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Innovative development of the agricultural sector of the Republic of Kazakhstan

Desarrollo innovador del sector agrícola de la República de Kazajstán

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ABSTRACT:
The article deals with the theoretical aspects of the development of agriculture of the Republic of Kazakhstan. The description of the key directions of development of the agricultural sector is shown. The role of agriculture in the country's economy is indicated. The paper identifies the main directions of innovative development of the country in terms of sustainability of farmers. Examples of foreign experience in the development of innovations in agriculture are given. The authors propose the main directions and recommendations for the innovative development of the agricultural sector of the Republic of Kazakhstan.
Keywords: economy, agriculture, innovative development, economic management

RESUMEN:
El artículo aborda los aspectos teóricos del desarrollo de la agricultura de la República de Kazajstán. Se muestra la descripción de las direcciones clave del desarrollo del sector agrícola. Se indica el papel de la agricultura en la economía del país. El documento identifica las principales direcciones del desarrollo innovador del país en términos de sostenibilidad de los agricultores. Se dan ejemplos de experiencia extranjera en el desarrollo de innovaciones en agricultura. Los autores proponen las principales direcciones y recomendaciones para el desarrollo innovador del sector agrícola de la República de Kazajstán.
Palabras clave: economía, agricultura, desarrollo innovador, gestión económica.

1. Introduction

The role of agriculture in the economy of a country or region shows its structure and level of development. As indicators of the role of agriculture used the share of employment in agriculture among the economically active population, as well as the share of agriculture in the structure of gross domestic product. These figures are quite high in most developing countries, where agriculture employs more than half of the economically active population. Agriculture is developing in an extensive direction, that is, the increase in production is achieved by expanding the acreage, increasing the number of livestock, increasing the number of people employed in agriculture. It should also be noted that the agricultural sector is one of the most important sectors in all countries (Barkhudar Sh. Gussenov, 2018).

One of the main factors of effective functioning of the national economic system in modern conditions is forced modernization and development of innovations. First President N. Ah. Nazarbayev, defining the strategic priorities of the new stage of modernization of Kazakhstan's society in the program of long-term development of the Republic – Strategy "Kazakhstan – 2050", noted the modernization of agriculture as a necessity (Bedelbayeva & Lukhmanova, 2016).

The main problems of the functioning of this industry include: water pollution, deforestation and degradation of forest ecosystems, the destruction of natural habitats of many species of living organisms and, as a consequence, the extinction and disappearance of rare and other species, as well as a decrease in crop production of vitamins and trace elements and the accumulation in products, both crop and livestock harmful substances such as nitrates, hormones, pesticides, antibiotics and others (Bekezhanov & Yerkinbayeva 2017).

In Kazakhstan, as in many developing countries, more attention is paid to the development of agriculture. Thus, Kazakhstan ranks third in the CIS after Russia and Ukraine in grain production.

Wheat exports are one of the main sources of foreign exchange earnings in the economy of the Republic. Despite the fact that the country is in the zone of risky agriculture, and the collection of grain may differ in different years by more than 50%, Kazakhstan is fully self-sufficient in bread and exports at least 70% of the crop, even in the leanest years.

1.1. Managing the development of the agricultural sector

Agro-industrial complex (hereinafter-agribusiness) is one of the important sectors of the economy, which forms the food and economic security of the country, as well as labor and settlement potential of rural areas.

The agro-industrial complex of the Republic of Kazakhstan (hereinafter - RK) has good prospects for further development: export positions of oilseeds, meat sectors are strengthening, and Kazakhstan became one of the largest exporting countries

in the world in grain and flour in the shortest possible time. Kazakhstan's membership in the Eurasian economic Union (hereinafter-the EAEU) and the world trade organization (hereinafter - the WTO) creates opportunities and at the same time imposes high requirements for competitiveness in both domestic and foreign markets. In this regard, the role of state regulation of agriculture is extremely important (Bota D. Baitarakova and others, 2018).

During the period of independence, nine policy documents were developed on the basis of which the state policy in the sphere of agriculture was implemented: The program of socio-economic development "Aul" for 1991-1995 and for the period up to 2000, the Conceptual program of development of agriculture for 1993-1995 and up to 2000, the Program of development of agricultural production for 2000-2002, the State agri-food program for 2003-2005, the State program of development of rural areas for 2004-2010, the Concept of sustainable development of agriculture for 2006-2010, The program of priority measures for the implementation of the Concept of sustainable development of agriculture of Kazakhstan for 2006-2010, the Program of development of agriculture for 2010-2014 and the program for development of agriculture in Kazakhstan "Agribusiness - 2017".

In order to increase the volume of agricultural production with an emphasis on the most popular types of food and the development of exports of processed agricultural products, in the coming period it is necessary to ensure maximum coverage of agricultural producers (hereinafter - AP) state support by creating favorable conditions and infrastructure for the production of primary processing, storage and marketing of competitive products.

The current State program for the development of agriculture of Kazakhstan for 2017 - 2021 (hereinafter - the Program) was developed in accordance with the order of the Head of state, given at the enlarged meeting of the Government of Kazakhstan dated September 9, 2016, in accordance with the strategic development goals of Kazakhstan, outlined in the national Plan "100 concrete steps" and the Strategy "Kazakhstan-2050".

Thus, this Program will be aimed at ensuring the domestic needs of the population for popular types of agricultural products, the definition of a targeted export policy.

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2. Methodology

In the process of studying the problem, theoretical methods of scientific research were used. They are abstract and generalized. Thanks to them, the actual material was systematized. The following research methods were used:

- theoretical – work with literary sources (Barkhudar Sh. Gussenov, N. B. Korabaeva, G. A. Zhunusova, A.G. Tolamisova, S. N. Aitkulova and others);

- analytical – analysis of the collected information, drawing conclusions, making recommendations.

Also, the authors used General research methods: methods of analysis of financial statements: horizontal, vertical, ratio, comparison, and others.

The following methods were used to study the management of innovative development of the agricultural sector of the economy of the Republic of Kazakhstan:

- review of the legal and regulatory framework;

- analytical method;

- study of foreign experience (USA, Europe, Canada, Japan) – work with sources (Mihail C. Roco & William Sims Bainbridge, Richard Silberglitt, Philip S. Anton, David R. Howell, Anny Wong, Natalie Gassman, Brian A. Jackson, Eric Landree, Shari Lawrence Pfleeger, Elaine M. Newton, Felicia Wu. The Global Technology Revolution 2020. Stuart Russel and Peter Norvig, "Artificial Intelligence, A Modern Approach");

- collection and processing of statistical data (Data of the Committee on statistics of the Ministry of national economy of the Republic of Kazakhstan. 2010- 2018yy. http://stat.gov.kz);

- economic and mathematical calculations.

The theoretical and methodological basis of the study was the conceptual provisions, conclusions and recommendations presented and justified in the fundamental and applied research of Kazakhstan and foreign scientists (Kubayev K. E., Bekezhanov D., Yerkinbayeva L., Madiyev G., Kerimova U., Yespolov A., Bekbossynova A., Rakhimzhanova, G. and others) in the field of agricultural development theory, as well as the work of leading scientists in the field of innovative development and strategic management. The methodological basis of the study is the economic system of approaches to the study of the object of study using the methods of analysis, synthesis, induction, deduction, comparison.

Information base of the study: statistical data of the Committee on statistics of the Ministry of national economy, the program of development of agriculture of the Republic of Kazakhstan until 2020. Was also attracted by the materials posted on the websites of the global Internet.

2.1. Foreign experience in the management of innovative development of the agricultural sector

2.1.1. USA

The US economy has accumulated extensive experience in solving the problems of innovation process management. On the basis of the functional division of labor in the economy emerged and is actively developing a special type of business, specializing in innovation, which was called "risk business". Within the framework of US agro-industrial companies, such management methods and forms of organization of innovative processes were developed that would fit as much as possible into the principles of functioning of large economic organizations (Luger, 1994).

At the present stage of development of scientific and technological progress, the role of small business in research and development in the agricultural sector has increased significantly. This is due to the fact that scientific and technological progress has allowed small, medium-sized high-tech farms to acquire modern equipment corresponding to their size, to produce and develop at a high technical level with relatively low costs; the activation of small business in the field of innovation has largely contributed to the emergence of a new form of investment financing for this type of enterprise – risk capital for innovative firms with a high degree of risk (Dyrka, Stefan & Gussenov, Barkhudar Sh. 2018).

By the degree of concentration of costs, the scientific sphere in economically developed countries is significantly ahead of

the production one. Currently, the share of the 300 largest US firms accounted for 92% of the cost of research in the industry, including the largest 4 – 22%. Approximately the same situation is observed in other countries, similar indicators for the UK are 77 and 25.6 %, France – 95.6 and 20 ,9 %.

The efficiency of small farms in R & d has little to do with the size of the enterprise. Of course, the main obstacle to innovation for small capital is the limited financial, material and human resources, but giant firms do not bring the invention to the development phase not because they do not have sufficient funds. Therefore, the question about the impact of enterprise size on the efficiency or ability to research it is impossible to give a definite answer. It is clear that huge material, financial and human resources are needed to solve major research and production tasks and programs, small capital can participate in such programs only as a subcontractor of large firms. For the same reason, the importance of state financial assistance to such programmes is increasing.

The implementation of science and technology policy in US agriculture is based on a well-developed institutional structure. A feature of the American structure of management of scientific and technological progress in the agro-industrial complex is the close interaction of the state and private business. There is a significant proportion of mixed organizations financed by public and private sources (Mihail C. Roco & William Sims Bainbridge, 2002).

The contract of public and private institutions in the agricultural sector is an important feature of the innovation mechanism. As an expression of the interests of the largest producers, private organizations provide feedback, providing public authorities with information on the effectiveness of their measures for business and entrepreneurs – on the economic policy of the state. These organizations also played an important role in the formation of a modern model of state management of scientific and technological development of the country.

Analysis of the structure of government spending on agricultural science in the United States shows that 24% of their amount is directed to research in the field of crop production, 12% - to livestock, 4.5% - to research related to food, 12.5% - to improve the efficiency of fertilizer use. One of the areas of R & d is biotechnology, where 0.9% of public funds are spent on agricultural science, 16% of government funds are directed to agricultural science, research in the field of marketing of agricultural products.

2.1.2. Europe

World experience shows that the application of the program-target method allows the governments of many developed countries to effectively use public resources to stimulate research and production of innovative products.

Program-target method in the European Union solve the problems of underdevelopment of individual regions, support local initiatives in small areas of industrial, rural, urban and border areas (Kubayev, 2018).

The reason for providing assistance to a particular region is a low level of GDP (less than 75% of the EU average), high unemployment, accompanied by a decline in industrial production, low population density, etc.

In addition to the development of documents aimed primarily at stimulating innovation activities in the EU adopted by the pan-European nature, the implementation of which involved most of the countries-EU members (scientific and technical programs, programs of increase of competitiveness of agricultural products, etc.) for support and funding of research and innovation and from the EU budget.

The so-called "framework programmes", consisting of a number of targeted subprogrammes, are common in Europe. A General budget is allocated to the framework programme and the deliberative body decides on the allocation of the amounts to the subprogrammes. There is no common strategy or tactic, the European community is guided by reports and concepts, thus ensuring development flexibility.

At the moment (from 2007 to 2020) there are several such programs in various fields: "the Seventh framework program", "the framework program on competition and innovation", "Common policy" instruments, such as the European Fund for regional support, the Agricultural Fund (Silberglitt, Anton, Howell, Wong, Gassman, Jackson, Landree, Pfleeger, Newton & Wu, 2006).

A separate financial instrument to stimulate innovative development in the EU countries was the 7th framework program, designed until 2020. Under this program, financial support is provided in the form of grants, which can cover up to 75 % of the project costs of small and medium-sized enterprises.

The program is aimed at:

• strengthening European research and technological development by supporting cooperation between universities, industry, research institutes and centres, as well as public authorities throughout Europe and beyond;

• support for advanced research of the best European research teams in all areas of science and technology;

• strengthening human capacity in European science and technology;

• support for research infrastructures, "knowledge regions", small and medium-sized enterprises, "science in society", "horizontal" activities for the development of international cooperation.

Most of these programs are aimed at the development of innovation and involve direct funding from the Union budget. At the same time, the programs are a system of state contracts for the acquisition of technologies, goods, services, etc.

2.1.3. Canada

Much attention should be paid to the experience of Canada, which ranks third in the world in the export of agricultural products, because in this country there are many effective forms and methods of state support for the agricultural sector.

In 2001, Federal, provincial and territorial governments of Canada came to the agreement on the implementation of the new agricultural policy, whose priorities are safety and food quality; environmental protection; research, innovation and training of farmers; management of risk in agricultural production (Lukhmanova, 2018).

The agricultural market in Canada is supported mainly through Federal and provincial programmes. It should be noted that the participation of the provinces in the financing of agricultural programmes is about 50 per cent.

State target programs are used as key tools of innovation management. Among them are: "Agricultural innovation program" (Agri-Innovation Program) aimed at the promotion of existing and development of new innovative products with added value. The Canadian Agriculture and Food International Program (the Canadian Agriculture and Food International Program), designed to support agriculture and the food industry, is a key element of Canada's international strategy.

The development of long-term international strategies can guarantee the industry a good position in the markets, and respond to the increasing demand and competitiveness of Canada as a world leader in the supply of safe, high-quality agricultural products. "Agricultural program of innovative bioproducts" (The Agricultural Bioproducts Innovation Program) allows you to develop research, introduce new technologies such as biofuels, biochemistry, etc. The program aims to mobilize private and public research sectors to build an integrated agricultural bioproduction research system. The agricultural opportunities Program (Agri-Opportunities Program) and the interaction development Program (Broker Program) are aimed at accelerating the introduction of scientific research into the markets of Canada (Lukhmanova, Syzdykbayeva, Baibulekova, Abdykalyk, & Seidakhmetova, 2018).

By implementing these programs, the state solves the problem of supporting the interaction between the agricultural sector and industry. In addition, a number of other political documents aimed at the implementation of specific political objectives have been adopted. The strategic document "Technology partnerships Canada" (TPC), in fact, is a program created in 1996 to strengthen the motivation for the development of innovative technologies by industrial enterprises, including small and medium-sized businesses. With its financial support, TPC seeks to minimize the high financial risk of the investment required. The received allocations are returned by industrial firms in case of their successful use from the additional income received from the commercial sale of innovative products in the market.

In Canada, there is no single body at the Federal level in the modern innovation management structure, so the responsibility for the implementation of research and scientific and educational activities is distributed between the Federal government of 21 ten provinces and three Federal territories. Individual provinces have their own ministries of research. The national science,technology and innovation system of Canada includes government research institutes, universities and the research sector of industrial firms, including small and medium-sized businesses. Partnership between government, industry and universities in Canada is the rule rather than the exception. Thanks to the correctly formulated goals, such a partnership gives a tangible economic effect.

It helps to unite the potential of the best researchers and ensure the country's contribution to the global economy, contributes to the emergence of science-intensive industry and regional innovation clusters. As a rule, universities, state research centers and high-tech production are concentrated in these clusters (Madiyev, Kerimova, Yespolov, Bekbossynova, & Rakhimzhanova, 2018).

The government has taken various measures to consolidate Canada's success in this area, including: promoting research cooperation; sharing financial risk in priority areas; providing tax and financial incentives with the provinces to invest in innovation; and supporting a highly skilled workforce on which private sector economic growth depends. In order to facilitate the transfer of technology in basic and applied research, many state and university laboratories cooperate with firms, and firms thus have access to the most modern facilities.

2.1.4. Japan

In Japan, there is a Council for science, headed by the Prime Minister. It consists of the heads of a number of ministries, as well as representatives of the largest private industrial corporations. The Council for science formulates the strategic line of scientific and technological development of the country and determines the amount of R & d expenditures from the state budget (Russel & Norvig, 1995).

The Japanese model of state regulation of STP (scientific and technological progress) is based on the following basic principles:

- availability of a long-term program of scientific and technical development of the country;
- reliance on large corporations in the implementation of science and technology policy;
- promotion of predominantly applied research and development;
- promoting the active procurement of licenses abroad.

In the leading European countries, national public authorities play a significant role in the formation of national scientific and technical potential, providing support to corporations, including in agriculture, which have the opportunity to improve the competitiveness of their own products and the national economy. Despite the diversity of management structures, the difference in the principles of macroeconomic policy, tactical goals, there are many common points for Western European countries. Their state scientific and technical concept is based on the promotion of "national Champions" - a small number of large corporations that can compete with leading firms in the US and Japan. They get the vast majority of public R & d funds for agricultural production (Zaida A. Ilimzhanova, Venera R. Burnasheva & Barkhudar Sh. Gussenov, 2018).

If valuable fundamental ideas are not used for the development of new technological processes, and new technologies do not turn into products of wide public demand or find only a very narrow application in local areas, the potential of this direction of STP is practically not realized for consumer demand.

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3. Results

According to the results of the studied material and the research methods used, the authors made the appropriate calculations. In agriculture, about 5% of the gross domestic product (hereinafter - GDP) of the country is created. In 2018, the gross output of agricultural products amounted to 4.1 trillion tenge, which in real terms is higher than in previous years (table 1) (figure 1).

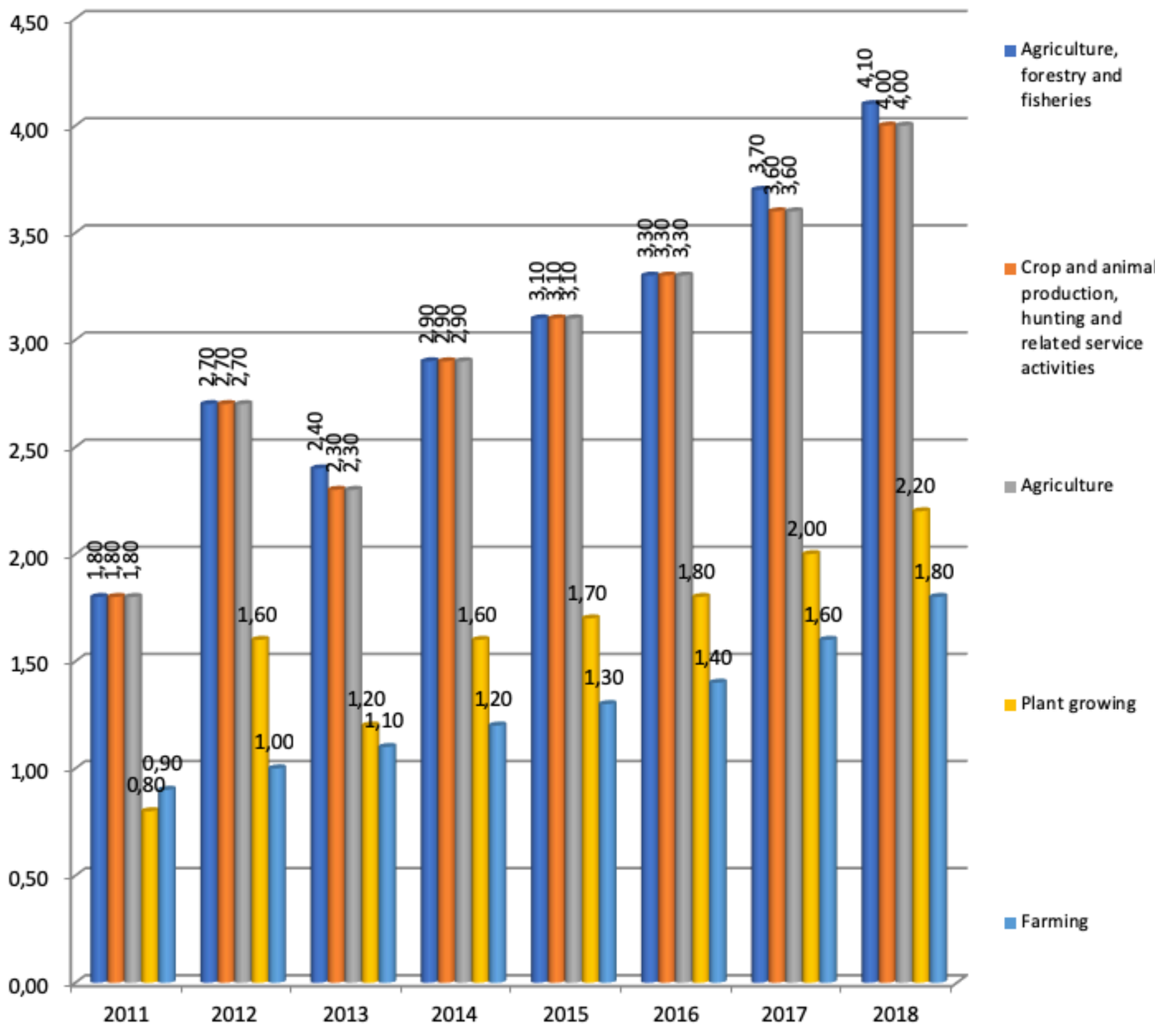
Table 1
Gross output of products (services) of agriculture, forestry and fisheries of the Republic of Kazakhstan (in current prices, one million tenge).

Code	Name	2011	2012	2013	2014	2015	2016	2017	2018
A	Agriculture, forestry and fisheries	1 832 335,4	2 733 474,7	2 407 939,3	2 963 938,2	3 158 758,6	3 321 718,5	3 701 415,4	4 092 333,0

01	Crop and animal production, hunting and related service activities	1 823 364,8	2 721 663,2	2 394 710,0	2 950 614,7	3 144 773,5	3 308 019,2	3 685 439,7	4 071 820,6
	Agriculture	1 822 074,1	2 720 453,4	2 393 619,0	2 949 485,0	3 143 678,1	3 307 009,6	3 684 393,2	4 070 916,8
	Plant growing	895 425,2	1 654 428,5	1 241 517,0	1 683 851,4	1 739 436,4	1 825 236,7	2 047 580,8	2 249 166,9
014	Farming	920 777,3	1 059 561,3	1 145 437,3	1 256 871,7	1 393 762,0	1 469 923,0	1 621 541,4	1 810 914,1
02	Forestry and logging	6 050,7	7 786,8	8 931,7	8 892,8	8 751,1	7 534,9	9 237,3	12 731,8
03	Fisheries and aquaculture	2 919,9	4 024,7	4 297,7	4 430,7	5 234,0	6 164,4	6 738,4	7 780,5

Note: compiled by the authors on the basis of the statistics Committee of the Ministry of national economy. http://stat.gov.kz

Figure 1
Dynamics of gross agricultural output of the Republic of Kazakhstan (in current prices, billion tenge).



Note: compiled by the authors on the basis of the statistics Committee of the Ministry of national economy. http://stat.gov.kz

In the structure of gross output of the industry there is a high share of production of private farms. About 80% of agricultural products produced in Kazakhstan are sold in the form of raw materials, without processing, and finished products have weak competitiveness (table 2).

Table 2
SWOT analysis of the agricultural sector

Strength	Weakness
Kazakhstan is the ninth largest country in the world by area; by area of arable land per capita Kazakhstan ranks second in the world; Kazakhstan is among the largest exporters of grain and flour; the large number of the rural population (43% of the total population), high share of employment (18% of the employed population); large potential demand for food products in CIS and Central Asian markets; constant growth of gross agricultural product; high production and export potential of organic products.	low share of GDP (4,8%); the lack of development of trade, including export; low level of implementation of research and development works; insufficient level of veterinary and food safety; high capital intensity; long payback period; dependence on climatic conditions; low productivity; the low level of profitability of agricultural producers.
Opportunities	**Threats**
the possibility of increasing the volume of all types of agricultural products in connection with the growing number and changing the structure of the population's nutrition; formation of effective state support for agricultural cooperatives; expansion of geography of deliveries and the volume of exports in advanced industries.	adverse changes in natural and climatic conditions, instability of weather conditions; spread of animal and plant diseases and pollution of the environment; increased competition in international markets for certain products due to WTO accession; risk of inefficient government regulation of the industry.

Note: compiled by the authors on the basis of the studied material

3.1. Innovative development

Based on the analysis of the geographical location of Kazakhstan, the capacities of the market of agricultural products, transport accessibility, it can be concluded that the potential markets are the countries of the EAEU, CIS, China, Iran, Afghanistan and the UAE.

The leading volume of exported products at the end of 2018 are:

• crop production - wheat, barley, corn, oilseeds;

• animal products - beef, pork, lamb, poultry.

In General, in the structure of imports of countries such as Russia, Uzbekistan, Kyrgyzstan and Tajikistan, for certain types of crop products, products from Kazakhstan account for more than 86%. Thus, in 2018, the share of wheat from Kazakhstan amounted to 86.6% of the total volume of imported wheat in Russia. In Uzbekistan's imports of wheat, flour and oilseeds, the share of products from Kazakhstan is 100%, 99.2% and 98.7% respectively.

For livestock products, given the domestic security of domestic production, export potential have beef, pork and lamb. The largest volumes of imports of these products are observed in countries such as China, Russia, Iran and the UAE.

According to the results of the study, the authors propose the introduction of information technologies in the agricultural sector and the development of information systems, as well as integration with the systems of state bodies and member States of the EAEU through the national gateway for the following processes:

• subsidies and other state support measures;

• traceability of livestock products;

• traceability of crop production;

• monitoring of fish and fish products turnover;

• water resources management, monitoring and accounting;

• registration of agricultural machinery, pledge, issuance of driving licenses using the portal solution;

• monitoring and accounting of forest resources and prevention of forest fires;

• monitoring and management of land resources;

• accounting, production, movement of agricultural products for agricultural enterprises, processing enterprises, cooperatives.

Thanks to these measures will be provided:

• transfer of public services to electronic form;

• increasing transparency and efficiency in the provision of public services;

• increasing the level of information saturation of the industry;

• creation of preconditions for the export of agricultural products.

The cost of projects (proposed measures) will be determined at the project analysis and planning stage.

The projects will be financed both by the investor and, if necessary, by the state within the framework of public-private partnership mechanisms (hereinafter-PPP). Therefore, the main parameters, requirements and results of development will be described in the relevant PPP concepts or technical specifications for the development of information systems.

According to the authors, the financial and economic mechanism of implementation of innovative projects in agro-industrial production should include:

• application of return financing of highly effective applied scientific and technical developments of commercial importance, as well as state subventions, subsidies and grants;

• support of interregional high-tech innovative programs and projects of the state subjects;

• stimulation of investors who invest in high-tech production, the organization of various formations for the development of innovation with the provision of collateral reserves for real assets (highly liquid material and financial assets of the state, for example, blocks of shares);

• development of leasing of high technologies and unique equipment;

• introduction of non-linear depreciation for foreign investors (when in the first years after the acquisition of fixed assets most of their value is written off), producing innovative products under international commercial contracts;

• providing financial support for patent and inventive activities, assistance in the protection of intellectual property and the protection of rights to it, both at home and abroad;

• improvement of the competitive system of selection of innovative projects and performers, increasing the share of use in the economy relatively small in volume, but effective and quickly recouped innovative projects;

• creation and development of a contract system aimed at the implementation of innovative projects carried out at the expense of the budget, as well as extra-budgetary sources;

• providing a quota of budget financing to small innovative enterprises for the use of scientific, technical and innovative projects.

The implementation of innovation policy in the agro-industrial complex with the improvement of the organizational and economic mechanism of the functioning of its subjects is advisable to carry out in the following areas:

• strengthening economic incentives for innovation at all stages of the process;

• development of self-supporting relations and increase in the share of direct producers ' costs of innovation;

• involving in economic circulation of objects of intellectual property;

• introduction of market mechanisms in the development of innovation.

In the economic mechanism of implementation of the innovation strategy should be defined:

• directions and parameters of financial support of the innovative sphere of the industry;

• procedure for financing and crediting its enterprises;

• formation of price relations at various stages of the innovation process;

• system of taxation and insurance of scientific organizations and enterprises engaged in innovative activities;

• improvement and forecasting of innovations, and implementation of innovative projects in production;

• development of foreign economic relations.

In accordance with the above, according to the authors, the management of scientific-innovative and investment processes in the regions should include (table 3):

• theoretical and methodological substantiation of strategy and management mechanisms; economic and model support and packages of applied programs;

• information base of analysis;

• modeling and decision-making;

• program-target organizational structure;

• methods of mobilization of financial resources for scientific, innovative and investment purposes;

• the motivational subsystem;

• legal framework.

Table 3
Management of scientific-innovative
and investment processes in the regions

Indicator	System component
Theoretical and methodological substantiation of strategy and management mechanisms	Substantiation of strategic priorities, social, economic and environmental development of regions, scientific – educational and innovative mechanisms
Economic and model software and application packages	Packages of the complex analysis, complex modeling of efficiency of innovative activity, methods of forecasting and strategic programming
Information base of analysis, modeling and decision-making	Monitoring of scientific and innovative potential, patent databases

Program – target organizational structure	Creation of interdepartmental coordination scientific, educational and innovation center, problem institutes (laboratories), innovation and technology centers and technoparks
Methods of mobilization of financial resources for scientific – innovative and investment purposes	State order. Issue of securities secured by intellectual property (shares, corporate bonds). Depreciation and profit.
The motivational subsystem	Direct and indirect methods of state motivation

Note: compiled by the authors

4. Conclusions

The authors conclude that the main hypothesis can be put forward that the policy of modernization of the agricultural sector must be formed taking into account the specifics of the functioning of the industry, epistemological roots and impulses of its development. Modernization of the sphere of functioning of the agricultural sector should be carried out in stages and with the correct target orientation. It is proposed to use a comprehensive, systematic approach to the innovative modernization of production relations and productive forces of the agricultural sector of Kazakhstan. In this case, the innovative trend of agribusiness development will be a real and effective direction.

However, for our economy when carrying out protectionist policy it is necessary to note the dual effect of its implementation. The negative effect in this case will be a decrease in the ability of entities to innovate in business, thereby not contributing to increased productivity in this sector. But in modern conditions in the short-term decision-making of this type is an objective necessity. In this context, the authors consider it necessary to note the feasibility of this policy, which as a result will lead to a positive economic effect. Although at first glance it is economically unprofitable. This is the case when the social benefits (social) exceed the economic, but, nevertheless, contributing to the competitiveness of agriculture and the country as a whole in modern conditions. Just the same, obtaining economic benefits will be the task of the second stage of the implementation of state programs. This applies to productivity, innovation, etc. Since innovation in itself cannot be an end in itself, but only a consequence of the development of the system, which has internal incentives to innovate.

The approach proposed by the authors in the reformation of the agricultural sector of management, involves the need to take into account the specifics of the functioning of the industry, epistemological roots and impulses of its development. At the present stage, of course, the innovative vector of modernization of agriculture is very important. But in the development of the concept of development of the agricultural sector, it is necessary to correctly place the emphasis, both in the long and in the short term. It is proposed to modernize the sphere of functioning of the agricultural sector in stages and with the correct target orientation. With this approach to the innovative modernization of production relations and productive forces of the agricultural sector of Kazakhstan, this trend will be a real, effective direction of competitive development of the national economy.

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