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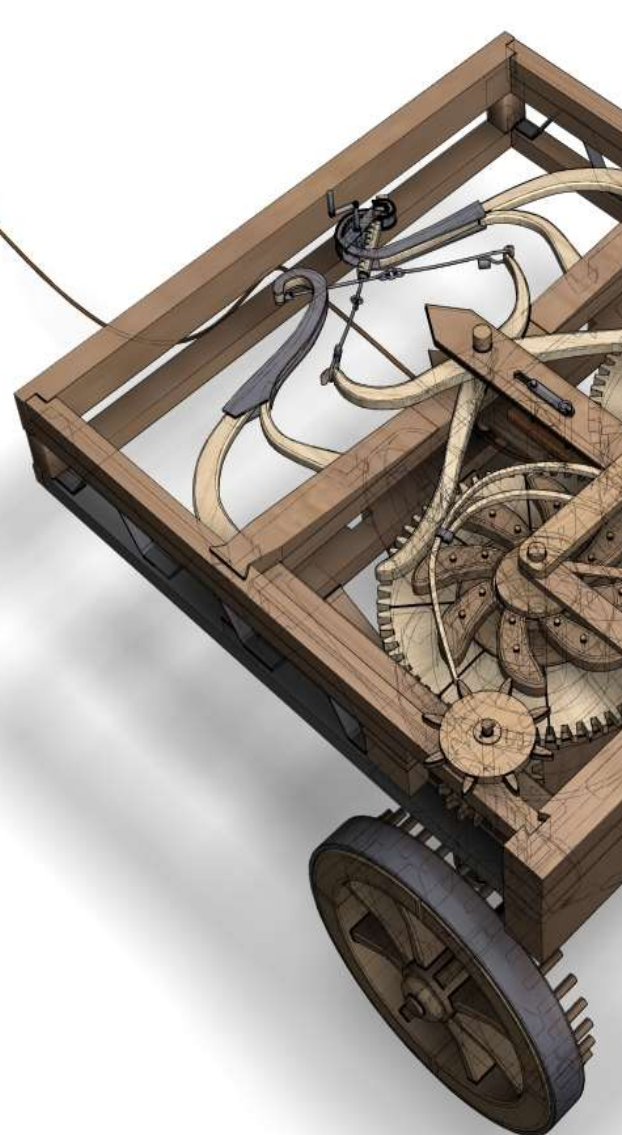
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Priority Areas for Increasing the Competitiveness of the Agro-Industrial Complex and Environmental Sustainability

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Abstract:

The article considers the place of agro-industrial complex of Kazakhstan in the national economic complex of the country, which has certain problems that affect the current state. In the course of the study of the agro-industrial complex the author considered the participation in the formation of the country's GDP, dynamics and structure of gross agricultural output as the main branch of the agro-industrial complex.

As a result, the main problems were identified and the priority tasks to solve the problems of management of the agro-industrial complex, based on the target indicators of development of the agro-industrial complex until 2020, in order to further forecast and model the forecast values until 2025 through the dynamics of gross agricultural production of Kazakhstan for 2016-2020, GDP structure by economic activity, the structure of gross agricultural production by industry, profitability of agricultural production, and indicators of import

Keywords: agro-industrial complex; agrarian sector; government support; agriculture; gross output; crop production; animal husbandry; production efficiency; peasant farms; export; import; labor productivity; competitiveness.

JEL Classification: Q14; Q56.

Introduction

As one of the main components of Kazakhstan's economy, the agro-industrial complex has huge economic potential, where food and raw materials for the manufacturing industry are produced. This industry employs about 30% of those working in the sphere of material production, one fifth of production funds is involved and about one third of gross national income is created. Speaking about food security of the state we assume a certain level of development of agro-industrial complex, which determines the state of all national economic potential and socio-economic situation in the society.

One of the important parts of the agro-industrial complex is agriculture, which has a special place not only in the AIC, but also in the entire national economy.

It is difficult to overestimate the importance and development of agro-industrial complex in the life of each country, since it occupies a special place in the structure of the national economy and acts as a system, as a result of which the whole set of invested material, financial and labor resources is transformed into goods and services.

One of the main priorities of socio-economic policy of the state is the dynamic and competitive development of the agroindustrial complex, the determining factor of which is economic and social stability in the country.

1. Research Background

Support for agriculture in the most developed countries of the world is recognized as a national priority, where public regulatory systems are effectively applied. The pandemic, which is associated with the spread of coronavirus infection, has shown the role and importance of food security all over the world, so there is an increased attention of developed countries to the problems of their own food security. In this connection the funds allocated to the financial support of agriculture increase annually, where the experience of developed countries in the sphere of the financial support of the national economy and the creation of new competitive branches, including the agroindustrial complex, deserves great attention. Determining for itself the most optimal forms and methods of regulation and management in the sphere of agroindustry each country chooses its own way of regulating the economy. However, according to some scientists, despite the widespread attention to the problems of regulation of the agro-industrial complex, there are basic issues in the direction of sustainable development of agricultural production in Kazakhstan have not yet been fully studied (Aimurzina *et al.* 2017).

Although in recent years there has been an increase in agricultural production, at the same time, the level of efficiency of the industry is still insufficient. The country's agricultural production is still small-scale and technologically backward. The intertwining of natural and economic conditions: the influence of natural and climatic conditions, the seasonality of production, which is expressed in the discrepancy between the working period and the time of production of agricultural products, dependence on borrowed funds, uneven use of working capital and income generation of the agro-industrial complex requires a special approach to its state regulation.

The transition of the agroindustrial complex to the industrial-innovative way of development on the basis of strengthening the material and technical base, increasing the competitiveness of agricultural products and increasing the financing of the agroindustrial complex is one of the priority directions of increasing the sustainable development of agricultural production (Gizatova 2017; Bakhtiyarova 2017; Khan 2017).

The competitive factors are understood as the phenomena and processes of production and economic activities, the external environment of the corporate structure, the existence of which is necessary and sufficient to change the criteria of competitiveness of the corporate structure (product quality, production costs, corporate image, etc.) and, therefore, the level of competitiveness of the entire corporate structure. In other words, competitive factors of the firm are specific elements which allow it to surpass its competitors in the marketing environment. Russian scientist I.M. Lifshitz (2019) gives quite a clear definition of competitive factors: "A competitive factor is a direct cause, the existence of which is necessary and sufficient to change one or more criteria of competition".

The classification of factors for increasing the competitiveness of entrepreneurial structures was proposed by Harvard Business School Professor M. Porter (the concept of five competitive forces). According to this concept, in any sector of the functioning of the entrepreneurial structure, the rules of competition are determined by five driving competitive forces: the emergence of new competitors on the market, the influence of buyers, substitute products, the influence of suppliers, competitors operating in the market.

Since the development of agricultural entrepreneurship is one of the dominant factors for stable recovery of the economy of Kazakhstan, overcoming the socio-economic crisis in the agro-industrial complex directly depends on the effectiveness of the development of agricultural entrepreneurship, which is reflected in the

modern economic policy of the national government. Among the factors of internal structure that ensure the competitiveness of the agro-industry are the national economic and agricultural policy, the comparative dynamics of exports and imports in accordance with the dynamics of the national currency, as well as the rules and regulations that ensure the competitiveness of domestic entrepreneurs (Utibayeva, *et al.* 2019; Zhussupov 2020).

Problems of ensuring competitiveness and issues of economic regulation of the agro-industrial complex of the Republic of Kazakhstan in recent years, the strategic importance and features of agriculture, requiring the development of special approaches to the management of this industry, its investment at the regional level, much attention is paid in the research of domestic scientists (Kamenova and Aimurzina 2017; Nurlankyzy *et al.* 2017; Uakhitzhanova, Shokhan and Omarova 2017).

The successful operation of agricultural enterprises in a competitive environment depends on a system of external and internal relationships. The activity of the enterprise is influenced by general (integral) and specific factors. The general factors affecting the development of competition include investments in the agricultural sector of the market, in scientific research, industrial infrastructure, electrification, in the latest technologies, and an important role is played by the structural policy of the state, the policy of import substitution, investments in the social sphere of the countryside, innovative, financial, socio-economic (Omarkhanova *et al.* 2017).

The study of economic literature on competitiveness issues allowed the authors to systematize many factors of competitiveness according to individual characteristics. So the internal factors characterizing the level of competitiveness of the enterprise also include regulatory and scientific and technical issues (Tolegen *et al.* 2018; Nurtayeva *et al.* 2018; Taipov, Khan and Shulenbaeva 2017).

We believe that increasing competitiveness should be ensured primarily by increasing labor productivity and reducing the consumption of materials and energy in the production of goods and services. The competitiveness of economic entities is the ability of enterprises, businesses, industries and countries to actively use competitive mechanisms that pave the way to increase their share in segments of the global market, thereby obtaining additional income and implementing the main goals of society (Yessentugelov 2017).

In our opinion, the study of competitiveness requires a wider inclusion of factors, not limited only to production or economic ones. Given the specifics of agriculture, a greater coverage of factors is needed, including social and environmental groups. Assessment of competitiveness includes the following stages: market analysis, selection of the most competitive product, determination of the main target indicators of the competitiveness of the product or industry being assessed.

In our opinion, the study of competitiveness requires a wider inclusion of factors, not limited only to production or economic ones. To evaluate the competitiveness of the commodity it is necessary to consider the specifics of agriculture, covering factors including social and environmental groups. This assessment of competitiveness includes the following stages: market analysis, selection of the most competitive product, determination of the main target indicators of competitiveness of the assessed product or industry.

2. Methodology

One of the main tasks is to theoretically and methodologically demonstrate the nature of competitiveness of the agro-industrial complex. The theoretical and methodological basis of the study is based on scientific articles on the problem under study published in leading economic journals of domestic and foreign scholars.

The study made extensive use of the laws and regulations of the Republic of Kazakhstan on the economic development of the agro-industrial complex. National and international methodologies and reference materials, as well as data from the Ministry of Agriculture of the Republic of Kazakhstan, the Ministry of Finance of the Republic of Kazakhstan and the Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan formed the basis for the information.

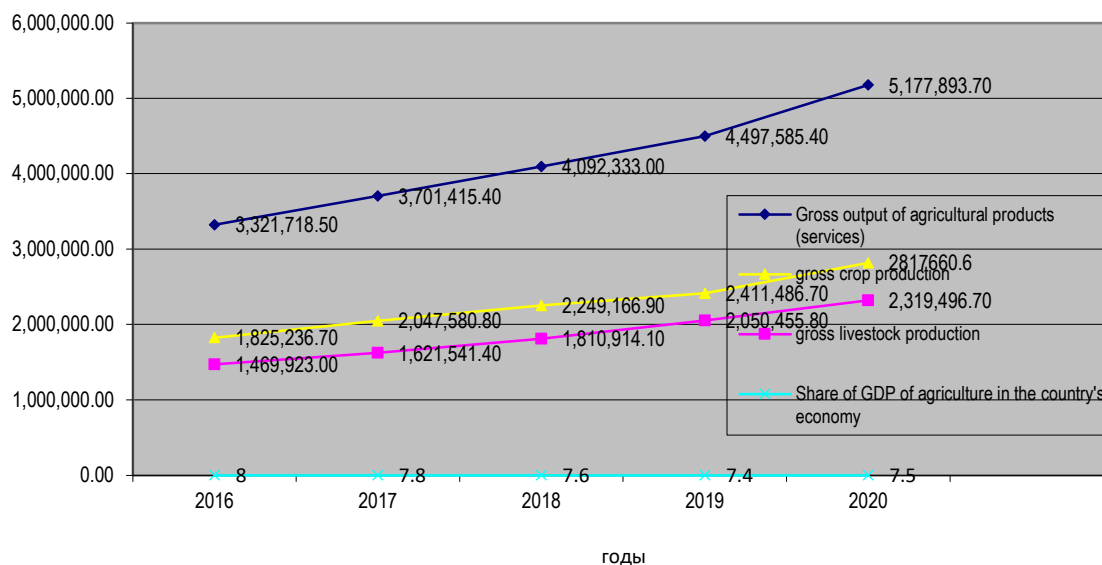
The study was conducted using the systematic and structural approach, methods of logical, comparative and statistical analysis. To achieve the set goals, the study adopted a multidisciplinary approach, combining methods of economic-statistical, systematic, comparative, historical, graphical analysis, economic-mathematical modeling and analysis of the dynamics and structure of the studied parameters.

3. Research Results

Given the fact that the State program of development of agro-industrial complex of the Republic of Kazakhstan for 2017 - 2021 is being implemented, there is an increase in agricultural production and processed products, reduced level of food imports, increased provision of equipment and agricultural machinery, improved welfare of the rural population.

As the situation shows, for the period from 2016 to 2020, gross agricultural output increased by 55.9%, including crop production by 54.4% and livestock by 57.8 (Figure 1).

Figure 1. Gross agricultural production of the Republic of Kazakhstan (mln tenge)



Source: compiled by authors

According to the Statistical Commission, in 2020 more than 44% of total production will be produced by "households" and 31.1% by "farmers (farms)", while in 2016 households produced more than 79% of total agricultural production and farms produced more than 79%.

The data in Table 1 show the growth of the physical volume of gross output in comparison with the previous period. The largest increase can be observed in 2017 at 12.6% for agricultural enterprises, although in 2020 there is a decrease of 6.1%.

Table 1. Trend in the formation of the index of physical volume of gross output (services) of agriculture, forestry and fisheries

Category	2016	2017	2018	2019	2020
agricultural enterprises	108,7	112,6	105,0	104,2	93,9
individual entrepreneurs and peasant or farm enterprises	108,0	109,1	107,3	105,5	102,1
households	99,5	100,6	99,6	102,1	101,7

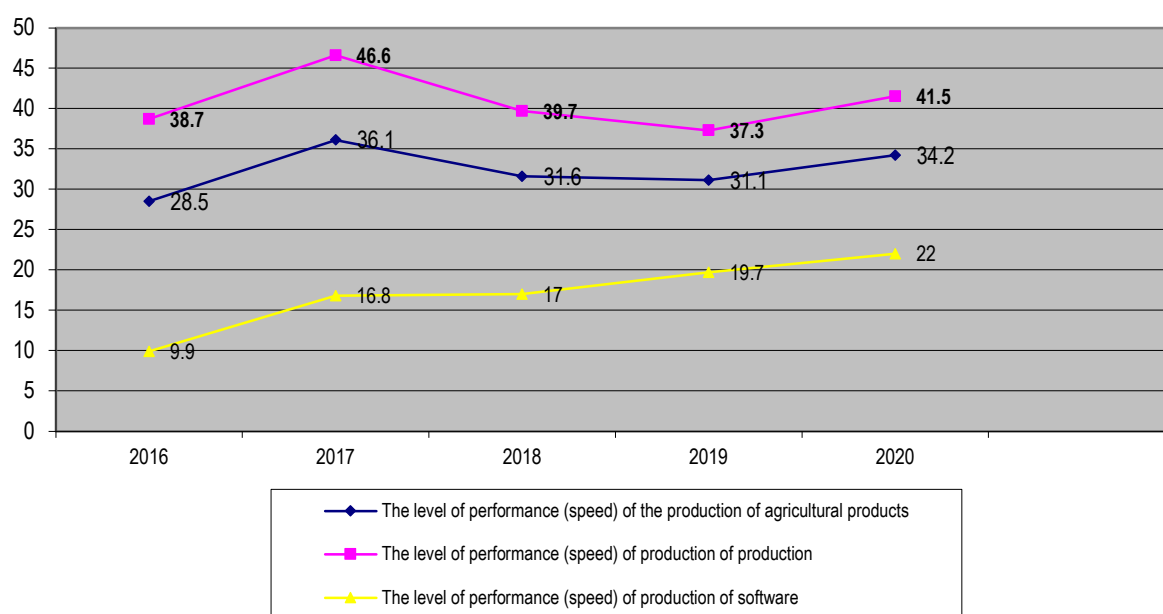
Source: compiled by authors according to www.stat.gov.kz

Based on the experience of developed countries, medium and large scale agricultural producers must prevail in order to make agricultural production more efficient. Currently, there is a trend towards small-scale production in the agricultural sector. The number of active (private) farms has increased from 181.0 thousand in 2016 to 213.0 thousand in 2020, an increase of 17.7 percent. Labor productivity growth in agriculture is significantly lower than in other economic sectors due to the high proportion of smallholders and their lack of contribution to the adoption of new technologies: in 2020, 219.0 thousand smallholders will be characterized by low solvency and outdated agricultural machinery. This situation indicates the need for measures to expand enterprises in the agricultural sector. In other words, the integration of agricultural sector enterprises into cooperatives will allow for the timely modernization of equipment, use of the latest technology, productivity, and competitiveness of products.

It should also be noted that the factors responsible for the low profitable growth of the agricultural sector are related to the peculiarities of the demand for agricultural products and the peculiarities of this industry.

Figure 2 shows that the profitability of livestock products in 2020 increased by 12.1% compared to 2016, while the profitability of crop production was only 5.7%. The overall profitability of agricultural production reached 41.5% in 2020, an increase of 2.8% compared to 2016.

Figure 2. Profitability of agricultural production



Source: compiled by authors according to www.stat.gov.kz

Agricultural production has several characteristics that make it spontaneous, chaotic and unable to rely on market movements. Consequently, the following "disadvantages" of agricultural market activity stand out.

First, as a result of the increase in productivity and market saturation, the increase in agricultural production leads to a sharp decline in prices, since the demand for food changes little.

Second, the negative supply-dependent elasticity of food prices is high, *i.e.*, overproduction can lead to a sharp decline in prices and the mass bankruptcy of producers.

Third, the low elasticity of demand with respect to consumer income has little effect on the increase in demand, so that a drop in prices leads to a relatively small increase in the demand for food.

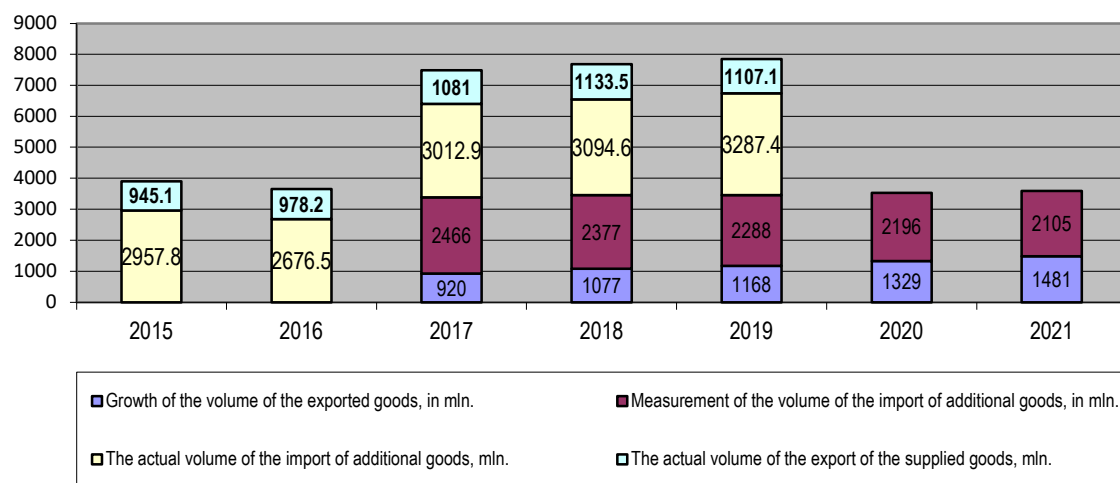
Fourth point: the relatively high dependence of agricultural production on natural climatic factors forces the state to promote price stabilization. Otherwise, it is in fact inevitable that producers will make very risky, suboptimal decisions when planning production for the next organizational periods.

The issue of state regulation and support, assessment of the degree of permissible state intervention in the activities of agricultural enterprises, directions, forms and necessary volumes of support is relevant. For Kazakhstan, neighboring with the world's largest food consumers and producers, the regulation of the domestic market is of great importance in order to avoid threats to food security. Also, the need for government intervention is dictated by seasonal fluctuations in agricultural production and, accordingly, uneven supplies of food products to the domestic market, which causes sharp price fluctuations and inflationary processes. It is the low level of support for the agro-industrial complex of Kazakhstan that is a serious obstacle to increasing its efficiency and competitiveness. The share of government subsidies in total agricultural production is 48% in the EU, 71% in Japan, and 28% in the US. In addition to these reasons, the need to protect domestic agricultural production from the penetration of products from countries with significantly lower production costs is usually mentioned. Or, conversely, to support the export of the country's products to external markets. There is a need to strengthen the export orientation of the agricultural sector. There is a need to increase exports of grains and flour, as well as establish deep processing of raw materials and export value-added products. To strengthen the food industry and make it highly profitable, state support funds will be channeled. This will require modernizing enterprises and increasing their workload. In a situation of open borders, the fight against imports is crucial.

Therefore, it is necessary to stimulate the production of products that Kazakhstan can produce itself - sugar, vegetable oil, vegetables and fruits. This will reduce the volume of imports from China and other countries, which, according to statistics, are growing steadily.

Target indicators of the State program for the development of the agro-industrial complex to implement the strategic objectives of the Strategy 2020 has a special role.

Figure 3. Analysis of actual data on the volume of import and export of agricultural products, as well as target indicators of export and import in accordance with the State Program of development of agro-industrial complex of the Republic of Kazakhstan

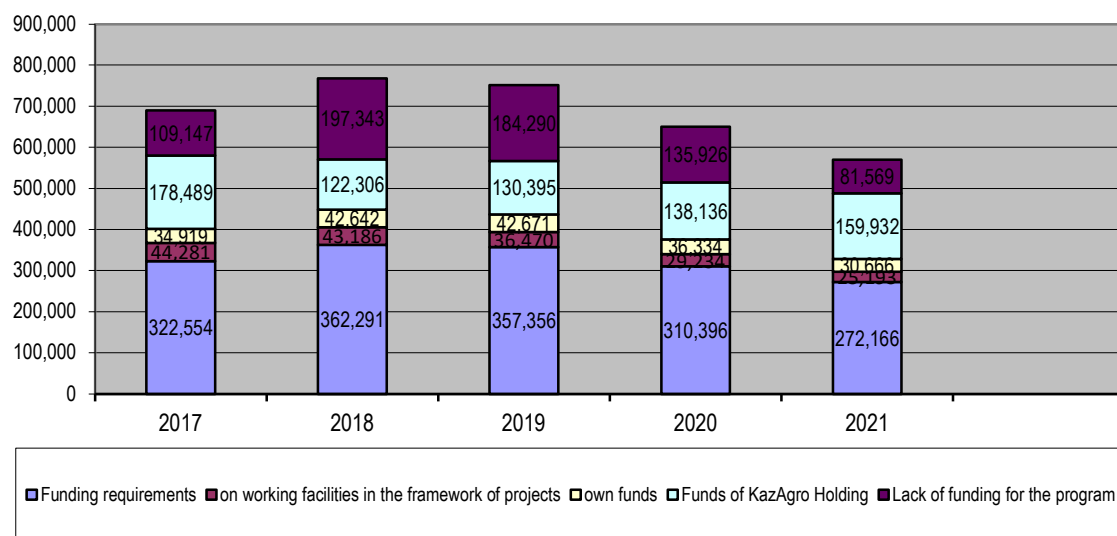


Source: compiled by authors according to www.stat.gov.kz

The data in Figure 3 shows that the actual indicators of imports in 2017 compared to the target indicators are higher by 547.0 million dollars, in 2019 by 999.4 million dollars. The actual export indicators in 2017 are higher than the target indicators by 58.2 million dollars, in 2019 they are lower by almost 61.0 million dollars, which indicates a deterioration in the indicators of Kazakhstan's foreign economic activity. Between 2015 and 2019, there will be an increase of 11.1% in food imports and 17.1% in exports.

Estimates of the funds needed to achieve the indicators of the National Program for the Development of the Agro-industrial Complex for the period 2017-2021 are presented in Figure 4.

Figure 4. Forecast of agribusiness financing, million tenge



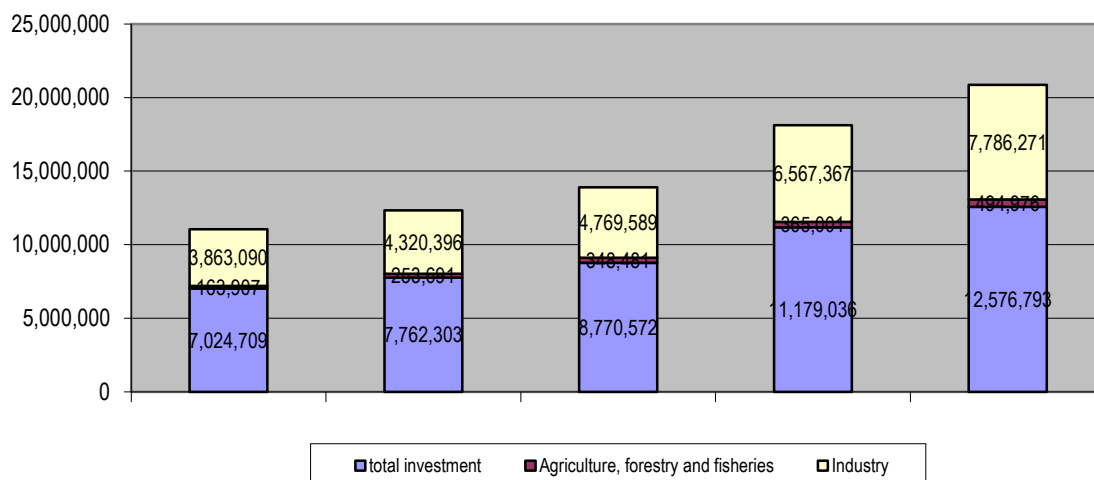
Source: compiled by authors

The Ministry of Agriculture of the Republic of Kazakhstan calculates that by 2021, 272.2 billion tenge will be needed, which is 50.4 billion tenge less than in 2017. At the same time, to cover the shortfall in funding for the program, JSC "Holding" KazAgro will raise funds from various sources and private financial institutions.

A strong agro-industrial complex will be the basis for the sustainable development of the country in the context of a deepening integration process. The main problem of the agricultural sector is the lack of investment. Currently, the specific characteristics of agricultural production make the different sectors of the agro-industrial complex unattractive and risky for investors, which limits their investments. In addition, most projects in agro-industrial parks are of long duration, with a payback period of 7-10 years, which does not contribute to the activities of private enterprises in agro-industrial parks. According to the National Statistics Committee, the share

of investment in agricultural production will be 3.9% in 2020, 3.3% in 2019 and 2.3% in 2016. The figures were. other words, over the past five years, the share of investment in agriculture has grown by only 1.6 percent.

Figure 5. Indicators of attracting investment in fixed assets by direction of use, in million tenge



Source: compiled by authors according to www.stat.gov.kz

Considering that investments in agriculture are formed at the expense of state funding, this dynamics characterizes the dependence on budget funds and the underdevelopment of the industry.

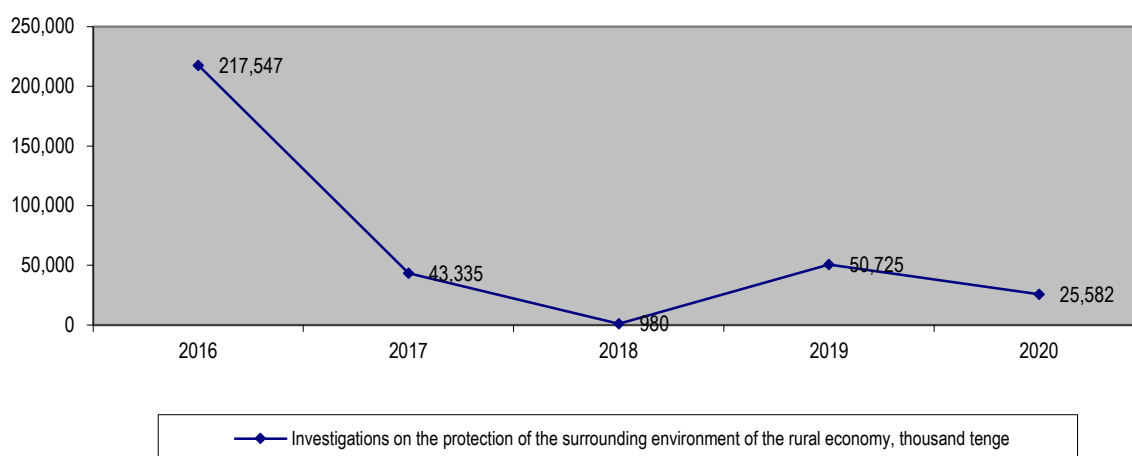
Thus, despite the annual infusion of budgetary funds into agriculture, the following are problematic for the country's economy:

- annual growth of import dependence. According to the Ministry of Agriculture of the Republic of Kazakhstan, from \$ 2,676.5 million in 2016 to 3287.4 million dollars in 2020;
- the gross inflow of direct investment is declining annually from 50.1 million dollars in 2016 to 10.1 million dollars in 2020;
- the contribution to the industry is decreasing, so the share of gross agricultural output from 8.0 in 2015 to 7.5 in 2020.

4. Environmental Sustainability

Noting such indicators as investments aimed at green economy and environmental protection, we would like to note that in 2020 25.6 million tenge was allocated for environmental protection in agriculture, or only 0.012% of total investments in environmental protection (Figure 6). In this case, the largest amount of investments is traced in 2016 - 217.5 million tenge.

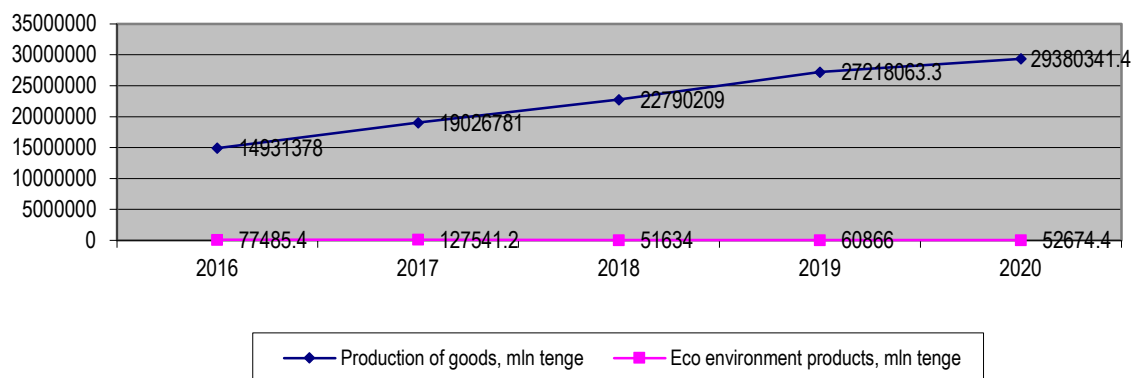
Figure 6. Investments for environmental protection of agriculture, thousand tenge



Source: compiled by authors according to www.stat.gov.kz

Today, Kazakhstan is positioned in the world as a country with a rapidly developing economy, abundant natural resources, agro-industrial parks and a high rate of economic growth. In this regard, the strategic development plan of the Republic of Kazakhstan for the period up to 2025 will continue to stimulate and encourage innovation and investment in the production of environmentally friendly goods and services, the reduction of greenhouse gas emissions and the use of climate-resilient technologies (Figure 7). To this end, the existing legislation on tariff setting will be improved and the implementation of measures to save energy and increase energy efficiency will continue through industrial modernization, the introduction of innovative technologies and the interaction between science and production. Thus, in order to achieve sustainable development of the agro-industrial complex, the necessary institutional framework is needed to apply the principles and criteria of the "green economy".

Figure 7. Production of environmentally friendly products, million tenge



Source: compiled by authors according to www.stat.gov.kz

According to the report of the project "Implementation and Reporting of Indicators of Green Growth in Kazakhstan" under the OECD-Kazakhstan cooperation program, the steady increase in per capita CO₂ emissions, high energy intensity of GDP and low energy productivity are reducing competitiveness. The report points out that in 2013, the energy intensity of agriculture, forestry, and fisheries was 0.10 toe/thousand US dollars at 2000 prices; in 2017, it increased by 0.01 to 0.11 toe/thousand US dollars at 2000 prices.

In order for agribusinesses to access land provided by financial institutions, interest rates must be reduced, lending periods must be extended, investment subsidies must be provided to shorten the payback period of investment projects, financial restructuring mechanisms must be put in place to improve the solvency of agribusinesses, credit burdens must be reduced, and the risk of bankruptcy of agribusinesses must be minimized. These are stipulated in the National Program for the Development of Agribusinesses. At the same time, according to the State Program for the Development of AIC, the labor productivity of AIC by the end of 2019 will be 219.4% (compared to 2009), which is almost 180.5% lower than the value envisaged in the Strategy 2020 (the Strategic Plan of the Ministry of Agriculture of the Republic of Kazakhstan for 2017-2021).

Table 2. Main indicators of the State program for the development of the agro-industrial complex of Kazakhstan

Indicators	2016	2017	2018	2019	2020
Share of gross production in GDP, %	8	7,8	7,6	7,4	7,5
gross agricultural output, million tenge	3321718,5	3701415,4	4 092333,0	4497 585,4	5177893,7
the volume of investments in fixed assets of agriculture, million tenge	163907	253691	348481	365001	494976
export volume of processed agricultural products, million dollars	2957,8	2676,5	3012,9	3094,6	3287,4
the volume of imports of processed agricultural products, million dollars	945,1	978,2	1081,0	1133,5	1107,1
labor productivity per 1 employed in agriculture, million tenge	1,2	1,4	1,7	2,1	2,4

Source: compiled by authors according to www.stat.gov.kz

The main target indicators of the National Program for Development of Agro-Industrial Complexes for 2017-2021, in our opinion, are as follows

- Gross production as a percentage of GDP (%)

- Gross agricultural production as a percentage of GDP
- Investment of fixed capital in agriculture
- Changes in the volume of exports of processed agricultural products
- Volume of imports of processed agricultural products.
- Labor productivity per agricultural worker (unit: million tenge).

5. Application Functionality

For the purpose of the long-term vision of the development of forecasts of budget parameters for the planned period, it is necessary to perform a number of target indicators, in the implementation of which various executive authorities are involved, which, based on the results of the forecast, should be indicative and can be specified when developing the forecast for the next planning period, taking into account changes in the situations of socio-economic development. Such a long-term vision is necessary for the purpose of comparing in the future the actual indicators with the planned ones to adjust further plans.

To carry out this study, the author applied the method of exponential smoothing, the peculiarity of which is the procedure of finding the smoothed level, where only the values of previous levels of the series, taken with a certain weight, are used, and the weight decreases with the distance from the moment of time, for which the value of the smoothed level of the series is determined.

If for the original time series $y_1, y_2, y_3, \dots, y_n$ the corresponding smoothed values of levels are denoted by $S_t, t = 1, 2, \dots, n$, then exponential smoothing is performed according to the formula:

$$S_t = (1-\alpha) y_t + \alpha S_{t-1}.$$

Some sources give a different formula:

$$S_t = \alpha y_t + (1-\alpha) S_{t-1}$$

where

S_t - the value of the exponential average at the time t ;

S_{t-1} - value of the exponential average at the time $(t = 1)$;

α - smoothing parameter ($0 < \alpha < 1$).

In practical tasks of economic time series processing, it is recommended (unreasonably) to choose the value of the smoothing parameter in the range from 0.1 to 0.3. There are no other precise recommendations on the choice of the optimal value of parameter α yet.

As for the initial parameter S_0 , in the problems it is taken either equal to the value of the first level of the series y_1 , or equal to the arithmetic mean of the first few terms of the series. The consistent application of the formula makes it possible to calculate the exponential mean through the values of all levels of a given series of dynamics (Reizlin, 2018).

Let us investigate the time dependence of Y on time x . A linear trend was chosen at the specification stage. Its parameters were estimated by the method of least squares. Statistical significance of the equation was tested using the coefficient of determination and Fisher's test. The obtained estimates of the regression equation allow using it for forecasting. By analogy with calculations the forecast values of indicators were obtained (Tables 3, 4 and Figure 8).

Table 3. Equations of trend models of predicted indicators for the period 2020-2025

Indicators	The equation trending model	Coeff-t determ., R^2
Share of gross production in GDP, %	$y = -0,13x + 269,27$	0,95
gross agricultural output, million tenge	$y = 461705,00x - 927099166,78$	1,0
the volume of investments in fixed assets of agriculture, million tenge	$y = 76549,06x - 154074412,22$	0,99
export volume of processed agricultural products, million dollars	$y = 123,54x - 246176,58$	0,88
the volume of imports of processed agricultural products, million dollars	$y = 45,22x - 90160,60$	0,95
Labor productivity per 1 employed in agriculture, million tenge	$y = 0,32x - 638,40$	1,0

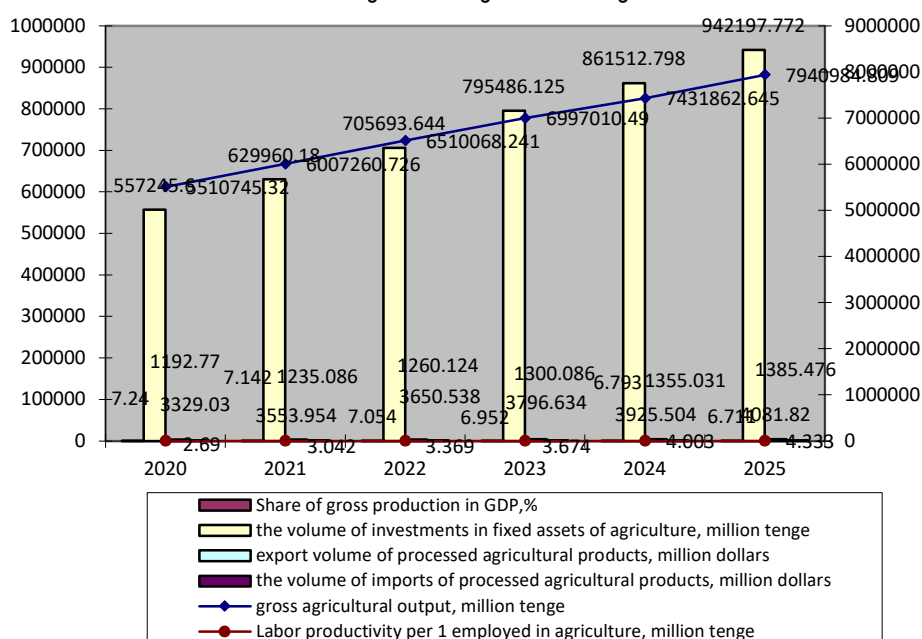
Source: compiled and calculated by authors

Table 4. Forecasted values of indicators for the period 2020-2025

Indicators	2020	2021	2022	2023	2024	2025
Share of gross production in GDP, %	7,24	7,142	7,054	6,952	6,793	6,711
gross agricultural output, million tenge	5510745,320	6007260,726	6510068, 241	6997010,490	7431862,645	7940984,809
the volume of investments in fixed assets of agriculture, million tenge	557245,600	629960,180	705693,644	795486,125	861512,798	942197,772
export volume of processed agricultural products, million dollars	3329,030	3553,954	3650,538	3796,634	3925,504	4081,820
the volume of imports of processed agricultural products, million dollars	1192,770	1235,086	1260,124	1300,086	1355,031	1385,476
Labor productivity per 1 employed in agriculture, million tenge	2,690	3,042	3,369	3,674	4,003	4,333

Source: compiled and calculated by authors

Figure 8. The results of the main indicators of the State program of development of the agro-industrial complex of Kazakhstan using forecasting and modeling methods



Source: compiled and calculated by authors

Based on the model on which the forecast is based, and the resulting R² probability level, it can be said that if the current development pattern continues, the forecast will fall within the estimated trend identified in the indicator change.

That is, the State Program has been implemented since 2017, then for the forecast period until 2025, the targets should:

- index of physical gross agricultural production (to the level of 2020) by 44.1%;
- the index of the physical volume of investments in fixed assets of agriculture (by the level of 2020) will increase by 69.1%;
- The volume of exports of processed agricultural products (by the level of 2020) will increase by \$ 752.8 million;

- labor productivity per 1 employed in agriculture (by the level of 2020) will increase by almost 1.6 times.

Conclusion

Market reforms in Kazakhstan have led to the creation of a diversified agrarian economy, the formation of fundamentally new conditions for entrepreneurial activity, first of all, increased competition in agricultural markets.

In agriculture, for a long time, there have been a high proportion of personal subsidiary plots (PSPs), which, due to a lack of financial resources, are unable to introduce new technologies, an irrigated farming system, new equipment and other innovations that increase yields and productivity. This situation is not conducive to increasing the competitiveness and efficiency of industry. The fact that productivity growth in agriculture is much lower than in other sectors of the economy is due to the large share of small farms and the inability to introduce new technologies.

Since the process of integration is irreversible, a different approach to agricultural policy development is needed. Modern agricultural policy must be adapted to the changing international market conditions and the new competitive environment. In today's environment there is an increasing dependence on competition in national and international markets. To change the situation in which a single economic area operates, measures are needed to develop sectors of the national economy that improve the standard of living of the population and ensure a high level of national employment and profitability of enterprises. This can be achieved through the innovative development of agriculture and production, as well as the creation of joint ventures for the production of competitive products for export. Fulfillment of these tasks will provide employment of rural population, increase their solvency and change the volume and structure of demand. Today the branches of the agricultural sector are not attractive for investors due to the peculiarities of agricultural production, which makes the risks high and limits the investment of investors' funds. Therefore, it is necessary to take measures to improve and increase the level of forms and methods of state support of agro-industrial complexes. The low level of support for agro-industrial complex in Kazakhstan is a serious obstacle to improving its efficiency and competitiveness.

It is necessary to strengthen the export orientation of the agricultural sector. At the same time, it is necessary to increase exports of grain and flour, deepen processing of raw materials, export products with added value and develop production of goods, which Kazakhstan can produce itself, *i.e.* sugar, vegetable oil, vegetables and fruits. In this way, we will be able to reduce our imports, which, according to statistics, are growing steadily.

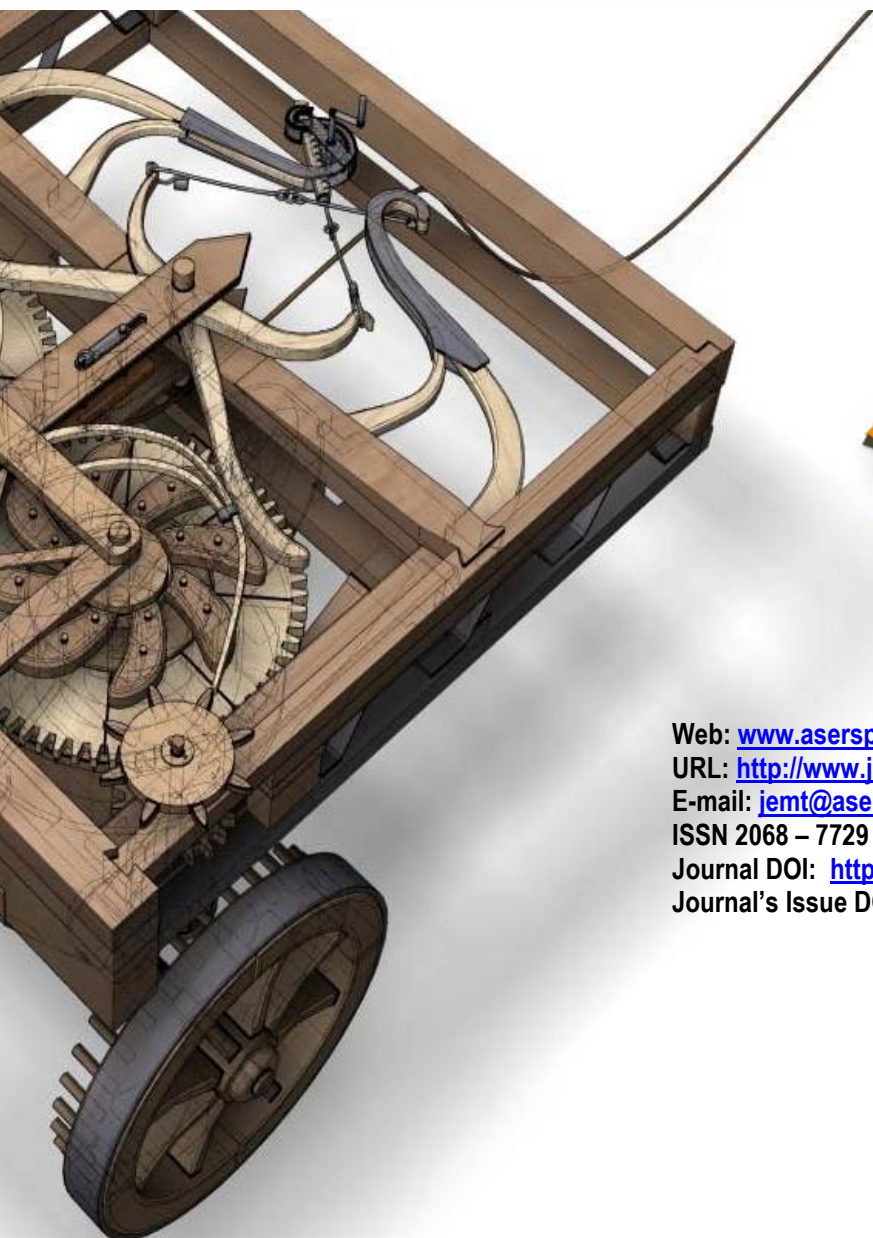
The present study shows that with the help of economic-mathematical methods it is possible to forecast the performance of the main indicators of the "National Program for the development of the agro-industrial complex of Kazakhstan" and thereby to study in more detail the behavior patterns of agricultural market actors. The authors have identified specific target indicators to guide the development of the national agro-industrial complex in order to improve its competitiveness.

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