3–12. [in Russian]

30 Statistika sel'skogo, lesnogo, okhotnich'ego i rybnogo khozyaistva. Dinamicheskie ryady 1990-2022 [*Statistics of agriculture, forestry, hunting and fishing. Time series 1990-2022*]. Available at: — URL: http://www.stat.gov.kz [in Russian]. (accessed: 01.02.2024)

31 Eksport i import tovarov produkcii rastenievodstva. Dinamicheskie ryady 2017-2022 gg. [*Exports and imports of crop production commodities. Time series 2017-2022*]. Available at: — URL: http://www.stat.gov.kz [in Russian]. (accessed: 01.02.2024)

32 Eksport i import tovarov produkcii zhivotnovodstva Dinamicheskie ryady 2017-2022 gg. [*Exports and imports of livestock products*]. Available at: — URL: http://www.stat.gov.kz [in Russian]. (accessed: 01.02.2024)

Information about authors:

Aigul Kazambayeva - **corresponding author,** candidate of economic sciences, Associate Professor, Head of the Center for Technological Development, West Kazakhstan Agrarian and Technical University named after Zhangir Khan, Uralsk, Republic of Kazakhstan

E-mail: aigul_km@bk.ru

ORCID: https://orcid.org/ 0000-0002-9947-4227

Saltanat Esengalieva – PhD, Candidate of Economic Sciences (Russian Federation), West Kazakhstan Agrarian and Technical University named after Zhangir Khan, Uralsk, Republic of Kazakhstan

E-mail: aldeshova.s@asu.edu.kz

ORCID: https://orcid.org/0000-0002-6476-0282

Sholpan Salimbayeva – Master of Economics, Deputy Head of the Department. West Kazakhstan University of Engineering and Technology, Uralsk, Republic of Kazakhstan

E-mail: sh.salimbaeva@mail.ru

ORCID: https://orcid.org/0000-0001-6327-3469

Gulnara Akhonova – Candidate of Economic Sciences, Acting Associate Professor of the M.Utemisov West Kazakhstan University, Uralsk, Republic of Kazakhstan

E-mail: ahonova1971@mail.ru

ORCID: https://orcid.org/0000- 0001-7376-3467

Информация об авторах:

Айгуль Казамбаева – **основной автор,** кандидат экономических наук, доцент, Руководитель Центра технологического развития, Западно-Казахстанского аграрно-технического университета имени Жангир хана, г. Уральск, Республика Казахстан

E-mail: aigul_km@bk.ru

ORCID: https://orcid.org/ 0000-0002-9947-4227

Салтанат Есенгалиева – PhD, кандидат экономических наук (РФ), Западно-Казахстанского аграрно-технического университета имени Жангир хана, г. Уральск, Республика Казахстан

E-mail: salta_em@mail.ru

ORCID: https://orcid.org/0000-0002-6476-0282

Шолпан Салимбаева – Магистр экономических наук, Заместитель заведующей кафедры. Западно-Казахстанский инженерно-технологический университет, г. Уральск, Республика Казахстан

E-mail: sh.salimbaeva@mail.ru

ORCID: https://orcid.org/0000-0001-6327-3469

Гульнара Ахонова – кандидат экономических наук, и. о. доцента Западно-Казахстанского университета им. М. Утемисова, г. Уральск, Республика Казахстан
E-mail: ahonova1971@mail.ru
ORCID: https://orcid.org/0000- 0001-7376-3467

Авторлар туралы ақпарат:
Айгуль Казамбаева – **негізгі автор,** экономика ғылымдарының кандидаты, доцент, Жәңгір хан атындағы Батыс Қазақстан аграрлық-техникалық университетінің Технологиялық даму орталығының басшысы, Орал қ., Қазақстан Республикасы
E-mail: aigul_km@bk.ru
ORCID: https://orcid.org/ 0000-0002-9947-4227
Салтанат Есенгалиева – PhD, экономика ғылымдарының кандидаты, Жәңгір хан атындағы Батыс Қазақстан аграрлық-техникалық университетінің Технологиялық даму орталығының басшысы, Орал қ., Қазақстан Республикасы
E-mail: salta_em@mail.ru
ORCID: https://orcid.org/0000-0002-6476-0282
Шолпан Салимбаева - экономика ғылымдарының магистрі, кафедра меңгерушісінің орынбасары. Батыс Қазақстан инженерлік-технологиялық университеті, Орал қ., Қазақстан Республикасы
E-mail: sh.salimbaeva@mail.ru
ORCID: https://orcid.org/0000-0001-6327-3469
Гульнара Ахонова - экономика ғылымдарының кандидаты, М. Өтемісов атындағы Батыс Қазақстан университеті доценті м.а., Орал қ., Қазақстан Республикасы
E-mail: ahonova1971@mail.ru
ORCID: https://orcid.org/0000- 0001-7376-3467