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## **ANALYSIS OF THE STATE OF FOOD SECURITY IN THE REPUBLIC OF KAZAKHSTAN**

The problem of ensuring food security remains one of the most important in both political and socio-economic relations. It should be one of the most important priorities in the national security system, since without a reliable supply of food the country is not able to be independent of other states. Therefore, in its general form, it forms the vector of movement of any national food system to an ideal state. Economic development of the state, its potential, stability and position in the modern world are determined by the ability to ensure the country's food security. This article analyzes the state of food security based on the following indicators: gross agricultural production, production of the main agricultural products, the structure of foreign trade in food, the level of food independence and economic accessibility. The state should serve as a basis for social stability, which ensures the existence of the state itself. In this regard, it is necessary to exclude the country's dependence on imported supplies, to ensure the development of its own food production; creation of a balanced structure of exports and imports.

**Key words:** food security, gross output, level of food independence, economic accessibility of food.

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### **Қазақстан Республикасында азық-түліктің қауіпсіздік жағдайын талдау**

Азық-түлікпен қамтамасыз ету қауіпсіздігі әлеуметтік-экономикалық қатынастарда және саяси кешенде бүгінгі таңда аса маңызды мәселелердің бірі болып табылады. Ұлттық қауіпсіздік жүйесінде негізгі басым бағыттардың бірі, яғни мемлекетті толық азық-түлікпен қамтамасыз ету болашақтағы бағдарламалардың шарты болып анықталады. Сондықтан ұлттық азық-түлік жүйесінің қозғалыс векторы тұрақты қалыптасуы қажет. Мемлекеттің экономикалық дамуы, оның әлеуеті, тұрақтылығы және қазіргі экономикалық ортадағы беделі, ең алдымен мемлекеттің азық-түлік қауіпсіздігімен анықталады. Аталған мақалада мемлекеттің азық-түлік қауіпсіздігінің төмендегі көрсеткіштеріне талдау жасалынған: ауыл шаруашылығының жалпы шығарған өнімінің көлемі, ауыл шаруашылығының негізгі шығаратын тауарларының түрлеріне, сыртқа шығарылатын тауарлардың құрылымы, азық-түлік тәуелсіздігінің деңгейі және т.б. Мемлекет әлеуметтік тұрақтылықтың негізіне тікелей қатысады, яғни мемлекеттің өмір сүруін қамтамасыз етеді. Сондықтан экспорт пен импорт арасындағы құрылымдық теңгерімділікті қалыптастыру қажет, отандық өндірістің дамуын қамтамасыз ету керек, импорттық өнімдерге деген тәуелділікті реттеу қажет.

**Түйін сөздер:** азық-түлік қауіпсіздігі, жалпы жиынтық өнімнің көлемі, азық-түлік тәуелсіздігі, азық-түлік тауарларға қол жетімділік.

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### **Анализ состояния продовольственной безопасности в Республике Казахстан**

Проблема обеспечения продовольственной безопасности по-прежнему остается одной из важнейших и в политическом, и социально-экономическом отношении. Она должна являться одним из важнейших приоритетов в системе национальной безопасности, так как без надежного снабжения продовольствием страна не в состоянии быть независимой от других государств. Поэтому в своём общем виде формирует вектор движения любой национальной продовольственной системы к идеальному состоянию. Экономическое развитие государства, его потенциал, стабильность и положение в современном мире определяются способностью обеспечения продовольственной безопасности страны. В данной статье приводится анализ состояния продовольственной безопасности на основе следующих показателей: валовой продукции сельского хозяйства, производства основных видов продукции сельского хозяйства, структура внешней торговли продовольственными товарами, уровня продовольственной независимости и экономической доступности. Государство должно служить основой социальной стабильности, которая обеспечивает существование самого государства. В связи с этим необходимо исключить зависимость страны от импортных поставок, обеспечить развитие собственного производства продуктов питания, создать сбалансированную структуру экспорта и импорта.

**Ключевые слова:** продовольственная безопасность, объем валовой продукции, уровень продовольственной независимости, экономическая доступность продовольствия.

#### **Introduction**

Food security is one of the most important elements of the national security system, which characterizes economic stability, political independence of the state, as well as its ability to provide the food requirements of its citizens, while maintaining the physical and economic access to food in a quantity and quality that are needed to sustain people's life activity, at the time preserving national interests and independence of the state from the food exports (Zhunussova G. 2013). In other words, it is such a state of the economy, in which all people are possible to be provided by basic foodstuffs in majority due to its own country production, without infringing upon the national interests of the state, with the mandatory priority for its most vulnerable, the poorest layers (J. Schmidhuber, F.N. Tubiello 2007).

In accordance with the country's development strategy «Kazakhstan-2050», the third challenge in the contemporary world is the threat of global food security, high growth of the world population drastically exacerbate the food problem. Kazakhstan in this challenge may find tremendous opportunities. Our country is one of the largest exporters of grain. We have huge eco-friendly areas and can produce organic food. We are quite capable to make a qualitative leap in agricultural production. For

this we will need a state thinking of a new type. (N. Nazarbayev 2012)

The concept of food security has significant historical precedent as an important issue in the field of what is now often referred to as 'human security' (Devereux, S., Baulch, B., Hussein, K., Shoham, J., Sida, H. and Wilcock, D. 2004). There are indications, however, that the concept of food security is gaining increased attention beyond the human-security domain. The discourse surrounding the food crisis in 2011 appeared to emphasize the security risks of food scarcity and its geopolitical consequences (Lester R. Brown 2011)

Food security is one of the main goals of the state's agrarian and economic policy. In its general form, it forms the vector of movement of any national food system to an ideal state. Economic development of the state, its potential, stability and position in the modern world are determined by the ability to ensure food security of the country (Burchi, F., De Muro, P. 2007). The country's food security is provided if it produces about 80% of consumed food, or if the country specializes in the production of a particular type of food, the export of which allows it to receive a positive balance of the foreign trade balance for food (Ibrayeva A.N. 2016). Food security is considered to be secured if, in addition to producing the required amount of food, its additional release is made in the amount of

the replenished insurance stock at the level of the developed countries of the world (UNCTAD 2010).

### Materials and methods

Theoretical and methodological basis was the work of scientists – economists of Kazakhstan, CIS and foreign countries on issues of ensuring food security. As a methodological base of the research methods of systemic, functional and statistical analysis were used. The information base of the study was domestic and foreign methodical reference materials, official information of the Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan, data published in the materials of the periodical press. In substantiating the decision, a systematic approach to the study of food security in the economy of Kazakhstan was used.

### Literature review

In the process of research, scientific works of foreign scientists on the problems of ensuring food security were analyzed: Margulis E.I., Serova E., Khranova I., Samoilova A.A. and others. Various aspects of the problems of ensuring food security in the economy were considered by Kazakh scientists: Kaygorodtsev A.A., Alshanov R.A., Esekeyeva A.A., Zhanbekova Z. Kh., etc. However, this topic did not find full coverage in the context of modern realities and is at the stage of search for conceptual solutions. Analysis of the state of the food market and providing the population with food, choosing the most optimal ones for making effective management decisions is an important task in developing a strategy for ensuring the country's food security. A review of developments to improve food security revealed a lack of knowledge of the theoretical aspects of ensuring food security in Kazakhstan. Therefore, the purpose of this study is to analyze the state of food security in the Republic of Kazakhstan.

### Results and discussion

Food security is commonly understood to include both physical and economic access to food that meets dietary needs and food preferences. Food security was defined at the World Food Summit of 1996 as the condition «when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life» (World Health Organization 1996). Food security involves four dimensions: physical availability of sufficient quanti-

ties of food economic and physical access to nutritious food, adequate knowledge of food utilization, including knowledge about water and sanitation, stability of access to food over time (Francesco Burchi, Pasquale De Muro A 2012).

When these dimensions become threatened, food security becomes an issue of concern. Whereas food security was previously foremost an issue of malnutrition in the developing world, the concept of food security is increasingly broadened to include food related issues from the developed world. (Marjolein de Ridder 2012)

The food security of the Kazakhstan is determined by several factors. First, it is the availability of food for the population, that is, the degree of saturation of the market. Agriculture of Kazakhstan has all the opportunities and conditions for full provision of the domestic market with agricultural products. Secondly, the economic accessibility of food, which is limited primarily to the purchasing power of the population. In this regard, as part of the anti-crisis program, the government is taking measures to curb price increases and regulate customs and tariff policies. In order to protect the domestic market from imports, it is planned to increase customs duties on imports of those foods that are produced in the republic. The third factor is food security and the fourth is our own food economy, without which it is impossible to talk about food security of the country (A. Esekeeva 2014).

In 2016 the agriculture of the Republic of Kazakhstan occupied 12.4% of the country's GDP. In rural areas there were about 7.6 million people, or 45% of Kazakhstan's population (Data of the Committee on Statistics of Kazakhstan). Gross agricultural production for 2013-2016. grew 1.2 times, is presented in Table 1.

The volume of gross agricultural output in 2016 increased by 11.4% as compared to 2015, including 12.2% in crop production, and 10.3% in livestock production. At the same time, the main types of products were 29,714.9 thousand tons and 4 471.1 million units. eggs (table 2).

Domestic production exceeded national consumption standards, which were generally set lower than medical standards, 4 times for bakery products, 2 times for potatoes; the supply of rice was 152%, vegetables – 120%, milk – 117%.

According to experts and agricultural scientists, in general, the resources of the Republic of Kazakhstan allow producing three times as much food as the population of the Republic of Kazakhstan actually consumes. The dynamics of consumption of food by the population is given in Table 3.

**Table 1** – The gross agricultural output of the Republic of Kazakhstan

Index	2013	2014	2015	2016
Gross output, mln. tenge	2 949 485,0	3 143 678,1	3 307 009,6	3 684 393,2
Gross output of crop production	1 683 851,4	1 739 436,3	1 825 236,7	2 047 580,8
Gross livestock production	1 256 871,7	1 393 762,0	1 469 923,0	1 621 541,4
Of them				
Gross output, in %	100	100	100	100
Gross output of crop production, in%	57	55,3	55,2	55,6
Gross livestock production,%	43	44,7	44,8	44,4

**Table 2** – Production of the main types of agricultural products in the Republic of Kazakhstan, thousand tons

Production	2012	2013	2014	2015	2016	2016 by 2015, %
Corn	12864,8	13854,2	12 996,9	13 747,0	14985,4	109,0
Potatoes	3126,4	3254,5	3 410,5	3 521,0	3 545,7	100,7
Vegetables	3061,5	3215,4	3 469,9	3 564,9	3 795,2	106,5
Sugar beet	151,6	64,6	23,9	174,1	345,0	2 times
Meat, slaughter weight	934,1	945,2	1 602,5	1 651,1	1 702,0	103,1
Milk	5381,2	5232,5	5 067,9	5 182,4	5 341,6	103,1
Egg, million pieces	3720,3	3718,5	4 291,2	4 737,0	4 761,1	100,5

**Table 3** – Consumption of food products by the population (average per capita, kg)

Products	2014	2015	2016
Bread products and cereals	126,2	129,8	130,7
Meat and meat products	70,7	73,6	72,9
Milk and dairy products	225,6	233,6	235,2
Fruit	60,8	64,4	61,4
Vegetables	86,6	90,2	89,3
Potatoes	48,5	48,5	48,6
Egg, pcs.	157,7	164	164,7

Table 3 shows that in 2016, food consumption has changed. Thus, consumption of bread and cereals increased by 0.9 kg, milk and dairy products by 1.6 kg, which amounted to 130.7 kg and 235.2 kg, respectively. Consumption of potatoes and eggs remained unchanged.

However, consumption of meat and meat products decreased by 0.7 kg, fruits by 3 kg, vegetables by 0.9 kg, which amounted to 72.9 kg,

61.4 kg. and 89.3 kg. respectively. The average Kazakh in 2016 consumed 72.9 kg against 70.4 kg. in 2014. Every American a year eats 115 kg. this main product of animal husbandry, and Europeans – 90 kg.

In 2016, imports of food products exceeded exports by \$ 0.9 billion, or 40.9%. The structure of foreign trade of the Republic of Kazakhstan is presented in Table 4.

**Table 4** – Structure of foreign trade of the Republic of Kazakhstan

Name	2013	2014	2015	2016
Export				
Total, billions of US dollars	84,7	78,2	45,9	36,7
CIS	10,9	9,8	7,9	6,3
The rest of the world	73,8	68,4	38,0	30,4
Products of animal and vegetable origin, ready-made food products				
Total	2,7	2,6	2,1	2,2
CIS	1,9	1,6	1,3	1,2
The rest of the world	0,8	1,0	0,8	1,0
Import				
Total, billions of US dollars	48,8	41,2	30,6	25,4
CIS	22,7	17,4	13,1	11,4
The rest of the world	26,1	23,8	17,5	14,0
Products of animal and vegetable origin, ready-made food products				
Total	4,6	4,3	3,4	3,1
CIS	2,9	2,6	2,1	1,9
The rest of the world	1,7	1,7	1,3	1,1

In addition, it can be noted that the structure of foreign trade in food products is dominated by products exported from CIS countries, where the lion's share belongs to exports from countries belonging to the Eurasian Economic Union (85%) (Murgalieva L.I. 2009). At the same time, it is necessary to take into account the fact that food security is considered to be secured if, in addition to producing the necessary amount of food, its additional output is in the amount of the replenished insurance stock at the level of the developed countries of the world (20%) (Kaygorodtsev AA 2012).

In the event that certain types of food are not produced in the country or their production is limited, food security in them is ensured by purchasing in other countries. At the same time, it is important to prevent the emergence of food, political or other dependence on exporting countries in terms of missing food (Remy P., Emerson K 2006).

The high import dependence of the republic on certain types of food reduces economic security and infringes its national interests, as large-scale foreign purchases of agricultural products, raw materials and foodstuffs increase pressure on foreign exchange resources. The increasing import of food and agricultural raw materials for its production leads to the fact that the country is increasingly forced to pay for them not with renewable natural resources.

Importing food all in large volumes through the sale of natural resources, it to some extent finances not domestic, but foreign commodity producers, thus contributing to the seizure of the food market. (Daribekov S. 2016).

For the integral assessment of food security, indicators and criteria are analyzed: the level of food independence, the level of economic accessibility of food (A.A. Kaygorodtsev 2006). This assessment of food security makes it possible to use a comprehensive system of an indicator of the economic accessibility of food (I. P. Nikolaeva 2012).

Given the wide variety of countries and economies in the world, FAO (Food and Agriculture Organization of the United Nations) measures the level of food independence of individual countries with their economic ability to ensure the purchase of food (Pasquale De Muro, Matteo Mazziotta 2010). This indicator is measured by the share of food imports in the gross volume of exports of goods and services from the country (P. Pinstrup-Andersen 2009).

$$OLFI = (1 - (I - E) / PEF) \times 100 \quad (1)$$

where,

- OLFI – overall level of food independence;
- I – import;
- E – export;
- PEF – public expenditure on food.

PEF includes the cost of food for 1 household member per year, multiplied by the population. The calculation of the OLF is given in Table 5.

As can be seen from Table 5, the level of food independence in 2016 is lower, compared to 2015, which is 91.6%. This decrease was influenced by the growth of food imports in comparison with exports.

By economic accessibility is understood the level of income regardless of the social status and residence of the citizen, which allows you to purchase

food, at least on a minimum level of consumption. Economic accessibility of food – is determined by the adequacy of the income of the population to purchase the necessary amount of food, based on the prevailing preferences, without reducing the level of consumption of other benefits. Economic accessibility of food implies the possibility of its acquisition by all social groups of the population, i.e. in this case, the availability of food for consumers at a price is taken into account (Food security and global security 2013).

**Table 5** – Calculation of the overall level of food independence, %

Indicators	2015	2016
Imports, billions of US dollars	3,4	3,1
Export, billions of US dollars	2,1	2,2
Balance (Import – Export), bln. USD	1,3	0,9
Average annual rate of USD	221,73	342,16
Population's expenditures on food, bln. tenge	3255,7	3697,6
Overall level of food independence, %	91	91,6

In the country there is a significant differentiation of the incomes of the population, therefore it is ineffective to analyze the availability of food by average (Mukhtarova K. S. 2003). It is assumed for each category of the population to differentially determine the coefficient of economic accessibility (FEA) as the ratio of the size of the average monthly income of the corresponding category (AMIRC) to the subsistence minimum (SL) (Mukhtarova K.S. 2014).

$$FEA = AMIRC / SL \quad (2)$$

where,

FEA – factor of economic accessibility;

AMIRC – average monthly income of the relevant category;

SL – subsistence level

The coefficients of economic accessibility of Kazakhstan are presented in Table 6.

**Table 6** – Coefficient of economic accessibility of Kazakhstan

Industries	2015		2016	
	AMIRC	FEA	AMIRC	FEA
Agriculture, forestry and fisheries	72507	3,7	81572	3,8
Industry, including:				
mining and quarrying	275624	14,0	312572	14,5
manufacturing industry	137385	6,9	153571	7,1
power supply, gas supply, steam and air conditioning	124256	6,3	136732	6,3
water supply; sewage system, control	85217	4,3	93856	4,3
Building	154794	7,9	179205	8,3
Wholesale and retail trade; repair of cars and motorcycles	121020	6,2	131091	6,1
Transport and storage	166057	8,5	176825	8,2
Accommodation and food services	116503	5,9	127837	5,9

Continuation of table 6

Industries	2015		2016	
	AMIRC	FEA	AMIRC	FEA
Information and communication	180828	10,7	204192	9,4
Financial and insurance activities	236689	12,0	284330	13,2
Operations with real estate	109318	5,6	123346	5,7
Professional, scientific and technical activities	255216	12,9	323661	14,9
Activities in the field of administrative and support services	102180	5,2	115041	5,3
Public administration and defense; compulsory social security	107924	5,5	118868	5,5
Education	77542	3,9	94542	4,3
Health and social services	91902	4,7	106049	4,9
Arts, entertainment and recreation	95210	4,8	110320	5,1
Provision of other types of services	202769	10,3	218893	10,1
Activities of extraterritorial organizations and bodies	-		-	
The cost of living	19647		21612	

The following results were obtained from the coefficient of economic accessibility of food: the lowest values of the coefficient are for workers in: agriculture – 3.8; education – 4.3; art – 5.1; accommodation and food services – 5.9; water supply; sewage system, control – 4.3. The highest incomes are earned by employees: the financial sector – 13.2; the mining industry – 14.5; professional, scientific and technical activities – 14.9.

FAO offers a set of measures to ensure food security of countries in new conditions, for Kazakhstan the following are the most applicable (Kozhakhmetova G.A., Lashkareva O.V. 2016):

- Increasing investment and encouraging the financing of scientific research in agriculture, and in particular personal subsidiary farms;

- Raising awareness of the food markets and increasing their transparency;

- Development of stable long-term national social protection strategies and social support mechanisms oriented towards vulnerable categories of the population;

- take measures to ensure that people are given the necessary services and goods that enable them to make full use of the nutritional value of consumed foodstuffs, and thereby achieve well-being in the field of nutrition;

- take measures to maintain and strengthen food diversity and the principles of healthy eating and cooking;

- provide measures in education, information and labeling to prevent excessive consumption of food and imbalance of the diet.

The Kazakhstan food market is getting more diverse and gaining higher quality. More local food producers are among the main suppliers of the stores. This fact reflects the annual increase of agricultural product processing and food production. Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life (Seisinbinova A. 2013). Food security for a household means access by all members at all times to enough food for an active, healthy life. Food security includes at a minimum the ready availability of nutritionally adequate and safe foods, and an assured ability to acquire acceptable foods in socially acceptable ways (Clay, E. 2002.).

### Conclusion

The main directions of the development of the food sector in Kazakhstan:

- The completion of comprehensive modernization of the food sector and the achievement of effectiveness of agribusiness as in the developed countries;

- Complete saturation of the domestic food market with high quality and ecologically pure food at the prices affordable for the majority of the population;

- Accelerated development of export potential with the active support of the state, the organization of export of a full range of domestic food products, as well as the goods of engineering companies that

produce agricultural machinery and equipment for all industries within the food sector;

– To minimize the level of imported food in the national market, maintaining full range of imported food products in all market segments;

– The formation of the complex innovation, covering the research on all aspects of agricultural science with the creation of a network of agricultural research centers across the country, the wide involvement of foreign scientists for joint research and scientific manpower's training;

– Expansion of the Kazakh food producers through joint ventures in other countries under the brands of Kazakhstan (Osmanov G., Hishauyeva Zh., Raimbekov B., Shakeev S., Mukashev T 2017, Wilson A., Starbuck B. 2006).

The solution of the problems of increasing the competitiveness of the agroindustrial complex must

be carried out at the state level in two main directions (Rahimzhanova A. 2011):

– increase of competitiveness of domestic export goods in the world market;

– Increasing the competitiveness of domestic goods in the domestic market. This is especially true in connection with the high share of imported goods in the domestic market of each of the CIS countries.

In the event that certain types of food are not produced in the country, or their production is limited, food security in them is ensured by purchasing in other countries. At the same time, it is important to prevent the emergence of food, political or other dependence on exporting countries in terms of missing food. The implemented measures in the country to improve social and economic development are not yet able to solve the problem of full food security.

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