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THE COMPETITIVENESS FACTORS OF AGRICULTURAL SUBSECTORS UNDER INNOVATIVE DEVELOPMENT

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Abstract. The current trend in developing global economic processes directly influences the transformation of national economies. A key conceptual element of any socio-economic system has been, and continues to be, the achievement of substantial competitive advantages, the preservation and strengthening of various aspects of security (including food, economic, and national security), the attainment of a high level of socio-political stability, and improvements in both quality of life and population well-being. An efficiently organised and structurally coherent food market is crucial in realising these strategic objectives. In turn, this market's performance dynamics and development trends are closely correlated with the performance indicators of individual subsectors within the agro-industrial complex (AIC) and the food industry. Among these, the domestic meat production subcomplex plays a pivotal role in shaping structure, ensuring system integrity, maintaining a holistic approach, and supporting sustainable socio-economic growth in the aforementioned sectors.

Keywords: livestock farming; competitiveness; meat products; production; stakeholders; programs; mechanisms; regulations; factors

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1. Introduction

The current trend in the development of global economic processes directly determines the nature of transformation of the national economy. These processes have specific qualitative and quantitative parameters directly impacting the country's socio-economic development. The conceptual aspect for any form of socio-economic management was, is and remains the provision of highly competitive advantages, preservation and strengthening of security (food, economic, national), achievement of a high level of socio-political stability, growth of the quality of life and well-being of the population. An effectively organised and structurally verified food market is essential in achieving these targets. In turn, the dynamics of its functioning and development trends are closely correlated with the performance of individual sub-sectors of the agro-industrial complex and the food industry. In particular, the domestic meat-product subcomplex plays a key role in structure formation, comprehensiveness, systematicity, and integrity, as well as ensuring a sustainable trend of socio-economic growth in the abovementioned spheres.

In modern organisation and management, the agricultural sector is paramount in establishing and strengthening the position of the domestic agro-industrial complex both at the national and global levels. In particular, this industry segment from the economic and social points of view is the most important in the system of ensuring food security of the country, as meat and meat products belong to the category of socially significant, and the level of their consumption directly determines the overall indicator of the quality of life of the population. Among Central Asian countries, which are members of the CIS and EAEU, Kazakhstan is the leader in producing livestock and poultry meat, about 1100 thousand tons per year in slaughter weight. This is about 10 times higher than in Armenia, Azerbaijan, Uzbekistan, Kyrgyzstan and Tajikistan. The article presents an overview of the current state of the meat industry in the Republic of Kazakhstan. The industry's achievements are shown, and the problems that have arisen due to the implementation of state programs are noted.

2. Literature review

Competitiveness of agricultural sector is studied internationally by numerous researches (Abad-Segura et al., 2024; Nowak & Zakrzewska, 2024; Tran et al., 2024; Meziani et al., 2024). The problem's relevance prompts domestic researchers to study the development of livestock farming under current conditions. The livestock industry holds a strategic position in the economy of all countries, as it provides the population with affordable food products and thus ensures food security at both national and regional levels.

Issues related to the development of fundamental principles, concepts, and mechanisms, as well as the establishment of state support measures and enhancing the competitiveness of the meat industry, have been addressed in the works of domestic scholars such as Zakshevsky et al. (2020), Kaliev & Moldashev (2021), Kakharmanova (2020), Mukhamedova et al., (2022); Mizanbekova et al. (2022), Mizanbekova et al. (2024), Moldashev et al. (2024), Abildaev et al. (2025), among others.

The study of this topic is especially relevant in addressing the growing demand for environmentally friendly and safe meat products, which necessitates the development of advanced technologies and increased entrepreneurial activity among large, medium, and small agribusinesses (Safta & Popescu, 2024; Al-Amin et al., 2025).

In recent years, the demand for livestock products has increased dramatically due to the global population growth. Consequently, there is a pressing need to develop new approaches to circular economy models and sustainable, environmentally clean production systems. As noted by Kurmanova et al. (2022), Dambaulova et al. (2022), Kydyrbaeva et al. (2024) and Abdikerimova et al. (2024), the application of innovative technologies significantly influences the level of agricultural development, particularly the quantity and quality of farm products, as well as improvements in productivity and labour efficiency — all of which contribute to the resilience of rural areas.

Role of innovations in the meat industry, including technological advancements and use of Artificial Intelligence (AI), is currently studied by many authors (e.g., da Silva & Carrer, 2023; Wang & Li, 2024; McCarthy et al., 2024; Hinrichsen & Stoier, 2024; Chatti & Majeed, 2024; Walden & Stathopoulos, 2024; Lyu et al., 2025). In their research, Issa et al. (2024) and Kolesnikov and Kharina (2025) emphasised that food security, preservation, and healthy nutrition are closely interconnected and mutually reinforcing. Zielinska-Chmielewska (2023) emphasised the importance of economic policy for fostering the environmental efficiency of the meat industry.

3. Research methodology

The study aims to identify the key problems of competitiveness of Kazakhstan's meat industry and justify its development in the conditions of innovative transformations of the agro-industrial complex. To achieve the goal, it is necessary to solve the following tasks:

- To analyse the current state of the meat industry in Kazakhstan;
- To determine the main factors restraining its competitiveness;

- To consider the possibilities of application of innovative solutions in the industry;
- To offer practical recommendations to improve the efficiency of meat production.

The object of the study is the meat industry of the agro-industrial complex of the Republic of Kazakhstan.

The subject of the study is the economic, organisational, and technological aspects of improving the competitiveness of the meat industry in terms of innovation development. Statistical data of significant meat industry enterprises were collected for the study.

Hypotheses of the study: It is assumed that the growth of domestic meat production in Kazakhstan in 2020-2024 contributes to reducing dependence on imports and forming sustainable export potential of the country in international markets. It is also assumed that the development of the meat industry stabilises prices and improves the country's food security.

Problems constraining the development of competitiveness:

- Technological lag - many meat processing plants operate with outdated equipment, which reduces productivity, increases costs and limits the introduction of modern quality standards;
- Shortage of personnel and weak scientific and educational base;
- Lack of qualified specialists in veterinary medicine, biotechnology, automation and logistics makes it challenging to implement innovations;
- Low level of innovation activity; investments in R&D (research and development) remain limited. The industry has little interaction with scientific institutes and startups;
- Logistical and infrastructural problems: lack of modern cold storage facilities, logistics centres and efficient distribution channels hinders the development of export potential;
- Imperfect regulatory framework, slow certification procedures and differences in international standards hinder access to foreign markets.

4. Results and discussion

The meat industry is considered one of the economy's main branches in the sphere of material production, and its development determines the complete nutrition of the population with such products as meat and dairy products. In Kazakhstan, the production and consumption of meat and dairy products are connected with the ethnic peculiarities of nutrition of the inhabitants. History presents us with a rare opportunity to compare and comprehend the reforms that have taken place in the agricultural sector, taking into account the influence of socio-psychological, organisational-economic, national, environmental factors and introduce new ones.

The increase in consumer demand for meat and meat products, weak investment activity and high rates of dependence of the agricultural market on imports determine the need to develop the meat industry. Over the past period, the meat industry's share in Kazakhstan's GDP amounted to 2.3%, and in the volume of gross agricultural production amounted to 45% (Table 1).

Table 1. Gross Domestic Product for 2022-2024 mln. tenge

Indicators	2022	2023	2024	2024 to 2022	
				+/-	%
GDP total	54 378,9	61 819,5	69 532,6	15 153,7	127,9
agricultural GDP	4 092,3	4 497,6	5 177,9	1 085,6	126,5
Including: livestock breeding	1 810,9	2 050,5	2 319,5	508,6	128,1

Source: Bureau of National Statistics ASPIR RK <https://www.gov.kz/memleket/entities/stat?lang=en>

Table 1 shows that the GDP of agriculture increased by more than 26.5% in 2024 compared to 2017 and amounted to 5,177.9 billion tenge. In agriculture, the GDP of livestock showed an increase of 28.1% and amounted to 2,319.5 billion tenge. The specificity of meat and meat product manufacturing is directly interconnected with the peculiarities of the livestock industry. Economic growth and an increase in competitiveness of domestic commodity producers in the meat market are associated with the forced development of all types of livestock.

The main goal of the meat industry development in Kazakhstan is to increase the level of provision of the country's inhabitants with meat and meat products of the current production in accordance with the rational norms of consumption. Rational consumption norms represent a balanced set of products considering the nutritional traditions of the population.

There is economic and physical availability of food. Economic accessibility refers to the purchase of products at existing prices in terms of volume and assortment in accordance with the income level of the population. Physical accessibility refers to the coverage of consumers by the commodity distribution infrastructure (Garcia-Garcia et al., 2021).

According to statistical data from 2024, the state provided the population of Kazakhstan with all types of meat and meat products, despite the price growth of 6% in annual dynamics. In the regional context, prices for meat and meat products rose more strongly in Akmola region: by 11.8% over the year. The top five regions with the highest price increases were East Kazakhstan, Atyrau, Ulytau and Abay. The lowest price growth in the sector was observed in Shymkent, Turkestan, and West Kazakhstan regions. In March 2024, beef was sold at an average of 2.7 thousand tenge per kg, mutton at 2.8 thousand tenge, pork at 2.3 thousand tenge, horse meat at 3 thousand tenge, and chickens at 1.5 thousand tenge.

Table 2. Number of livestock and poultry as of April 1, 2024, thousand heads

Name of livestock	2024/03	2023/03	Year-on-year growth
Cattle	4 710,1	4 502,4	4,6%
Cows	2 365,4	2 118,9	11,6%
Sheep	12 101,6	10 906,7	11,0%
Goats	762,3	767,0	-0,6%
Pigs	310,3	329,0	-5,7%
Horses	2 569,6	2 405,9	6,8%
Camels	156,1	145,0	7,6%
Bird	38 335,0	36 564,7	4,8%

Source: Bureau of National Statistics ASPIR RK <https://www.gov.kz/memleket/entities/stat?lang=en>

According to the Bureau of National Statistics ASPIR RK, in January-March 2024, Kazakhstan produced 20.3 thousand tons of fresh and chilled meat of cattle, pigs, sheep, goats, horses and animals of the horse family, by 13.9% more than a year earlier. The dynamics and forecast of meat – Gross Production Value is provided below in Figure 1, and Revenue is shown in Figure 2.

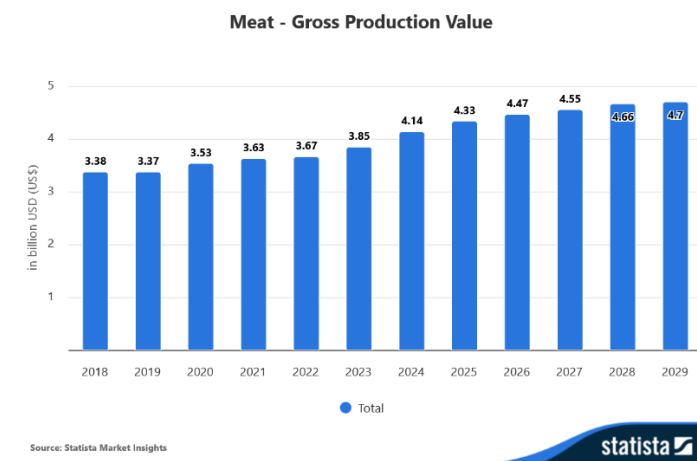


Figure 1. Dynamics and forecast of meat – Gross Production Value.

Source: Statista. (2025). Meat - Kazakhstan. Statista. <https://www.statista.com/outlook/emo/food/meat/kazakhstan>

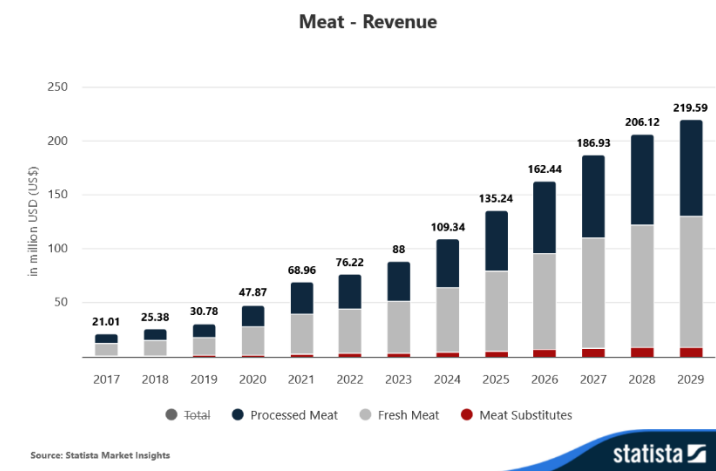


Figure 2. Meat - Revenue

Source: Statista. (2025). Meat - Kazakhstan. Statista. <https://www.statista.com/outlook/emo/food/meat/kazakhstan>

In the regional context, the most significant production volume fell in the Aktobe region: 3.5 thousand tons, an annual growth of 24.8%. Kostanay region (3.1 th. tons), North-Kazakhstan region (2.8 th. tons), Pavlodar region (2.6 th. tons), and Akmola region (1.8 th. tons) were also among the five leading regions.

Table 3. Production of certain types of livestock products

Product Name	2024/03	2023/03	Year-on-year growth
Livestock and poultry slaughtered on the farm or sold for slaughter in live weight (thousand tons)	235,1	219,0	7,3%
Livestock and poultry slaughtered on the farm or sold for slaughter in slaughter weight (thousand tons)	154,9	143,3	8,1%
For reference:			
Cow's milk (thousand tons)	347,2	316,8	9,6%
Chicken eggs (mln. pcs.)	935,4	322,3	1,4%
Large hides (thousand pieces)	227,4	219,1	3,8%
Small hides (thousand pieces)	348,4	334,0	4,3%

Source: Bureau of National Statistics ASPIR RK <https://www.gov.kz/memleket/entities/stat?lang=en>

In general, the production of livestock products from January to March of this year is in luce. For example, the output of hen's eggs increased by 1.4% over the year, to 935.4 million pieces. Cow milk yields in farms amounted to 347.2 thousand tons, 9.6% more than a year earlier. Production of large hides increased by 3.8% over the year to 227.4 thousand pieces, and small hides by 4.3% to 348.4 thousand pieces. Based on system analysis using economic and statistical data, the priority directions for increasing the country's meat industry's competitiveness are determined.

In the accepted world norms for ensuring food security, it is considered that imported food products brought into the country should not exceed 15% of the total volume of its consumption (Golovatiuk et al., 2022). To date, there is an increase in consumer demand for meat and meat products. In the development of the meat industry of the agricultural sector, the import indicators are over 19%, which exceeds the security threshold.

Kazakhstan provided the population with all types of meat and meat products at the level of 78.3 kg per capita, with the share of imports amounting to 19.2%. In 2022, the provision was 73.6 kg per capita, and the share of imports reached 20.3%. Thus, at the moment, the volume of production of meat and meat products has almost reached the annual rational consumption norm and amounts to 78.3 kg per capita (Kaliev & Moldashev, 2021). At the same time, the physiological norm of consumption of meat and meat products is on average 84 kg per capita.

The state is working on withdrawing irrationally used land and simplifying access to it for all those wishing to open their own business and engage in farming (Kalmus et al., 2024). The existing meat-processing enterprises are being re-equipped at a good pace. At LLP "Semipalatinsk meat processing plant", the latest equipment and automation of technological processes were introduced, which contributes to improving the organisation of service workplaces, significantly increasing the level of technical equipment of the enterprise. The enterprise is reconstructing production shops, and new equipment from world leaders (Russia, Germany, Italy and France) for production, packing, and packaging of sausage and meat products has been installed. Among other things, the newest technological line for meat processing and production of meat products has been launched. The latest technological line is equipped with 22 units of modern equipment from the Austrian company "Schaller" worth 1.3 million dollars. The uniqueness of the equipment lies in automatic sensor execution, ease of operation, quality development of raw materials and finished products, speed and high productivity.

The meat processing plant is a specialised enterprise that processes all types of livestock and produces meat, sausage, and canned goods. The plant's production site is equipped with convenient automobile and railway entrances, which reduces transportation costs. All products have a wide range, about 200 types of meat products. The products undergo veterinary control at all stages of the technological process (from the moment of delivery of raw materials, processing, production and ending with their sale). This plant produces: 35 thousand cans of canned meat per shift; 10 tons of sausage products, minced meat and dumplings; 24 tons of products sold daily (Kalpakpaeva et al., 2022).

Ordabasy Kus LLP is the largest poultry complex in South Kazakhstan for cultivating and processing turkey meat. This company began to export 35% of the total volume of products to the countries of the Customs Union (EAEU), producing about 8 thousand tons of finished products. The company plans to reach full production capacity in the coming year, expand the range to 100 items, and increase exports to 50%. (Kydyrbaeva et al., 2024). Representatives of the Meat Union of Kazakhstan believe that the growth of meat exports is the result of the systematic development of the industry, which by the end of 2023 will almost close domestic consumption. Every inhabitant of the republic consumes an average of 72.9 kilograms of meat and meat products annually. This allows us to increase sales abroad.

Over the past five years, the Republic of Kazakhstan has opened international markets for domestic meat, including China, Iran, the United Arab Emirates, Saudi Arabia and Oman. It has also increased supplies to CIS countries such as Russia, Uzbekistan, Kyrgyzstan, Tajikistan, etc. Kazakhstan currently ranks 17th with a share of 0.01% among meat-exporting countries (Kalmus et al., 2024). However, the growth of production and exports (see Figure 3) and imports (Figure 4) could not create a solvent consumption of meat in the country, so the product became less accessible to a broad population segment.

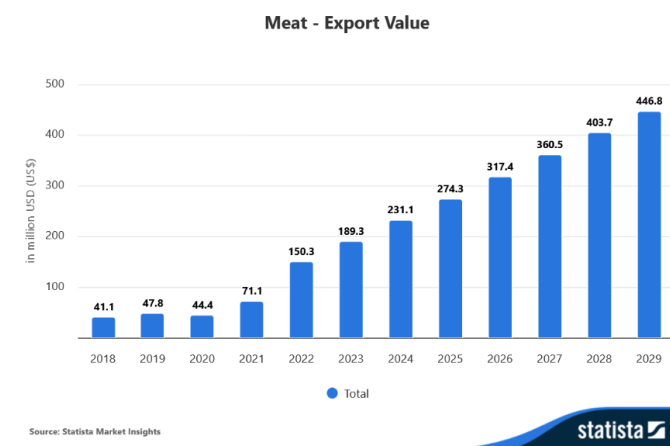


Figure 3. Meat – Export Value

Source: Statista. (2025). Meat - Kazakhstan. Statista. <https://www.statista.com/outlook/emo/food/meat/kazakhstan>

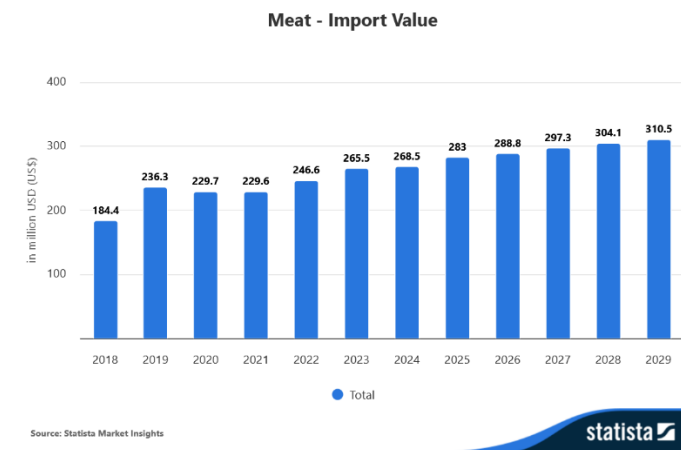


Figure 2. Meat – Import Value

Source: Statista. (2025). Meat - Kazakhstan. Statista. <https://www.statista.com/outlook/emo/food/meat/kazakhstan>

The gross meat production in slaughter weight covers 87% of the domestic market. The market share of exports is 14.5%, which is only 2% of the domestic output. The meat industry's position in Kazakhstan is even weaker in the deeper processing of raw materials. For example, imported sausages occupy 38% of the market. Meat processing and storage facilities are idle. Specialised storage facilities for meat are loaded by only 38.7%, and degradation is observed for food by-products from farm animal meat.

The heads of processing enterprises point out the existing obstacles to their further development. First, there is a shortage of working capital and raw materials for processing. Moreover, these problems are interrelated: no money, no raw materials, and vice versa. All this translates into the issue of insufficient workload for enterprises. On average, the workload of enterprises in the industry ranges from 30 to 40%. Adding to the complexity is the massive purchase of live cattle by entrepreneurs from Uzbekistan, who export, process and sell high-quality Kazakh meat to foreign countries under the guise of their own. Processors see the solution to the issue in investment subsidies for processing enterprises (Uspambayeva et al., 2020; Kurmanova et al., 2022).

In recent years, the implemented programs within the agroindustrial complex for animal husbandry and meat processing have been characterised by experts as a period of missed opportunities. With significant government support, the qualitative indicators of market positions in the domestic market are modest. Regarding gross meat production by slaughter weight, the share of local producers in the domestic market increased from 85% to only 87%. Kazakhstan is still a net importer of meat (Nurakhova et al., 2023; Kolesnikov, 2025).

About two trillion tenge was spent on subsidies within the framework of three state programs for developing the agro-industrial complex. However, at the same time, the industry's indicators have not grown and are seriously lagging behind world records. Experts believe that, as a result, the operators of development programs lacked the competence to monetise public financing resources into quality. Moreover, state support for agriculture in the meat industry has passed professional business by. Thus, the availability of developed government programs and financing is not always the key to successfully implementing the goals.

The analysis and the results of the study show that meat processing enterprises are at the initial stage of their development, do not have high results, it is difficult for them to develop independently, and the conclusion is that only with the participation of government agencies, the livestock industry and related sectors of the economy can they achieve the desired result.

Conclusions

According to research, the current investment and technological activity of the country's meat industry enterprises do not contribute to increasing the competitiveness of enterprises due to a lack of funds, high cost of modernisation, long payback period, and insufficient government support. In this regard, domestic timber companies suffer heavy losses, which do not allow them to conduct expanded production.

To solve the issues of improving the quality of primary raw materials, it is necessary to apply methods and new forms of organisation of preparation with acceptable functional and technological characteristics of raw materials, allowing the achievement of the assigned quality of the final product and to improve the legislative sphere of the meat industry development. Financing should be increased to partially cover the cost of buying feed and breeding cattle, which will reduce the cost of meat by 10%, increase profitability by 7%, and lower the threshold for loan rates.

Due to the construction of high-tech and modernisation of existing enterprises, it is necessary to increase production capacities for the slaughter and processing of livestock and the production of meat products. To increase profitability and occupational safety, achieving a high level of integrated production process automation and reducing the proportion of manual labour is necessary.

Due to the optimal and integrated use of the meat industry's primary and secondary raw materials, it is necessary to increase the processing volume. This will improve environmental safety and increase the production of a marketable product.

It is necessary to modernise a multi-stage logistics structure, where there should be integrated wholesale distribution centres, warehouses, refrigerating and freezing chambers, specialised vehicles for servicing enterprises in a specific regional area, which will reduce the shelf life of meat raw materials and energy costs, including transport.

Solving the problems of the meat industry will make it possible to fill the domestic market with a wide range of domestically produced meat products, improve product quality, increase the profitability of existing enterprises, create more high-tech, export-oriented productions, and open new jobs.

Increasing the competitiveness and efficiency of meat processing enterprises will allow them to take an active part in the international agricultural market in the future.

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