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THE ROLE OF GRAIN CROP PRODUCTION IN THE SOCIAL AND ECONOMIC DEVELOPMENT OF KOSTANAY REGION IN THE CONTEXT OF INTEGRATION

Abstract

The purpose of the article is to determine the role of grain crop production in the social and economic development of Kostanay region in the context of integration. The production of grain in Kostanay region is able to provide enough food for the region and Kazakhstan as well. Also it is possible to export a number of agricultural and industrial products to EAEU countries. The increase in manufactured products and the organization of systems and services that ensure the most efficient functioning of all involved agricultural resources and infrastructure are especially relevant for increasing the competitiveness of grain products in Kazakhstan in modern conditions. Within this framework, Kostanay region has the potential strong enough to be competitive and participate in integration processes not only with the EAEU countries but also with other partner countries.The practical significance of the research lies in the real possibility and potential efficiency of using the proposals and recommendations for the development of grain products in Kostanay region and increasing its competitiveness.Critical analysis and generalization of materials as well as economic and mathematical modeling were used to study the problem.The study findings are based on the study of the work on the development of grain production, patterns of development of the agricultural sector of the economy in Kazakhstan and the EAEU countries, as well as legislative acts adopted in accordance with the agricultural reform, the State Program for the Development of the Agro-Industrial Complex of Kazakhstan for 2017–2021.

Key words: grain production, agro-industrial complex, food security, yield, crops.

Introduction

At present, the importance of Kazakhstan's grain production in the world market is increasing due to the deterioration of trade and economic relations in grain products and the sanctions of Western countries. This is evidenced by a number of objectively reasonable causes:

- population increase;
- increase in the volume of grain for technical purposes;
- a threat to food security for the countries of the Middle East, Africa, Southeast Asia.

These above objective factors create favorable conditions for the demand for environmentally friendly grain products of Kazakhstan, both wheat and flour.

Kostanay region is located in the north of Kazakhstan, occupies an area of 196 thousand square kilometers. The region borders four regions of the Republic of Kazakhstan (Akmola and North Kazakhstan, Aktobe, Karaganda) and three regions of the Russian Federation (Orenburg, Kurgan, Chelyabinsk). Kostanay region is known to be an industrial and agrarian region. In 2019, the gross regional product amounted to 2,451,736.4 million tenge. The share of the region in the country's gross domestic product is 3.5% [1].

Gross output of agricultural products (services) of Kostanay region is presented in three main areas: mining industry, agriculture, car manufacturing and agricultural engineering.

Kazakhstan has been integrated into both the world market economy and the EAEU in recent years and the issues of food security have been actualized. It creates an objective need not only for the increase in the volume of agricultural production but also for an effective plant of agricultural products that produce high quality, ready-to-eat and competitive food.

The COVID-19 pandemic has been a factor in the increase in demand for agricultural goods and food products around the world, including in the EAEU countries. It once again proved the relevance and the highest priority importance of the food security problem in any country.

Unfortunately, fact-based analysis shows that food prices, including prices for staple foods, rose sharply in 2019–2020. In our opinion, it is not connected to the high growth of production costs for agricultural products, it is happening due to the increasing significance of the middlemen's role, who clearly overestimate the price.

Therefore, tough measures are needed to limit the price rises by middlemen, and the old principle of "`field-counter" should be given a new life. In this sense, the EU principle "from field to fork" should be studied and applied, if possible.

Materials and methods

The results of the study were obtained using modern methods of scientific research and methods of processing and interpreting data using computer technology. An econometric forecasting method based on a trend model of a time series was used during the work. Wheat prices are subject to seasonal fluctuations, which makes it possible to model the forecast using time series that include both the trend and the seasonal component. With the help of an additive and multiplicative model, we predicted the price of the 3rd class wheat with gluten 23–27%.

The study was conducted on the basis of critical analysis and compilation of relevant materials on the development of the agricultural sector of the Kostanay region, statistical data from the Ministry of Agriculture, the Ministry of National Economy, and statistical data from the Eurasian Economic Commission.

Main provisions

Kostanay region occupies the 3rd place in gross grain harvest in the Republic. Basic crops yield and gross harvest of main agricultural crops, flour export, and wheat export of Kostanay region are presented in tables 1, 2.

Table 1 – Basic crops yield of main agricultural crops in Kostanay region, dt/ha

Agricultural crops	2017	2018	2019	2020
Small grains	11,6	11,6	7,4	10,1
Wheat	11,3	11,3	7,3	10,2
Corn (maize)	11,3	13,5	22,1	20,7
Barley	14,7	13,8	8,4	9,7
Rye	10,1	-	13,6	20,8
Oats	14,4	13,4	6,9	8,8
Buckwheat	6,7	7,5	5,9	9,2
Millet	8,4	8,1	4,8	8,0
Dried legumes	10,5	8,2	6,7	7,5
Potato	195,7	195,3	190,5	187,0

Table 1 continued

Sunflower seeds	7,9	9,3	5,9	9,6
Field vegetables	313,0	306,3	301,2	307,4
Melons	82,1	73,2	88,9	68,0
Pomiferous and stone fruit	70,2	72,8	71,9	72,5
Berries and other fruits	67,1	67,8	67,2	68,6
Note: Compiled according to the source [2].				

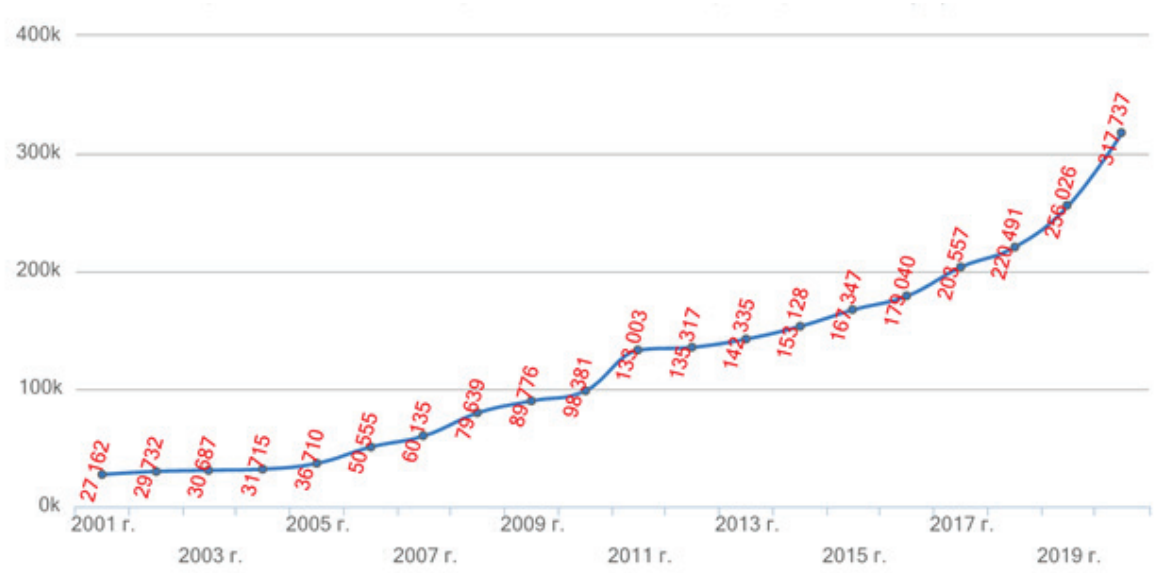

Figure 1 – Trend data of cash expenses of the population on food, on average per caput in the Kostanay region [3]

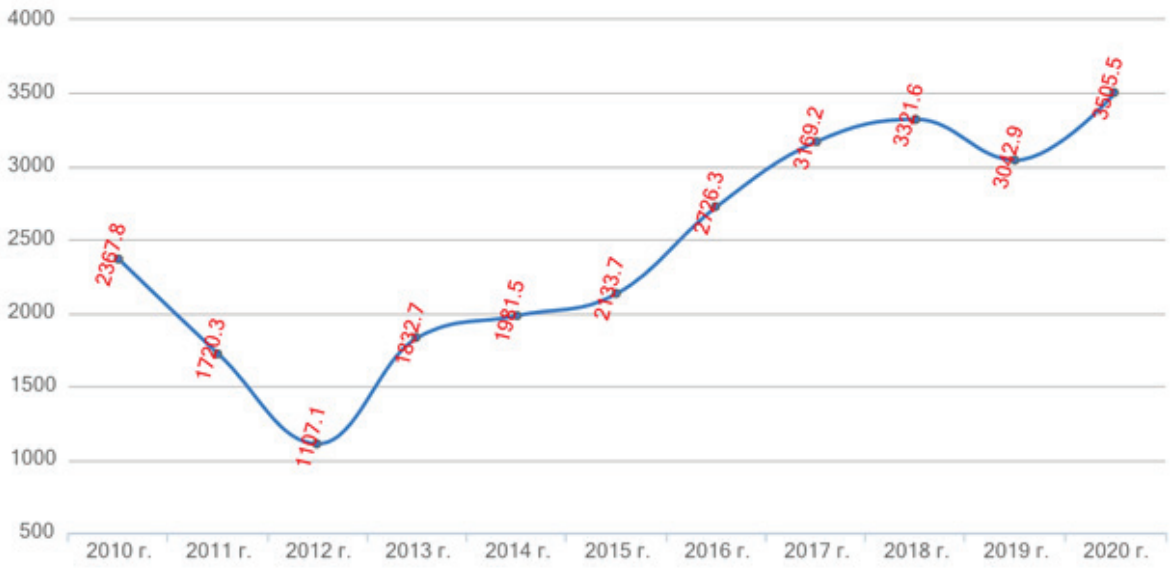

Figure 2 – Trend data of working efficiency in the Kostanay region [3]

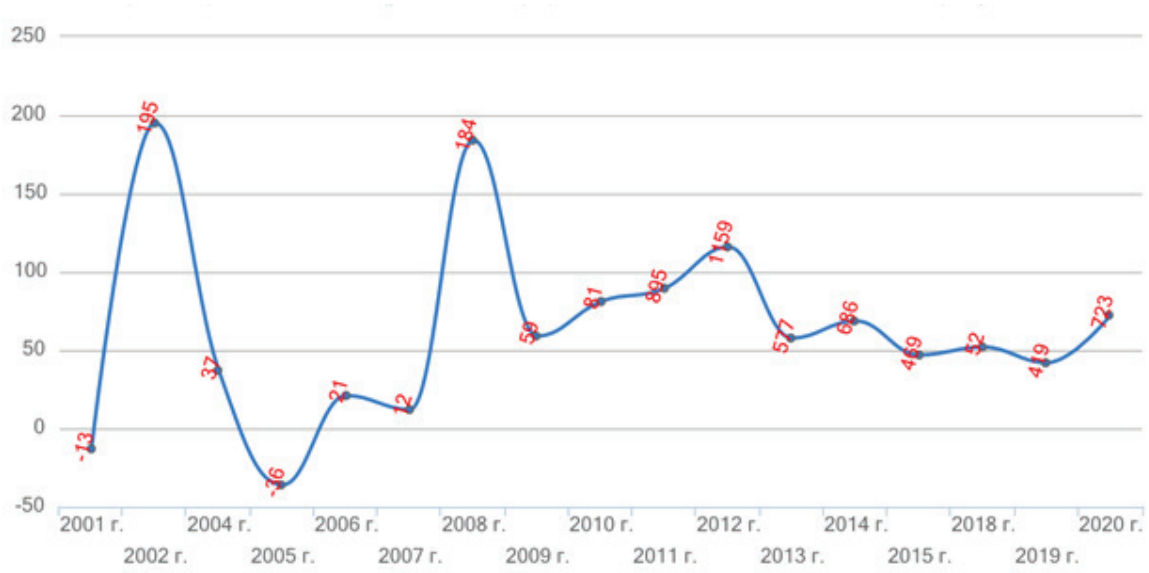

Figure 3 – Trend data of cost-benefit ratio of agricultural production [3]

In accordance with the data of the charts compiled over the past 10 years – from 2010 to 2020, the following conclusions can be made.

The production of grain in Kostanay region is able to provide enough food for the region and Kazakhstan as well. Also it is possible to export a number of agricultural and industrial products to EAEU countries.

Within this framework, Kostanay region has the potential strong enough to be competitive and participate in integration processes not only with the EAEU countries but also with other partner countries.

The data of the diagrams also show an increase in working efficiency in agricultural production, which was associated with intensive crop cultivation technology.

The Program for the Development of the Territory of Kostanay Region for 2021–2025 was developed to fully unlock the potential of the Kostanay region. The Program identifies ways to achieve the full potential:

- diversification of the cropping system, with an increase in crops of highly profitable oilseeds;
- use of about 12.5 thousand hectares of new irrigated land;
- increase in renewal of the machine and tractor fleet;
- increase in the use of mineral fertilizers;
- increase in working efficiency in agriculture due to diversification of area under crops, introduction of new technologies and scaling up industrial digitalization of the region;
- creation of operating 80 advanced and digital farms, precision farming;
- increase in the number of cattle in the producing sector, through the implementation of government programs;
- implementation of 4 major investment projects:

1. in 2021 – the restoration of a broiler poultry farm with a capacity of 12 thousand tons per year in Karabalyk region, a meat processing plant with a capacity of 20 thousand tons of meat per year in Kostanay, a livestock breeding complex for 5 thousand birds in Arkalyk;

2. in 2022, it is planned to launch a poultry farm for the production of broiler meat with a capacity of 2 thousand tons per year in Tobyl, Kostanay district [1].

Further prospects for increasing the competitiveness of the agricultural sector of Kostanay region should be considered from at least three positions.

Firstly, it is the suitable natural and economic conditions of the region for the development of the agro-industrial complex. Secondly, it is the position of the state's economic policy for further development.

Thirdly, it is the international division of labor. Kostanay region is the largest grain region in Kazakhstan, including the EAEU. In order to increase the role of Kostanay region in the international

division of labor, it is necessary to realize the resource potential of the region, as well as to increase the role of industries that produce products ready for consumption by the population of the EAEU countries.

Literature review

The current stage of development of the agro-industrial complex under EAEU is characterized by its restructuring, as well as reforming in general. These problems have been analyzed in works of Kazakhs scientists such as G.K. Dzholdasbayev, L.M. Yesakhmetov [4], A.A. Nurgaliyev, R.B. Sartov [5], A. Khitakhunov [6], O. Abraliyev [7], etc. At this stage of the country's development, the analysis of the problems of the agro-industrial complex acquires both scientific and practical significance. Besides that, The fundamental change in property relations in agricultural production, its privatization, the diversity of forms of ownership, the improvement of economic relations between industry and agriculture, as well as adequate networks of industrial and social infrastructure in the republic have not been studied enough as it was noted by the authors Pyagay A.A., Bespaeva R.S., Iskakova M.K. [8], Beisengaliyev B.E., Kozhabayeva S.A., Turekulova D.M., Zhanybayeva Z.K. [9]. Therefore, there is a need for a detailed analysis of these problems.

The experience and problems of further development of the agricultural sector of Kazakhstan are being great scientific interest. The problems of the influence of regional characteristics on the formation and operation of agricultural enterprises in transit economy as well as integration of agricultural production in border areas within the EAEU countries have not been solved. The main attention is paid to the development of the agro-industrial complex under the functioning of the EAEU in the works of Ushachev I.G., Kharina M.V., Chekalin V.S. [10], Kuznetsov N.G., Bogoslavtseva L.V., Roshchina L.N., Rodionova N.D. and Kilinkarova S.G. [11].

Results and discussion

One of the indicators of the agricultural efficiency is the yield of agricultural crops. It is possible to plan and predict agricultural production for the future with the help of realistic forecast of yield dynamics.

To predict the yield indicator for 2022, we used an econometric forecasting method based on a trend model of a time series.

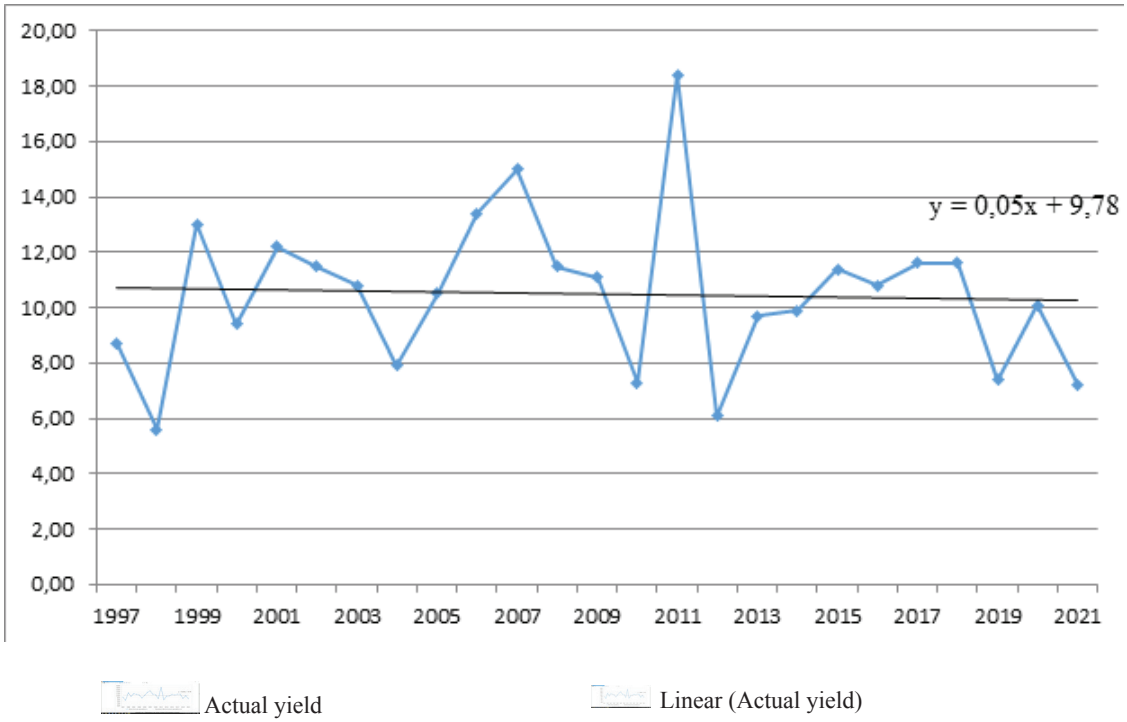

Figure 4 – Dynamics of grain yield in Kostanay region

Figure 4 shows the dynamics of grain yields in Kostanay region for the period from 1997–2021.

The diagram shows that in the period from 1997 to 2021, in general, grain yields vary from 5 centners/ha to 18.4 centners/ha, but a decrease in the yield level is observed only on average, as a trend. There is a harvest fluctuation that deviates from the main trend. Such deviation happens mostly due to the meteorological conditions of the year. The yield was reduced to 6.1 q/ha in 2012 due to drought. The highest yield of 18.4 q/ha was obtained in 2011. The average yield for the period under review was 10.4 q/ha.

Modeling the grain yields trend was implemented using the MS Excel program. Taking a linear function of time as a model, we get the formula: y = 0.05x + 9.78, that is, the annual grain yield decreased by an average of 0.05 c/ha, which is very low. For the resulting linear trend model, the coefficient of determination R^2 was 0.002. Thus, while maintaining the trend that has been observed over the past ten years, we can expect that the grain yield in 2022 will be no more than 7 c/ha.

The yield of agricultural crops depends on many factors, both internal and external. For example, natural and climatic, organizational, agrotechnological and others may affect its value. The disadvantage of the forecast using the trend model is that it takes into account the factors that affect the object under study implicitly. This does not allow looking at different forecast options for different values of the factors.

Market price formation for agricultural goods also has its own characteristics associated with the specifics of production. Like yield, the price of agricultural goods depends on natural and climatic conditions, land productivity and season. The differential characteristic is the uneven receipt of funds from the sales. The price is one of the factors affecting the competitiveness of domestic products in the world market.

One of the main crops grown in Kostanay region is wheat. And the market for sales of wheat is subject to general market laws and its specific features.

We have considered prices for wheat of the 3rd class with gluten 23–27% for the period from 2016–2021. Wheat prices are subject to seasonal fluctuations, which makes it possible to model the forecast using time series that include both the trend and the seasonal component. We have predicted the price of class 3 wheat with 23–27% gluten for 2022 using an additive and multiplicative model. These models take into account three parameters: trend, smoothed exponential series and seasonality.

Table 2 – Analysis of the time series of the additive price model for grade 3 wheat with gluten 23–27% for the period from 2016–2021 in Kostanay region

	Yt (price per ton in tenge)	Moving average price	Centered moving average	Estimation of seasonal components
1 quarter 2016	55000			
2 quarter 2016	55000			
3 quarter 2016	57900	58225	56225	1675
4 quarter 2016	65000	54225	52225	12775
1 quarter 2017	39000	50225	47925	-8925
2 quarter 2017	39000	45625	42500	-3500
3 quarter 2017	39500	39375	40000	-500
4 quarter 2017	40000	40625	41375	-1375
1 quarter 2018	44000	42125	42813	1188
2 quarter 2018	45000	43500	44188	813
3 quarter 2018	45000	44875	46875	-1875
4 quarter 2018	45500	48875	50500	-5000
1 quarter 2019	60000	52125	55250	4750
2 quarter 2019	58000	58375	62063	-4063
3 quarter 2019	70000	65750	68713	1288
4 quarter 2019	75000	71675	75700	-700

Table 2 continued

1 quarter 2020	83700	79725	82275	1425
2 quarter 2020	90200	84825	87063	3138
3 quarter 2020	90400	89300	90575	-175
4 quarter 2020	92900	91850	92350	550
1 quarter 2021	93900	92850	93325	575
2 quarter 2021	94200	93800	97875	-3675
3 quarter 2021	94200	101950		
4 quarter 2021	125500			
Note: Drawn up by the author based on the source [12].				

We used Excel spreadsheets for building an additive model. The analyzed data of the time series of prices for 3rd class wheat with 23–27% gluten for 2016–2021 and the forecast for 2022 is shown in Figure 5.

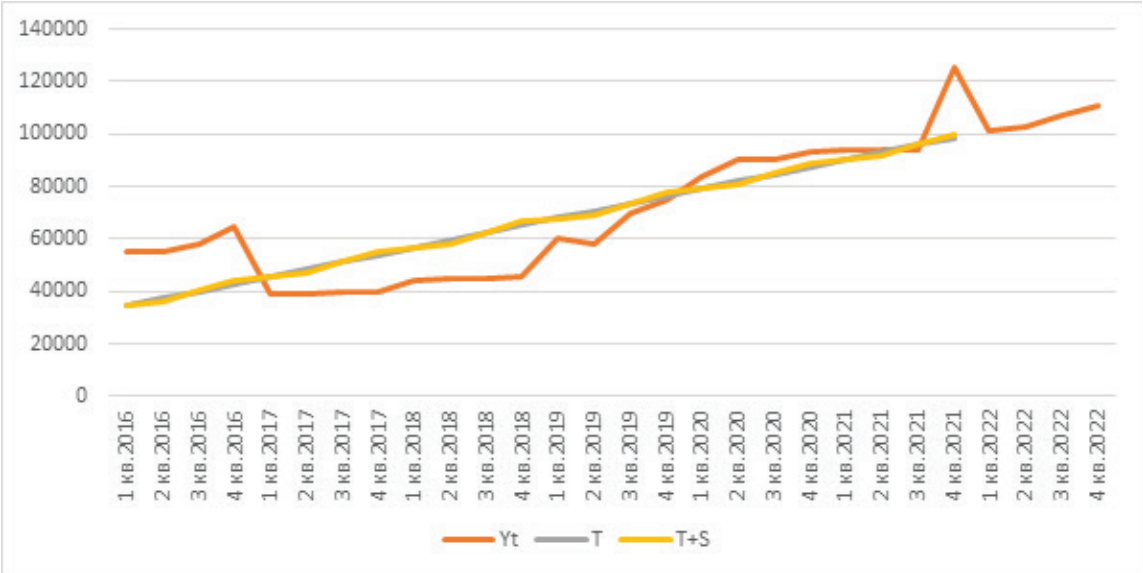

Figure 5 – Additive model of prices for 3rd class wheat with 23–27% gluten

Based on the forecast calculations, the average selling price of 3rd class wheat with 23–27% gluten in Kostanay region will be in the range of 101,000–111,000 tenge per ton in 2022.

A price change within this range indicates an increase in wheat prices.

Table 3 – Time series analysis of the multiplicative price model for 3rd class wheat with 23–27% gluten for the period from 2016–2021 in Kostanay region

	Yt (price per ton in tenge)	Moving average price	Centered moving average	Estimation of seasonal components
1 quarter 2016	55000			
2 quarter 2016	55000			
3 quarter 2016	57900	58225	56225	1
4 quarter 2016	65000	54225	52225	1
1 quarter 2017	39000	50225	47925	1
2 quarter 2017	39000	45625	42500	1
3 quarter 2017	39500	39375	40000	1
4 quarter 2017	40000	40625	41375	1

Table 3 continued

1 quarter 2018	44000	42125	42813	1
2 quarter 2018	45000	43500	44188	1
3 quarter 2018	45000	44875	46875	1
4 quarter 2018	45500	48875	50500	1
1 quarter 2019	60000	52125	55250	1
2 quarter 2019	58000	58375	62063	1
3 quarter 2019	70000	65750	68713	1
4 quarter 2019	75000	71675	75700	1
1 quarter 2020	83700	79725	82275	1
2 quarter 2020	90200	84825	87063	1
3 quarter 2020	90400	89300	90575	1
4 quarter 2020	92900	91850	92350	1
1 quarter 2021	93900	92850	93325	1
2 quarter 2021	94200	93800	97875	1
3 quarter 2021	94200	101950		
4 quarter 2021	125500			
Note: Drawn up by the author based on the source [12].				

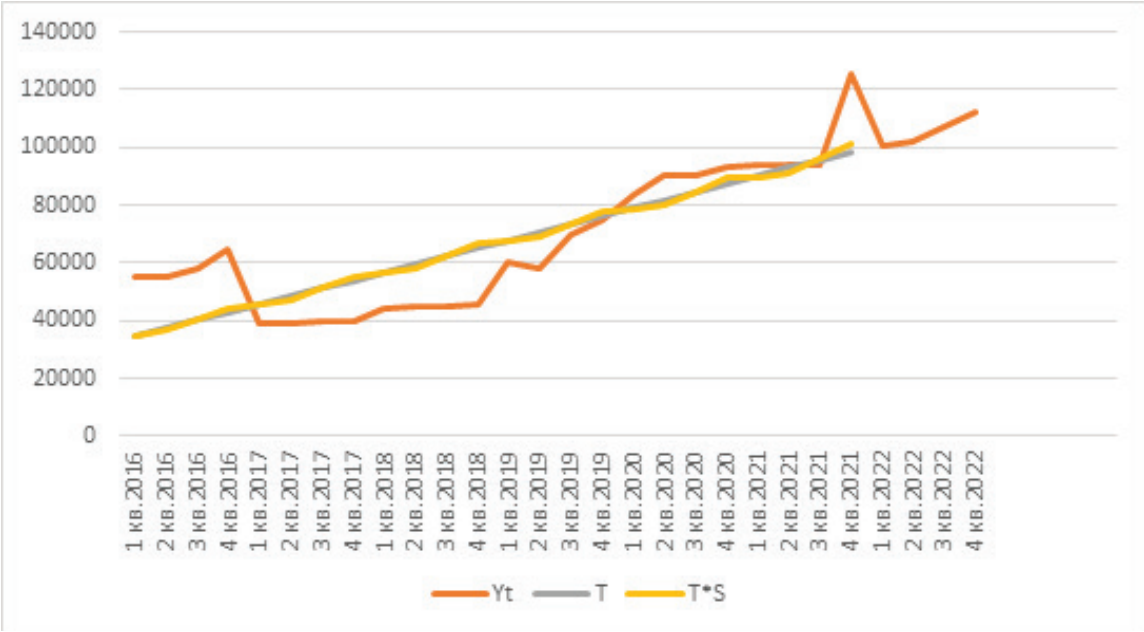

Figure 6 – Multiplicative model of prices for 3rd class wheat with 23–27% gluten

Based on the forecast calculations, the average selling price of 3rd class wheat with 23–27% gluten in Kostanay region will be in the range of 100,600–112,000 tenge per ton in 2022. A price change within this range indicates an increase in wheat prices.

If the periodic fluctuations of the time series indicators have a relatively constant amplitude, then an additive model must be preferable. In our case, the selling prices of wheat of the 3rd class with 23–27% gluten have a relatively constant amplitude: price reduction.

Based on the above analysis, the following conclusion can be drawn. For both models, the price for wheat of the specified class will vary from 100,000–112,000 tenge per ton depending on the sales season (from harvest to harvest).

These fluctuations are no more than 10,000 tenge per ton in both models as can be seen from figures 5 and 6. In real life, depending on the supply and demand of the needs of buyers, the price

for the specified wheat variety can fluctuate by no more than 10%. This is evidenced by a long-term analysis of wheat prices. In addition, the most important factor in reducing or increasing prices is the yield in the steppe zones of some regions Russia bordering Kazakhstan, in particular the Orenburg region, where the sown area of corns and legumes is 2.7 million hectares [13].

As a result, it should be noted that both models show the real situation of an increase or decrease in prices, and the error is no more than 8–10%. This situation in the wheat market is quite acceptable.

Due to the fact that the main export product is wheat grain, it should be noted that effective measures are needed to stimulate the export of this product. At the same time, it should be taken into account that the demand for wheat from the EAEU countries is not sufficiently high and constant. Export of durum wheat and wheat seed from Kostanay region to the EAEU countries amounted to 6062 tons on average for 2017–2019. The main consumers of Kostanay wheat are Russia, Belarus, Kyrgyzstan. In the markets of Armenia, we have to compete with Russian grain, and in Belarus also with Ukrainian and Lithuanian grain. Taking into account the necessity for transit through other countries, and the relevant rise in the price, it is possible to compete only by supplying high-quality and environmentally friendly products.

Table 4 – Export of flour of Kostanay region (November 2020), thousand tons

Countries	2019	January-November		Balance
		2019	2020	
Afghanistan	396,3	336,6	447,8	111,2
Uzbekistan	100,8	77,1	73,9	-3,2
Turkmenistan	25,5	19	19,4	0,4
Tajikistan	36,6	26,3	34	7,7
Kyrgyzstan	18,1	15,4	26,9	11,5
China	6,8	5,9	2,5	-3,4
Iran	0,1	0,1	-	-0,1
Georgia	0,1	0,1	-	-0,1
Russia	0,8	0,8	0,2	-0,6
Belarus	0,1	0,1	-	-0,1
Note: Based on the source [14].				

The price of grain and flour remained high despite the problems of marketing and the search for new customers for export among other countries in 2021. There are mill complexes in Kostanay region that process up to 400 tons of grain per day, and some of them work on soft wheat varieties with high gluten content. More than half of these products are exported abroad.

Table 5 – Export of wheat of Kostanay region (November 10, 2020), thousand tons

Countries	2019 год	January-November		Balance
		2019 год	2020 год	
Uzbekistan	468,8	405,7	435,9	30,2
Iran	155,3	125,8	82	-43,8
Afghanistan	86,0	65,3	59,5	-5,8
Tajikistan	172,2	156,2	86,9	-69,3
Azerbaijan	102,1	101,3	15,2	-86,1
Italy	30,0	23,2	5,2	-18,0
Turkey	28,6	26,6	4,8	-21,8
China	64,1	52,7	48,6	-4,1
Russia	93,8	68,1	50,2	-17,9
Turkmenistan	16,8	14,1	4,3	-9,8
Georgia	16,7	16,7	0,1	-16,6
Kyrgyzstan	18,2	17,0	9,5	-7,5
Belgium	57,7	50,5	8,3	-42,2
Sweden	9,0	9,0	-	-9

Table 5 continued

Belarus	31,1	26,4	14,5	-11,9
Norway	3,2	3,2	2,5	-0,7
Greece	19,6	19,6	2,9	-16,7
Mongolia	11,5	10,9	0,5	-10,4
UAE	3,0	3,0	-	-3,0
Latvia	0,9	0,9	-	-0,9
Egypt	0,3	-	-	-0,3
Ukraine	-	-	0,1	0,1
Great Britain	15,9	15,9	-	-15,9
Estonia	0,1	-	0,1	0,1
Finland	3,0	3,0	-	-1,4
Holland	5,7	5,7	1,6	-5,7
Iraq	0,4	0,4	-	-0,4
Israel	0,7	0,7	-	-0,7
Bangladesh	1,9	1,9	-	-1,7
Total exported	1416,6	1223,8	832,7	-391,1
In Kazakhstan	316,7	265,0	316,8	51,8
Total	1733,3	1488,8	1149,5	-339,3
Note: Based on the source [14].				

According to official data, Kostanay region can provide more than 100 million people with flour products [15].

At the same time, the agricultural sector of Kostanay region faces some problems:

- there is no full supply of agricultural machinery at affordable prices, although, as we previously indicated, AgromashHodling JSC has begun the production of Kazakhstan combines;
- economic strategy has not been realized which led to the loss of sales markets in Central Asia and China in 2019–2020.

The export of wheat from Kostanay region to Uzbekistan was 468.8 thousand tons in 2018, then in 2019 it was 405 thousand tons, in 2020 it was 432 thousand tons, which clearly indicates a decrease in the volume of export by 30 thousand tons. In addition, the export to Iran and Tajikistan decreased almost twice.

The lost potential was associated not only with the costs incurred in the production of wheat but with subjective reasons as well:

- strategic reserves were not made to provide enough wheat for the market in lean years, although there were powerful grain storage facilities such as large elevators that were not loaded to full capacity;
- a detailed marketing analysis was not carried out, which would allow to keep the former sales markets;
- Various private companies perform grain export, which makes it impossible to follow state policy. Moreover, some companies drove the prices down to make their own profit.

The consumption of the main products in the EAEU countries is increasing, however, it should be noted that at the same time, there is a shortage of fish and fish products, dairy products, as well as fruit and vegetables. [16]. The last ones are provided by Belarus and Armenia, which export these products to other EAEU countries [17]. Recently, a significant increase in food prices exacerbated this problem, and such price rises outrun wage growth. Kostanay region has sufficient economic potential to meet the needs of the region for socially significant products in the short, medium and long term.

The prospects for increasing the competitiveness of the agro-industrial complex not only in Kostanay, but also in the whole of Kazakhstan, are directly related to the strategic program "Kazakhstan–2050". Specific programs for the development of the country's agricultural production for certain periods have been and are being developed under this program. For example, the Program for the development of the agro-industrial complex of Kazakhstan for 2017–2021 [18].

We believe that export strategy for the agro-industrial complex should be developed with a focus on certain markets, taking into account their characteristics. Such measures would help to implement this program in Kostanay region. The most important aspect to increase the competitiveness of agricultural products is the organization of market investigation in the republic. Markets should be structured by both, country and product.

Accordingly, the economic policy of agricultural export should focus on increasing the share of the CIS and Asian countries, since there is an increasing need for agricultural products in these countries due to the significant demographic growth of the population. Therefore, in order to increase the competitiveness of the agro-industrial complex, it is necessary to take into account the following factors:

- geographical proximity. It will significantly reduce transport costs. The range of food products in geographically close regions is approximately the same;
- sale of high-quality Kazakhstan goods on the markets of neighboring countries at lower prices than local ones;
- use of favorable market conditions for the main types of agricultural products;
- national-ethnic factor. More than 4 million Kazakhs live in the border regions of Russia and the countries of Central Asia. More than 23% of Russians, Ukrainians, and Germans live in Kazakhstan, and they need different kind of food. This factor needs to be investigated, an objective marketing analysis should be carried out;
- – create joint ventures companies on the territory of Kazakhstan and abroad.

Besides that, improving the quality of grain products is the most important factor in the competitiveness of goods and the growth of export potential. Therefore, it is necessary to carry out certification, according to the international standard, which allows managing quality at a high level and control product quality, which will affect its competitiveness and promotion of goods to foreign markets.

For increasing the competitiveness of Kazakhstan's agricultural products in modern conditions, it becomes especially relevant not only to increase the number of manufactured products but also to organize the work of systems and services that ensure the most efficient functioning of all agricultural resources involved in production.

Small and medium-sized producers do not have access to the production and logistics infrastructure and cannot enter the foreign market independently. The lack of a unified pricing policy and high domestic prices for Kazakh grain do not allow the formation of competitive export prices for flour. There are some problems such as weak organization of transport logistics during the transportation of grain (lack of grain wagons, etc.), high railway tariffs and inefficient policy for diversification of grain production areas [19].

It should also be noted that poorly developed territorial integration within the country contributes to the import from Russia. Therefore, cross-border trade is also effective.

Therefore, further increase in the competitiveness of the agro-industrial complex of Kostanay region involves the development of a wide infrastructure network. Previously, the main attention was paid to increasing agricultural production, and all other problems were put forward as a secondary task.

That is why the State Program for the Development of the Agro-Industrial Complex for 2017–2021 pays such close attention to the development of infrastructure.

The practice of agricultural production has shown that a distinctive feature of the development of services in agriculture is branching off and turning into independent formations. It became possible after the transition of agriculture to a market basis, the functioning of the new forms of ownership in the market and organizational forms of farming. Their main activity is to provide services to agricultural production on a fee-paid basis. In modern conditions of functioning and development of agrarian relations, the prospects for increasing the competitiveness of both agricultural products and the agricultural sector will be associated with the trend of creating new elements of the production infrastructure, updating and improving old ones, and strengthening its importance in the entire agricultural reproduction process.

An analysis of grain products' competitiveness over the past ten years indicates that demand is increasing either for soft varieties of wheat or for durum alternately. It leads to a new type of activity such as scientific, information support for the needs of the grain products market, as well as to specific agrotechnical services, etc.

Conclusion

In the current conditions, the importance of additional industries and their service is increasing with the further development of the main branches of agricultural production. Therefore, it is difficult

to single out the main infrastructure. All of them are important in a single chain of production of agricultural products. Interruptions in the activity of one of them instantly affect the production efficiency of the entire industry. For example, poor information support of the demand for various types of agricultural products leads to their sale at low prices, and ignorance of the buyer's needs can hold products in warehouses. A similar phenomenon occurred with varieties of wheat produced in the northern regions of Kazakhstan due to poor information support.

Therefore, it is necessary to expand the network of warehouses and refrigerated tanks for storing agricultural products, improve road and transport conditions, technical and agronomic services, scientific and information support. The development of these areas will significantly increase the efficiency of agricultural production and meet the demands of the population in a variety of food products.

Over the past five years, the transport factor has become increasingly limiting. In the conditions of the vast agricultural field of Northern and Central Kazakhstan, a special place belongs to road transport. The development level of transport no longer corresponds to or meets agricultural requirements. Now it is a deterrent to the further development of the agricultural industry.

First, a multiple increase in the price of trucks does not allow many agricultural enterprises to increase their vehicle fleet.

Secondly, the high cost of fuels and lubricants has complicated the transport problem. However prompt delivery of goods is required due to the dynamics of the national economic development and the constant change in supply and demand for various types of agricultural products in the EAEU countries and on the world market.

It is obvious that the formation of an extensive network of infrastructure is beyond the power of one or two farms. At present, it is necessary not to break the unified infrastructure that was previously formed under socialism but to unite it through the state network. At the same time, each farm must allocate certain funds, depending on the volume of agricultural production. This condition is very important in the development at the regional level.

The development of infrastructure is behind material production. The specifics of infrastructure development are not taken into account. It should be noted that such division does not oppose infrastructure to material production. On the contrary, infrastructure as a system of auxiliary but very important branches of production and activities is the most important condition for the effective functioning of the production process in the agricultural sector of the economy.

The infrastructure of agricultural production of a country, a separate region, and individual enterprises or their groups, differs significantly both in the structure of its constituent objects and in the degree of their saturation. For example, the infrastructure of a grain region of Northern Kazakhstan is characterized by transport network, an extensive agricultural service and chemical protection. Different type of infrastructure has been formed in livestock areas. It is characterized by the presence of livestock buildings, an extensive veterinary and livestock service, and special services that ensure the safety and productivity of livestock. The type of infrastructure at different stages of agricultural production and animal husbandry will be determined by such factors as the structure of the main industries and the degree of their interconnection, the amount of capital stock, the characteristics of products, natural and climatic conditions. Long and cold winters in the north of the country make it impossible to replenish stocks of a number of agricultural products. For this reason, warehouses in the northern region must ensure long-term storage of a full stock of products such as potatoes, vegetables, fruits and cucurbits crops.

Consequently, the agro-industrial complex of Kostanay region is competitive enough to send the main agricultural products to international markets. In particular, the products of the livestock farm on the territory of the Karabalyk district, which breeds the Angus cows are all exported to the EAEU countries, where they are competitive, have great demand and regular customers. Similar production can be established in other areas, since the agricultural field of Kostanay region is potentially rich.

REFERENCES

1 Программа развития территории Костанайской области на 2021–2025 годы. URL: https://www.gov.kz/memleket/entities/kostanay/documents/details/123850?lang=ru.20.12.2021 (дата обращения: 20.12.2021)

2 Сельское, лесное и рыбное хозяйство в Республике Казахстан: статистический сборник 2016–2020 гг. URL: https://www.stat.gov.kz/ (дата обращения: 20.11.2021)

3 Информационно-аналитическая система Бюро национальной статистики Агентства по стратегическому планированию и реформам Республики Казахстан. URL: https://taldau.stat.gov.kz/ru/NewIndex/GetAnalytics/2929811. (дата обращения: 20.12.2021)

4 Dzholdasbaeva G.K., Yesakhmetova L.M. Ways to solve problems of flour export in Kazakhstan. Bulletin of Turan University. 2022, no. 2, pp. 163–169. (in russ.) URL: https://doi.org/10.46914/1562-2959-2022-1-2-163-169 (дата обращения: 20.08.2022)

5 Nurgalieva A.A., Sartova R.B., Sarsenbayeva A.A., Shafeyeva L.A. Analysis of the current state of the economy of the agro-industrial complex // Bulletin of Turan University. 2022, no. 2, pp. 125–135. URL: https://doi.org/10.46914/1562-2959-2022-1-2-125-135 (дата обращения: 20.08.2022)

6 Khitakhunov A. Сельское хозяйство в Центральной Азии: текущее положение и перспективы развития // Вестник КазНУ. Серия экономическая. – 2021. – № 138. – С. 59–70.

7 Abraliyev O. Анализ текущего стратегического положения сельскохозяйственного рынка Казахстана // Вестник КазНУ. Серия экономическая. – 2021. – № 136. – С. 52–59.

8 Пягай А.А., Беспаева Р.С., Искакова М.К. Стратегические направления и обеспечение продовольственной безопасности Республики Казахстан // Вестник Карагандинского университета. Серия «Экономика». – 2022. – № 2(106). – С.128–139.

9 Бейсенгалиев Б.Е., Кожабаева С.А., Турекулова Д.М., Жаныбаева З.К. К вопросу о современном состоянии сельского хозяйства Казахстана // Вестник Карагандинского университета. Серия «Экономика». – 2021. – № 2(106). – С. 15–21.

10 Ushachev I.G., Kharina M.V., Chekalin V.S. Long-term Forecast of Agricultural Development in Russia Based on an Economic and athematical Model // Studies on Russian Economic Development. 2022, no. 33(3), pp. 282–292.

11 Kuznetsov N.G., Bogoslavtseva L.V., Roshchina L.N., Rodionova N.D., Kilinkarova S.G. Priorities of Software Project Management Support of Agro-industrial Complex in Ensuring FoodSecurity. Advances in Science, Technology and Innovation. 2022, pp. 667–669.

12 Сводная таблица цен на зерновые культуры и муку в тенге за тонну по Казахстану. URL: https://kazakh-zerno.net/163975-svodnaja-tablica-cen-na-zernovye-kultury-i-muku-v-tenge-za-tonnu-po-kazahstanu-na-20-12-2019-goda-v-t-ch-nds-12/ (дата обращения: 12.12.2021)

13 Medvedeva L.S., Orekhova L.L. Assessment of Russian Agricultural Export Potential in the World Market. Advances in Science, Technology and Innovation. 2022, pp. 675–679.

14 Молдашев А.Б. и др. Продовольственная безопасность Казахстана // Проблемы агрорынка. – 2020. – № 1. – С. 11–18.

15 Комиссарова Е. Мукомольные предприятия: «Наша область без муки не останется» // Костанай-АГРО. – 2020, январь – 18.

16 Nabiyeva A.R., Suglobov A.E., Tkach A.V. Agricultural Sector in the System of Food Security of Russia. Environmental Footprints and Eco-Design of Products and Processes. 2022, pp. 223–231.

17 Bykovskaya Y.V., Dyatlova A.F., Minakov A.V. Effective Management of the Agro-Industrial Complex as a Basis for Food Security.Lecture Notes in Networks and Systems. 2022, pp. 191–200.

18 Omarkhanova Z.M., Niyazbekova S.U., Varzin V.V., Kerimkhulle S.Y., Nurekenova E.S. Financial Provision of the Agro-industrial Complex of Kazakhstan: Problems and Solutions. Environmental Footprints and Eco-Design of Products and Processes. 2022, pp. 27–32.

19 Алпамыс М. Экспорт еселеп артты // Костанай-АГРО. – 2020, ноябрь – 19.

REFERENCES

1 Programma razvitija territorii Kostanajskoj oblasti na 2021–2025 gody. URL: https://www.gov.kz/memleket/entities/kostanay/documents/details/123850?lang=ru.20.12.2021 (data obrashhenija: 20.12.2021). (In Russian).

2 Sel'skoe, lesnoe i rybnoe hozjajstvo v Respublike Kazahstan: statisticheskij sbornik 2016–2020 gg. URL: https://www.stat.gov.kz/ (data obrashhenija: 20.11.2021). (In Russian).

3 Informacionno-analiticheskaja sistema Bjuro nacional'noj statistiki Agentstva po strategicheskomu planirovaniju i reformam Respubliki Kazahstan. URL: https://taldau.stat.gov.kz/ru/NewIndex/GetAnalytics/2929811. (data obrashhenija: 20.12.2021). (In Russian).

4 Dzholdasbaeva G.K., Yesakhmetova L.M. (2022) Ways to solve problems of flour export in Kazakhstan. Bulletin of Turan University, no. 2, pp. 163–169. (in russ.) URL: https://doi.org/10.46914/1562-2959-2022-1-2-163-169 (data obrashhenija: 20.08.2022). (In English).

5 Nurgalieva A.A., Sartova R.B., Sarsenbayeva A.A., Shafeyeva L.A. (2022) Analysis of the current state of the economy of the agro-industrial complex // Bulletin of Turan University, no. 2, pp. 125–135. URL: https://doi.org/10.46914/1562-2959-2022-1-2-125-135 (data obrashhenija: 20.08.2022). (In English).

6 Khitakhunov A. (2021) Sel'skoe hozjajstvo v Central'noj Azii: tekushhee polozhenie i perspektivy razvitija // Vestnik KazNU. Serija jekonomicheskaja. No. 138. P. 59–70. (In Russian).

7 Abraliyev O. (2021) Analiz tekushhego strategicheskogo polozhenija sel'skohozjajstvennogo rynka Kazahstana // Vestnik KazNU. Serija jekonomicheskaja. No. 136. P. 52–59. (In Russian).

8 Pjagaj A.A., Bespaeva R.S., Iskakova M.K. (2022) Strategicheskie napravlenija i obespechenie prodovol'stvennoj bezopasnosti Respubliki Kazahstan // Vestnik Karagandinskogo universiteta. Serija «Jekonomika». No. 2(106). P. 128–139. (In Russian).

9 Bejsengaliev B.E., Kozhabaeva S.A., Turekulova D.M., Zhanybaeva Z.K. (2021) K voprosu o sovremennom sostojanii sel'skogo hozjajstva Kazahstana // Vestnik Karagandinskogo universiteta. Serija «Jekonomika». No. 2(106). P. 15–21. (In Russian).

10 Ushachev I.G., Kharina M.V., Chekalin V.S. (2022) Long-term Forecast of Agricultural Development in Russia Based on an Economic and athematical Model // Studies on Russian Economic Development, no. 33(3), pp. 282–292. (In English).

11 Kuznetsov N.G., Bogoslavtseva L.V., Roshchina L.N., Rodionova N.D., Kilinkarova S.G. (2022) Priorities of Software Project Management Support of Agro-industrial Complex in Ensuring FoodSecurity. Advances in Science, Technology and Innovation, pp. 667–669. (In English).

12 Svodnaja tablica cen na zernovye kul'tury i muku v tenge za tonnu po Kazahstanu. URL: https://kazakh-zerno.net/163975-svodnaja-tablica-cen-na-zernovye-kultury-i-muku-v-tenge-za-tonnu-po-kazahstanu-na-20-12-2019-goda-v-t-ch-nds-12/ (data obrashhenija: 12.12.2021). (In English).

13 Medvedeva L.S., Orekhova L.L. (2022) Assessment of Russian Agricultural Export Potential in the World Market. Advances in Science, Technology and Innovation, pp. 675–679. (In English).

14 Moldashev A.B. i dr. (2020) Prodovol'stvennaja bezopasnost' Kazahstana // Problemy agrorynka. No. 1. P. 11–18. (In Russian).

15 Komissarova E. (2020) Mukomol'nye predprijatija: «Nasha oblast' bez muki ne ostanetsja» // Kostanaj-AGRO. janvar' – 18. (In Russian).

16 Nabiyeva A.R., Suglobov A.E., Tkach A.V. (2022) Agricultural Sector in the System of Food Security of Russia. Environmental Footprints and Eco-Design of Products and Processes, pp. 223–231. (In English).

17 Bykovskaya Y.V., Dyatlova A.F., Minakov A.V. (2022) Effective Management of the Agro-Industrial Complex as a Basis for Food Security.Lecture Notes in Networks and Systems, pp. 191–200. (In English).

18 Omarkhanova Z.M., Niyazbekova S.U., Varzin V.V., Kerimkhulle S.Y., Nurekenova E.S. (2022) Financial Provision of the Agro-industrial Complex of Kazakhstan: Problems and Solutions. Environmental Footprints and Eco-Design of Products and Processes, pp. 27–32. (In English).

19 Alpamys M. (2020) Jeksport eselep artty // Kostanaj-AGRO, nojabr' – 19. (In Kazakh).

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БІРІГУ ЖАҒДАЙЛАРЫНДА ҚОСТАНАЙ ОБЛЫСЫНЫҢ ӘЛЕУМЕТТІК-ЭКОНОМИКАЛЫҚ ДАМУЫНДАҒЫ АСТЫҚ ӨНДІРІСІНІҢ РӨЛІ

Аңдатпа

Мақаланың мақсаты – интеграция жағдайындағы Қостанай облысының әлеуметтік-экономикалық дамуындағы астық өндірісінің рөлін анықтау. Қостанай облысындағы өндірілетін астық өнімдері облыстың және жалпы Қазақстанның азық-түлік қауіпсіздігін қамтамасыз етіп, бірқатар ауыл шаруашылығы және өнеркәсіп өнімдерін ЕАЭО елдеріне экспорттауға қабілетті.Қазіргі жағдайдағы Қазақстанның астық өнімдерінің бәсекеге қабілеттілігін арттыру үшін өндірілетін өнім көлемінің өсуін ғана емес, сонымен қатар өндіріске тартылған барлық ауыл шаруашылығы ресурстарының барынша тиімді жұмыс істеуін қамтамасыз

ететін жүйелер мен қызметтерді, өндіргіш күштердің ең маңызды элементі – өндірістік инфрақұрылымды ұйымдастыру ерекше маңызды болып отыр.Бұл тұрғыда Қостанай облысының бәсекеге төтеп беруге және ЕАЭО елдерімен ғана емес, басқа серіктес елдермен де интеграциялық үдерістерге қатысуға жеткілікті әлеуеті бар. Жұмыстың практикалық маңыздылығы Қостанай облысында астық өнімдерін дамыту және оның бәсекеге қабілеттілігін арттыру бойынша алға тартылған ұсыныстарды пайдаланудың нақты мүмкіндігі мен әлеуетті тиімділігінде. Мәселені зерттеу үшін материалдарды сыни талдау және материалдарды жалпылау, экономикалық және математикалық модельдеу әдістері қолданылды.Зерттеудің қорытындылары астық өндірісін дамыту бойынша іргелі жұмыстарды, Қазақстанда мен ЕАЭО елдеріндегі экономиканың аграрлық секторының даму заңдылықтарын, сондай-ақ ауыл шаруашылығын реформалауға сәйкес қабылданған заңнамалық актілерді, Қазақстанның агроөнеркәсіптік кешенін дамытудың 2017–2021 жылдарға арналған мемлекеттік бағдарламасын зерделеуге негізделген.

Тірек сөздер: астық өндіру, агроөнеркәсіп кешені, азық-түлік қауіпсіздігі, өнімділік, ауыл шаруашылығы мәдениеті

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РОЛЬ ПРОИЗВОДСТВА ЗЕРНОВОЙ ПРОДУКЦИИ В СОЦИАЛЬНО-ЭКОНОМИЧЕСКОМ РАЗВИТИИ КОСТАНАЙСКОЙ ОБЛАСТИ В УСЛОВИЯХ ИНТЕГРАЦИИ

Аннотация

Целью статьи является определение роли производства зерновой продукции в социально-экономическом развитии Костанайской области в условиях интеграции. Производство зерновой продукции Костанайской области в состоянии обеспечить продовольственную безопасность области и Казахстана в целом, а также экспортировать ряд товаров сельскохозяйственного и промышленного производства в страны ЕАЭС. Для повышения конкурентоспособности зерновой продукции Казахстана в современных условиях становится особенно актуальным не только количественный рост производимой продукции, но и организация систем и служб, обеспечивающих наиболее эффективное функционирование всех вовлекаемых в производство сельскохозяйственных ресурсов, а также представляющих важнейший элемент производительных сил – производственную инфраструктуру. В этом смысле Костанайская область обладает достаточно мощным потенциалом, чтобы выдержать конкуренцию и участвовать в интеграционных процессах не только со странами ЕАЭС, но и с другими странами-партнерами. Практическая значимость работы заключается в реальной возможности и потенциальной эффективности использования выдвинутых предложений и рекомендаций по развитию зерновой продукции Костанайской области и повышению ее конкурентоспособности. Для изучения проблемы использовались методы критического анализа и обобщения материалов, экономико-математическое моделирование. Выводы исследования основаны на изучении фундаментальных работ по развитию производства зерновой продукции, закономерностей развития аграрного сектора экономики в Казахстане и странах ЕАЭС, а также законодательных актов, принятых в соответствии с реформированием сельского хозяйства, Государственной программы развития АПК Казахстана на 2017–2021 годы.

Ключевые слова: зерновое производство, агропромышленный комплекс, продовольственная безопасность, урожайность, сельскохозяйственные культуры.