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## ENSURING FOOD SECURITY IN KAZAKHSTAN: A REVIEW OF FOREIGN EXPERIENCE

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### *Abstract*

The rapid increase of population in the world causes an increase of food production, energy and the consumption of mineral resources. The urgent need to ensure food security of the country makes to study economic problems in agriculture and develop a strategy aimed at improving the efficiency of agricultural production. The article presents an examined contradictions of the interests of producers and consumers, exporters and importers. At the stage of searching for conceptual solutions, a study was conducted of foreign experience in ensuring food security, particularly its assessment and foreign experience applying in Kazakhstan. To develop Kazakhstan's food security one should borrow not just any experience, but only the progressive strategy of civilized market and competitive products. The article presents the results of the agricultural sector analysis in several countries. According to the analysis large farms are prioritized over small ones based on the use of labor, resource and energy saving technologies. In ensuring food security, a proposal has been formulated on the cooperation of the Republic of Kazakhstan with leading organizations of the world that are involved in food security issues together with FAO UN. There are issues of protection and control over food quality considered. The article suggests the necessity of using the European countries' experience in improving the quality and competitiveness of agricultural products. The experience of various countries in best food security help our country to develop new ways of reforming the agricultural sector of the economy and improve the efficiency of agricultural production.

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**Keywords:** Food security, agricultural production, state regulation, international experience.



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## 1. Introduction

The growing problem of food supply concerns any country. According to the experience of developed countries, food supply development is achieved by reforming the agricultural sector of the economy.

World food security issues requiring the global resolution are:

- world population growth and food supply;
- food production and biosphere opportunities (Stephens et al., 2018).

The problem of population growth is the most important among all global problems. It is usually considered using demographic methods, introducing economic and historically determined assumptions to describe this process. However, in this case, in essence, it is impossible to capture growth over any long period of time and single out its fundamental mechanism, which underlies growth as a global phenomenon. The world population increase causes increase of food production and the consumption of mineral resources. The image of the rampant increase in the population of the Earth gives alarming and apocalyptic forecasts of world's future.

## 2. Problem Statement

The growth rate of the Earth's population is on average 1.4% per year (in absolute terms 78 million people). According to UN forecasts, amid a decrease in sown area under crops, in 2010 the population will increase from 6.8 billion to 9.7 billion people, and by 2050 it will be significantly (4 times) higher than the critical threshold of biosphere stability.

During the period of active growth of the Earth's population (1950–2000), per capita grain production grew until 1980, then it began to decrease due to a decrease in sown area per capita.

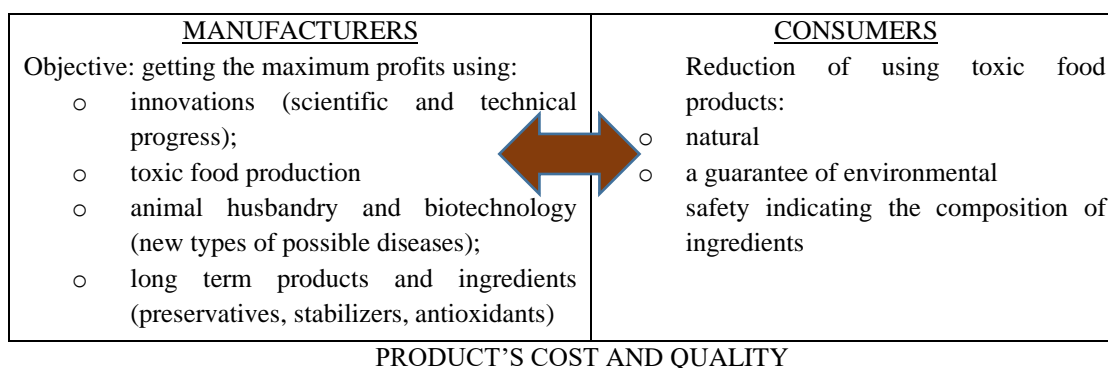
The consumption of mineral fertilizers in the second half of the twentieth century increased from 14 million to 140 million tons in the world, which contributed to the intensification of grain production, which in its own physiological and economic limits (Charoenratana & Shinohara, 2018a).

One of the problems associated with ensuring food security is the conflict of interests between producers and consumers. New criteria such as food safety and quality are formulated in the agrarian policy of developed countries. These two indicators have become the watershed of the interests of producers and consumers of food products.

The main goal of manufacturers is to maximize profit due to the safety and quality of their products (intensive technologies, transgenic plants and biotechnologies, long-term storage product using preservatives, antioxidants, etc.) (Tyczewska et al., 2018).

The main interest of agricultural consumers is the acquisition and consumption of safe, high-quality and natural foods (Prosekov & Ivanova, 2018). The former, using various modern methods, are trying to expand sales of products not only in their own, but also in other countries. The latter strive to acquire quality food at affordable prices and with the requirement to ensure a healthy lifestyle (*Figure 1*) (compiled by the authors).

The conflict of interests between exporters and importers is more complicated. Exporters try to expand their market share in other countries using various methods while importers seek to reasonably limit imports of goods with a focus on their own food security (Rylko & Khotko, 2019). An ideal option for ensuring the country's food security is to maintain the optimal ratio between domestic food production and food imports to meet the physiological needs of the country's population (Figure 2) (compiled by the authors).



**Figure 01.** Antagonism of interests between producers and consumers



**Figure 02.** Antagonism of interests between exporters and importers

Thus, food is becoming a major factor in world politics. Most of the developed countries are trying to produce basic agricultural products through their own production or through the purchase of grain stocks. The import of this food is a compelling expensive measure for developing countries, which is also related to Kazakhstan. The EU makes extensive use of countervailing fees to regulate imports of those goods that reach 100 % self-sufficiency. This applies to crops, sugar and livestock products, for which increased foreign competition can seriously violate the EU agricultural policy mechanism. Governments may impose custom fees for the less competitive imported goods in the domestic agricultural market.

The US experience in supporting national agricultural production seems to be a good experience to note. They adopted a series of laws guaranteeing the stabilization of farmers' incomes and agricultural prices during the economic crisis of 1929–1933. Experts believe the second millennium experienced the number of large agricultural enterprises in the country increasing up to 100 000 units, and their share in agricultural output – up to 80 %. This forecasts the form of land ownership will occupy a dominant position in the USA in the field of agricultural stock and food production, while the smaller ones remain only a part of the the history of the development of land use in the country.

The agricultural sector in developed countries is undergoing processes of cooperation and integration of production. There is a clear priority of large farms over the small ones. Scientific and

technological progress, industrialization of agriculture objectively requires the concentration of capital in large enterprises, where all production factors are more efficiently used based on labor, resource and energy-saving technologies.

In this case, the United States experiences a good practice of decreasing small farms unable to adapt to industrial technologies, acquire new complexes of machines, equipment, chemicals, varietal seeds and pedigree cattle. So, between 1950 and 1995 the number of farms decreased almost 3 times, and the size of land plots of medium-sized farms increased from 90 to 190 hectares. This can be explained by the fact that large enterprises require 100 times less equipment and labor resources per 100 hectares of land than small ones. In 1990, 43 000 large US farms (less than 2 % of their total number) delivered to the market 42 % of all marketable products in the country paying the wage of 212 USD per employee. Foreign economists believe that the total number of farms in the country will be no more than 1.2 million, while 50 000 large formations (less than 5 %) will produce 75–80 % of agricultural products. They will be considered the basis of the country's food security.

The current stage of agricultural development in Kazakhstan is characterized by the completion of the process of forming a variety of forms and models of management. The role of peasant farms stays still insignificant. There is a clear tendency to increase the proportion of large peasant farms in the agricultural sector of Kazakhstan, however, it is not possible to confirm this fact with reliable statistical information.

The increase in crop productivity is associated with the introduction of soil protection technologies. For example, the daily practice of US farmers, five types of tillage treatment have a strong place, differing in the degree of mechanical impact on the soil. All of them received the general name “minimal soil cultivation” in contrast to traditional cultivation (when crop residues are almost completely covered by a dump plow in the soil, which is exposed and intensively eroded) (Charoenratana & Shinohara, 2018b). So, there is no new technology in the US yet known dynamic and wide but the soil protection treatment. In Kazakhstan, agricultural enterprises are not yet able to carry out soil cultivation using advanced technologies. At the same time, various Programs provide for agricultural enterprises to be provided with new technology.

Returning to the US agrarian policy, which provided it with food security and world foreign trade leadership.

The final formation of a new agricultural law forced former US President George W. Bush to defend the financial interests of farmers in front of Congress. Before 2010 it made to allocate about 18 billion dollars annually from the treasury to agricultural producers, which is almost up to 6 billion annually compared to the previous years. Therefore, I would like Kazakhstan to take as a basis the foreign experience of advanced countries on the issue of ensuring food security.

From the experience of implementing the functions of price regulation in the United States, we can observe the observance of price parity for agricultural and industrial products. At the same time, the state is called upon to maintain its reasonable level in order to protect the interests of agriculture, determining the principles for adjusting agreed prices. Indexation of prices for agricultural products should include a parity index that insures consumers against uncontrolled growth in prices for means of production.

One of the most important indicators of state regulation of agriculture in developed countries is the level of budget support for farm prices for manufactured products.

The level of budget support for farm prices since 1980s has increased from 14.7 to 35.8 %, including for crop production – from 8.5 to 47 %, livestock – from 20 to 28.5 %.

The government regulates the volume of production and sales of products with budgetary subsidies farm incomes through prices and their costs through soft loans and taxes. Budget subsidies are usually received only by those farmers who participate in the implementation of state agrarian programs (Cafiero et al., 2018).

The adoption of the Law in the Republic of Kazakhstan Compulsory Insurance in Crop Production updated on March 10, 2004 by No. 533 did not increase the efficiency of state support for crop production, since the instruments for influencing the economic results of agricultural producers were not fully defined and did not serve as an incentive for the development of farming in the country.

The advantage of large US farms in ensuring food security of the country is shared by Russian scientists. The Russian lending model includes partial compensation of state loans to farmers, the possibility of increasing the manageability of bank risks and bringing possible crop losses to a minimum level, which suggests the need to use this model in the Republic as acceptable for Kazakhstan conditions.

Most of the CIS countries are interested in studying the experience of Japan (Gasparatos, 2011), the USA and Russia in the field of state support for agricultural producers. Of course, the American scale of financial support for farms for the budget of Kazakhstan is not comparable, but support for price parity, its reasonable level is necessary.

An alternative method of livestock and agriculture for Kazakhstan can be the experience of Israel, which is characterized by a high level of development of agriculture and the agricultural sector, in which about a third of the products are exported. In Israel, a large and diversified professional structure of instruction, which is the main guide for farmers and other agricultural enterprises, has contributed and is more conducive to achieving greater results. In Israel, research fields are allocated for research and experiments, as well as for further dissemination of the results. The main crops are grown on a greenhouse basis. Therefore, the market of this country is provided year-round with fresh local cultures (Gordeev, 2001).

India has achieved almost complete actual self-sufficiency in basic foodstuffs, but it cannot be recognized that this country has achieved national food independence (and security), since the lack of food imports is associated with extremely low levels of food consumption and even malnutrition of a significant part of the population. On the contrary, the stability of Japan's national economy and financial systems allows its population to guarantee decent food consumption without prejudice to national interests while self-sufficient in basic foodstuffs by only 50 %.

The experience of Hungary is also useful, where programs have been developed for the development of various branches of crop production (mainly for the production of wheat and oilseeds), in which it is planned to achieve development rates that are significantly higher than animal husbandry growth rates. There planned an increase in food production as well as the increase in production. Agriculture and food industry remain the main condition for the stabilization and progress of the country's economy.

It seems appropriate to apply the experience of Bulgaria, where considerable attention is paid to improving the structure of the agricultural sector, in particular, increasing grain production, ensuring the

production of high-quality agricultural products in fresh and processed form to meet the needs of the population throughout the year. However, the main trends of the agricultural organization and management is to be the further expansion of the economic independence and their gradual transfer to a self-regulatory system in carrying out the tasks assigned to them. In general, the structural policy should solve such problems as increasing production and improving the provision of the population with basic foodstuffs, improving the technical and economic parameters of products. (Silva de Amorim et al., 2018).

### **3. Research Questions**

Issues regarding food reserves is considered an integral part of the economic policies of all countries, though the approaches and solutions differ. To solve the issues and objectives, developed countries support agricultural production within structural changes monitored by the government and sponsored by the federal budget.

### **4. Purpose of the Study**

The study of economic problems in agriculture and the development of a set of measures aimed to improve the agricultural production quality in the Republic of Kazakhstan.

### **5. Research Methods**

The study has been conducted following the research methods of generalization, deduction, analysis and synthesis, statistical method, comparative analysis method, historical and logical modeling method, scientific abstraction, experiment.

### **6. Findings**

The protection and control over the quality of produced and imported food are considered particularly important for providing the food security of the country. Russian system of food production and security offers the following measures: according to the legislation of the Russian Federation, production, purchase, delivery, import into the country and sale to the public of products that do not comply with sanitary and state standards, technical documentation are not allowed. Modern quality management proceeds from the position that this activity should be carried out in the course of production. Six ministries and departments are involved in the control of the quality of agricultural products of raw materials and foodstuffs and their safety in the country – the Ministry of Health, the Ministry of Trade, the State Standard, the State Tax Service, the State Bread Inspection under the Government, the Ministry of Agriculture and Food of Russia.

Summarizing the above, it should be noted that foreign experience in the EU, the USA, Japan and other developed countries indicates the importance of state control over the quality and safety of food, usually concentrated in one or two services: the Department (Ministry) of Agriculture and Department (Ministry) of Health. Duplication of functions does not occur. Based on the best practices of the leading countries of the world, we consider it advisable in Kazakhstan to reduce the number of regulatory

agencies and strengthen control over their activities by higher state bodies. The development of a market economy involves the expansion of the market for products that make it necessary to use the foreign experience of countries to improve the quality and competitiveness of agricultural products in Kazakhstan.

Currently, there are 17 EAEU technical regulations in the Republic of Kazakhstan in the agricultural sector that establish requirements for product safety and its life cycle processes. In addition, work is underway to adopt 2 more EAEU technical regulations. At the same time, there are, firstly, the bodies of the State system of standardization, certification and metrology, the activities of which are carried out on the basis of the Laws of the Republic of Kazakhstan “On standardization”, “On certification” and “On ensuring the uniformity of measurements” in the field of product quality, and second, domestic manufacturers that have formed industry unions and associations. For example, the Union of Grain Processors and Bakers of Kazakhstan (SZHK), established in 2000, is actively functioning. SZHK develops recommendations for the government of the republic on industry issues, organizes exhibitions, holds events aimed at supporting domestic enterprises. As a result of the existing structure, 221 standards and technical conditions are in force in the grain industry, including 11 standards of MS ISO and 91 technical conditions (TU) of the Republic of Kazakhstan. The presence of so many regulatory documents certifying the quality of products leads to duplication, and sometimes to contradictions between them.

## 7. Conclusion

The article suggests the Ministry for ensuring food security of the country under the Government of the Republic of Kazakhstan, the Ministry of Health of the Republic of Kazakhstan and the Committee for Quality and Safety of Goods and Services of the Republic of Kazakhstan to take agreed cases of aggravation of the situation, development of recommendations for improving the legislatives for high level food security and quality, as well as efficient agricultural production. In our opinion, strengthening monitoring of the quality of imported and domestic foodstuffs within the country will increase the responsibility of agricultural producers, intensify the work of legislative and executive authorities to increase the country's food independence and protect the population from poor-quality products.

All countries strive to achieve food security, but this is faster and cheaper for developed countries (Qi et al., 2018). The food development strategy should take into account the following actions:

- maintaining, as far as possible, a broad concept of food security in major markets;
- the search for directions of the agricultural structure rationalization through the elimination of inefficient producers leading to lower production costs and improved competitiveness in the market;
- providing of the food production services with modern innovative technologies to increase their effectiveness;
- the development of efficient food products export, which will improve the payment situation and as well as enriching the domestic market through additional imports.

Kazakhstan's food security need to apply the progressive experience of states with a civilized market and competitive products. Authors agree with all the criteria and factors of the above examples from the experience of near and far abroad countries, which defines the state support for agricultural production, the development of both large and peasant farms and, on this basis, the provision of food from our own resources.

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