

# SCIENTIFIC HORIZONS

Journal homepage: <https://sciencehorizon.com.ua>

*Scientific Horizons*, 25(9), 105-116



UDC 631.147

DOI: 10.48077/scihor.25(9).2022.105-116

## The Main Areas of Development of Organic Agriculture in the Republic of Kazakhstan

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### Article's History:

Received: 09/20/2022

Revised: 11/07/2022

Accepted: 11/24/2022

### Suggested Citation:

Karabassov, R., Nurmaganbetov, K., Aidynov, Z., Orynbekova, G., & Khapova, A (2022). The main areas of development of organic agriculture in the Republic of Kazakhstan. *Scientific Horizons*, 25(9), 105-116.

**Abstract.** The Republic of Kazakhstan has good potential for developing environmentally friendly agricultural production: extensive agricultural land, a large number of farms, and interest in producing environmentally-friendly products. These factors determined the relevance of the study, the main purpose of which was to investigate the main areas of the development of organic agriculture in Kazakhstan. The statistical data and reports of Research Institute of Organic Agriculture, International Federation of Organic Agriculture Movement, and Food and Agriculture Organization of the United Nations were analyzed; logical and empirical methods were used; a survey of consumers and producers of environmentally-friendly products in Kazakhstan was conducted. This paper shows the main trends in the development of the organic sector in Kazakhstan and in the world in general. Studies have shown a growing tendency of organic production in the world, however, many countries are still in their infancy regarding this trend. At the moment, the world's land under organic agriculture is 74.9 million hectares, but in Kazakhstan, since 2016, there has been a reduction in such areas. In 2020, they amounted to 114 thousand hectares or 0.1% of all farmland in the country, which is associated with the coronavirus pandemic and the global economic crisis. According to the international organisations Research Institute of Organic Agriculture and International Federation of Organic Agriculture Movement, in 2020, out of 190 countries of the world, Kazakhstan entered the lists of 50 producing countries and 20 exporting countries of organic agricultural products, and the export of these products amounted to about EUR 9 million. It is concluded that the necessary conditions for the introduction of ecological agriculture are gradually being created in the Republic of Kazakhstan, which would improve the economic situation of the country. The practical significance of the study was to conduct a sociological survey of consumers and producers of ecological agricultural products in four regions of Kazakhstan to identify the state and main areas of development of the domestic market of organic agriculture

**Keywords:** environmentally-friendly product, export, standardisation, certification, green economy



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## INTRODUCTION

Every year, there is a positive growth trend in the organic agriculture market worldwide and an increasing demand for organic products. According to S. Das, A. Chatterjee, T.K. Pal (2020), the expansion of this sector of the economy is conditioned by the receipt of higher profits from the sale of organic products and the transition of small farms to organic farming. American researchers (Reganold & Wachter, 2016) predict that population growth will reach 9-10 billion people by 2050, while enormous attention will be paid to environmental protection. They claim that the large-scale introduction of organic and resource-saving agriculture will ensure the future of humanity with safe food and improve the ecosystem. Similar information has been published in a paper by Indian researchers (Prusty *et al.*, 2021; Thakur *et al.*, 2022) and in the Food and Agriculture Organization of the United Nations (FAO) (2022) report, where it is noted that among the most effective strategies for improving the quality of food, strengthening the sustainability of ecological and agrifood systems, organic agriculture, soil protection and resource-saving agriculture are singled out. Thus, according to FAO, Belgium, Croatia, Estonia, Finland, Germany, Hungary, Ireland, Spain, the Netherlands, Norway, Poland, Slovakia, Slovenia, Sweden, and the United Kingdom have achieved positive results in maintaining biodiversity in the production of agricultural products with the help of organic agriculture.

According to the Research Institute of Organic Agriculture (FiBL) (2022) and the International Federation of Organic Agriculture Movement (IFOAM) (2022), Oceania countries are considered the largest among organic producers, in which 35.9 million hectares of land are occupied by ecological agriculture, of which 27.2 million hectares are located in Australia (Paull and Hennig, 2018), followed by countries in Europe (17.1 million hectares), Latin America (9.9 million hectares), Asia (6.1 million hectares), North America (3.7 million hectares), and Africa (2.1 million hectares) (Willer *et al.*, 2021). FiBL (2022) and IFOAM (2022) reports over the past 20 years indicate a constant increase in land areas for organic production (Grigoruk and Klimov, 2016). Both the number of countries and the number of organic producers within these states are growing (Proshchalykina *et al.*, 2019). According to H. El Bilali (2020), in 2018, 2.8 million farmers were engaged in organic agriculture worldwide on an area of 71.5 million hectares.

A.Kh. Berdiev and H.K. Rasulov (2020) state that the USA (United States of America), EU (European Union), and China are the largest markets for organic products, the volume of which is 24.3, 22, and 2.4 billion euro, respectively, and the majority of consumed environmentally-friendly products account for Germany, France, and the USA (Anderberg, 2020). According to the calculations of O.O. Karamatov (2021), in the republics of Central Asia, by 2025, the land area under organic agriculture would increase to 762 thousand hectares. However, the

growth of organic production in developing countries still depends heavily on foreign markets. According to many researchers in the Republic of Kazakhstan, the development of organic agriculture is in an active phase. Thus, more than 300 thousand hectares of farmland were allocated for the production of environmentally friendly products in 2016, while about 30 farms certified in accordance with international standards were registered (Uskenov *et al.*, 2016). According to some researchers (Bulkhairova *et al.*, 2020; Canwat & Onakuse, 2022), the largest producer of organic products in the republic is the Akmola company Edelweiss Invest LLP (limited liability partnership), which grows certified organic products on 27 thousand hectares. The annual export of eco-products from Kazakhstan to the EU reaches about USD 10 million. The main exporters are Akmola, Kostanay, Pavlodar, East Kazakhstan, Karaganda, and Almaty regions. Seeds, oilseeds, and legumes are in great demand, and there are about 20 types of products in total (Wiśniewski *et al.*, 2021).

The growing interest of the world community in organic agriculture and the opportunity to improve the economic situation in Kazakhstan through the production of eco-friendly products determined the relevance of this study. *The purpose of the study* was to investigate trends in the development of organic agriculture in the Republic of Kazakhstan.

## MATERIALS AND METHODS

The conceptual and theoretical basis and the methodology of “organic agriculture” were developed at the beginning of the 20<sup>th</sup> century. The countries of Europe and the USA took an active part in this process. However, this term has analogues. For example, in Germany and France it is “biological” (or “bio”), and in Poland, the Czech Republic, and the Netherlands – “ecological” (or “eco”). All these concepts imply that the production of organic products includes the minimisation or complete exclusion of synthetic chemical means of protection and plant growth stimulants, and the rejection of the use of genetic engineering and genetically modified organisms (GMOs), that is, the products safe for humans and the environment. The study of the main trends in the development of organic agriculture in the Republic of Kazakhstan was conducted based on the analysis of the dynamics of domestic and foreign markets, consideration of the problems of standardisation and certification of eco-products, and the social aspect.

The main objects of the study were: regulatory and legal documentation on organic agriculture in Kazakhstan, producers of ecological agricultural products, and consumers of the external and internal markets of organic goods. The paper uses data from reliable, open sources: reports of the FiBL (2022) and the IFOAM (2022), the FAO (2022). These data allowed identifying the main areas of the development of organic agriculture in the

world and Kazakhstan, and understanding the existing problems of this sector of the economy. To investigate the production and sale of organic products using questionnaires (Table 1), a survey of its consumers and producers was conducted. The survey was conducted in the North Kazakhstan, Akmola, Karaganda, and Kostanay regions of the Republic of Kazakhstan.

The questionnaire was distributed to consumers of organic agricultural products and farm managers in the regions under study, as well as using an online service for creating feedback forms, online tests, and surveys – Google Forms. 322 respondents took part in the survey: 198 – consumers in the areas under study and 124 – through Google Forms.

**Table 1.** Survey of consumers and producers of organic products

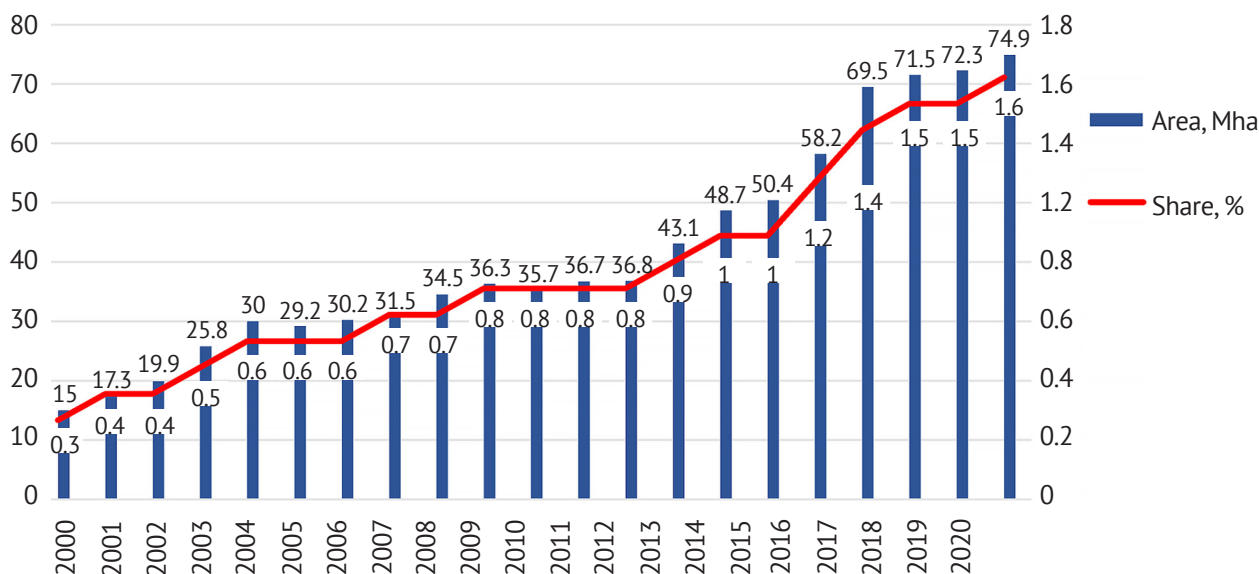
No.	Questions	Answers
1.	Are you familiar with organic agricultural products and the benefits of their consumption for your health?	a) yes b) no
2.	What are the sources of information from which you learned about organic products?	a) Internet b) specialised department in the store c) another source
3.	Which manufacturers' organic products did you purchase?	a) Kazakh producers b) imported manufacturers
4.	What types of products that have the status of organic have you bought most often?	a) bakery and pasta products b) meat products c) dairy products d) vegetables and fruits
5.	Your income is:	a) 50-100 thousand tenge b) 100-150 thousand tenge c) 150-200 thousand tenge d) more than 200 thousand tenge
6.	How much of your income are you willing to spend to buy organic agricultural products?	a) up to 10% b) 10-15% c) 15-20% d) more than 20%
7.	Arrange the options from 1 to 5 depending on the degree of importance for you when choosing organic agricultural products.	a) quality b) appearance c) price d) manufacturer e) environmental characteristics
8.	Choose the reasons why you like organic agricultural products?	a) high quality b) health benefits c) preservation of ecology d) fashion trend

**Source:** compiled by the authors

In general, the study was conducted using abstract and logical, analytical, graphical, computational, and constructive research methods, and methods for comparing values and groupings, generalising statistical indicators.

## RESULTS

An analysis of the state of organic agriculture in the world has shown positive growth dynamics on a global scale (Fig.1), however, in a number of countries, including Kazakhstan, in recent years there has been a decline in both production and export of biological products (Willer *et al.*, 2021).



**Figure 1.** Growth of areas under organic agriculture in the world (2000-2020)

**Source:** compiled and adapted based on H. Willer et al. (2020; 2021)

In recent years, 1.6% of the world's agricultural lands have been certified organic according to international standards. For the period 2000-2020, there was a five-fold increase in the area under organic agriculture, their size by 2020 amounted to 74.9 million hectares.

Notably, the spread of organic farming across continents and countries was uneven. According to the FiBL (2022) and the IFOAM (2022) in 2020, Kazakhstan entered 50 out of 190 countries producing environmentally safe products (Table 2).

**Table 2.** Ranking of 50 countries of the world, including Kazakhstan, by areas under organic agriculture and the dynamics of their growth over the past 10 years

Rating, number	Country	Area in 2020		Growth in 10 years (2010-2020)	
		thousand hectares	%	thousand hectares	%
1	Australia	35687	9.9	24488	218.7
2	Argentina	4453	3.0	657	17.3
3	Uruguay	2742	19.6	1811	194.6
4	India	2657	1.5	1573	145.1
5	France	2548	8.8	1573	161.4
6	Spain	2437	10.0	815	50.3
7	China	2435	0.5	535	28.2
8	United States of America	2326	0.6	148	6.8
9	Italy	2095	16.0	998	91.0
10	Germany	1702	10.2	686	67.6
11	Canada	1417	2.4	576	68.5
12	Brazil	1319	0.6	632	92.0
13	Austria	679	26.5	117	20.9
14	russian federation	615	0.3	488	385.0
15	Sweden	613	20.4	133	27.9
16	Czech Republic	539	15.3	79	17.2
17	Greece	534	10.1	321	150.7
18	Poland	507	3.5	-101	-16.7
19	United Kingdom	473	2.7	-165	-25.8

Table 2, Continued

20	Romania	468	3.5	238	103.9
21	Ukraine	462	1.1	191	71.0
22	Turkey	382	1.0	-59	-13.5
23	Peru	342	1.5	156	84.3
24	Portugal	319	8.1	119	59.6
25	Finland	315	13.9	126	67.4
26	Hungary	301	6.0	177	142.3
27	Denmark	299	11.4	137	85.0
28	Tunisia	297	3.0	118	66.4
29	Latvia	291	14.8	107	58.2
30	Lithuania	235	8.0	83	54.6
31	Ethiopia	234	0.6	94	67.0
32	Slovakia	222	11.7	56	33.7
33	Estonia	220	22.4	87	65.0
34	Sierra Leone	219	5.6	83	54.6
35	Mexico	215	0.2	-151	-41.2
36	Tanzania	198	0.5	83	72.3
37	Philippines	191	1.5	95	99.1
38	Bolivia	179	0.5	33	23.0
39	Switzerland	177	17.0	61	52.6
40	Thailand	160	0.7	125	361.7
41	Chile	156	1.0	127	439.5
42	Togo	127	3.3	126	9,464.5
43	Kenya	123	0.4	118	2,390.3
44	Democratic Republic of Congo	118	0.4	77	188.2
45	Dominican Republic	117	4.8	-69	-37.2
46	Uganda	116	0.8	-111	-49.0
47	Bulgaria	116	2.3	91	364.6
48	Egypt	116	3.0	33	41.2
49	Kazakhstan	114	0.1	-81	-41.4
50	Croatia	108	7.2	76	239.0

**Source:** compiled and adapted based on H. Willer et al. (2021)

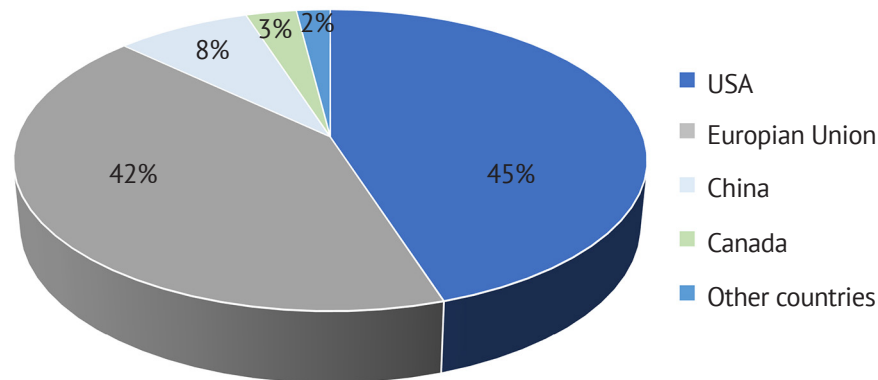
The leading position in the field of organic agriculture, since 2000, has been occupied by Australia, which accounts for more than half of the world's certified land area (54%). In 2020, its area under organic farming was 35687 thousand hectares, or 9.9% of all farmland (Willer et al., 2021), which is 1.1% higher than in 2018 (Paull & Hennig, 2018). In second place, by a wide margin, was Argentina, which observed stable organic farming on an area of 4453 thousand hectares. In other countries, smaller areas have been allocated for ecological agriculture. In modern conditions of development of organic agriculture, Kazakhstan lags far behind and occupies only a small part of the total area of the world's land resources used in the production of environmentally safe products. Thus, as of 2020, 114 thousand hectares were occupied under organic farming, which accounted for 0.1% of all farmland in the country (Willer et al., 2021).

According to FiBL (2022) and IFOAM (2022), since 2013, cereals (rice, wheat, and corn) have been considered the most important organic field crops; their area in 2020 was almost 1.3 million hectares. In second place are oilseeds (mainly soybeans), occupying almost 578 thousand hectares, and textile crops (mainly cotton) grown on an area of more than 355 thousand hectares. The largest areas of grain and oilseed organic crops in 2020 were in China (almost 1.9 million hectares), cotton and soybeans – in India (more than 415 thousand hectares), rice – in Thailand (more than 143 thousand hectares), grain, textile, and oilseed crops – in Kazakhstan (more than 107 thousand hectares). In terms of the number of areas occupied by organic wheat, Kazakhstan ranked second (more than 24 thousand hectares) after China (240 thousand hectares), China was also the leader in organic corn (230 thousand hectares).

In 2020, compared to 2019, there was an increase in the volume of imports of tropical fruits, nuts, spices, vegetables, coffee, mate tea, soybeans, olive oil, and rice. The remaining categories of goods in the top 10 decreased compared to last year: cake – by 22%, sugar – by 10%, oilseeds, except soybeans – by 12%, and especially cereals, except wheat and rice – by 41%. The volume of organic wheat, which in 2019 was among the top 10 imported organic products in the EU, also sharply decreased by 34% in 2020 (Willer *et al.*, 2021). The decrease in the import of cake in 2020 was caused by a sharp reduction in imports from China (-47%), which is the main supplier. In addition, the import of corn and wheat decreased significantly due to a considerable reduction in the volume of products coming from Ukraine (-44%) and Kazakhstan (-96%).

Regarding the dynamics of the development of organic agriculture in the world over the past decade, among the countries with the largest growth in production areas, African countries stand out: Togo and Kenya. The positive dynamics of the increase in land for organic

production are characterised by 44 of the 50 countries under study that are engaged in this area. A reduction of more than 40% of the area under ecological production was observed in Uganda, Kazakhstan, and Mexico, which is probably conditioned by the internal problems of these countries (Willer *et al.*, 2021). In Kazakhstan, organic agriculture developed slowly due to the fact that the population was not sufficiently informed about the potential opportunities of this area (obtaining higher profits than from traditional production, maintaining the ecological balance in agroecosystems, improving living standards, etc.), and there were also no organic farming technologies developed and adapted to local extreme agro-climatic conditions in the country. The study of world market relations showed that the largest markets for organic agricultural products were located in the USA and the EU (Germany, Great Britain, the Netherlands, France, Italy, Poland, etc.) (Fig. 2), they accounted for 45 and 42% of world trade turnover, respectively. China and Canada were next in the ranking, by a large margin – 8% and 3%, respectively (Willer *et al.*, 2020).



**Figure 2.** World market of organic products consumption, 2018

**Source:** H. Willer *et al.* (2020)

In 2020, the Republic of Kazakhstan was one of the 20 exporting countries of organic products (Table 3), however, due to the coronavirus pandemic and the deterioration of the country's economy, exports fell by

30.8% compared to 2019. A similar situation, albeit on a smaller scale, occurred with China, Ukraine, Turkey, and other countries (Willer *et al.*, 2021).

**Table 3.** The volume of imports of organic agricultural products by EU exporting countries, including Kazakhstan, in 2019 and 2020

Rating, number	Exporter	Imports in 2019, million tonnes	Imports in 2020, million tonnes	Dynamics, %
1	Ecuador	299971	324071	8.0
2	Dominican Republic	229218	252293	10.1
3	China	359057	227669	-36.6
4	Ukraine	282427	217210	-23.1
5	Peru	207938	200860	-3.4
6	India	152678	174311	14.2
7	Turkey	173026	155741	-10.0
8	Colombia	79167	106766	34.9
9	Brazil	75676	67225	-11.2

Table 3, Continued

Rating, number	Exporter	Imports in 2019, million tonnes	Imports in 2020, million tonnes	Dynamics, %
10	Mexico	67427	66127	-1.9
11	Tunisia	42519	58516	37.6
12	Argentina	59456	56361	-5.2
13	Togo	44684	54017	20.9
14	Egypt	53233	51292	-3.6
15	Pakistan	33432	44942	34.4
16	Honduras	35961	41800	16.2
17	Kazakhstan	58785	40692	-30.8
18	Sri Lanka	29198	37166	27.3
19	Ivory Coast	23487	35475	51.0
20	Canada	28457	33350	17.2

Source: H. Willer et al. (2021)

According to the International Federation of Organic Agriculture Movements (2022) in 2020, the number of producers of environmentally-friendly products in the Republic of Kazakhstan was 279, and about EUR 9 million worth of products was exported. The main goods exported by Kazakhstan to EU countries were wheat, soybeans, seeds, and oilseed cake (Bulkhairova et al., 2020). The legislative framework of the producing country is of great importance in promoting organic agriculture. According to S. Le Douarin (2020), for 2019, the relevant documents were developed and adopted in 103 countries, while in other states they were at the stage of preparation for ratification. A law on organic farming was adopted in Kazakhstan a few years ago, but its implementation has not yet been completed.

Despite a number of problems: the insufficiently developed infrastructure that ensures the efficient operation of the organic market, the high cost of certification of eco-products and dependence on international experts and certification bodies, the Kazakh government has made significant efforts to introduce the production of environmentally friendly agricultural products into the country's economy. Thus, adopted the Strategy "Kazakhstan-2050" (2012), the Concept for the transition of the Republic of Kazakhstan to a "green economy" (Decree of the..., 2013) and the Law of the Republic of Kazakhstan No. 423-V ZRK "On the production of organic products" (2015) laid the legal basis for the country's organic agriculture (Grigoruk & Klimov, 2016; Karamatov, 2021). Thus, the Republic of Kazakhstan is on the way to the effective management of organic agriculture, and the adopted regulatory documents and active cooperation with international organisations to promote environmentally-friendly products in the future would allow attracting additional funds into the country's economy. The most important factor in the expansion of the global and domestic markets for organic products is the growth of consumer demand for eco-products. The annual reports and reports of the FAO (2022), FiBL (2022), and IFOAM (2022) on the state of the organic products market testify to the international growth in demand for these products, and in Kazakhstan – the appearance of specialised

stores and the sale of environmentally friendly goods via the Internet. As a result of the research, it was confirmed that Kazakh internal market of organic products was underdeveloped. According to V.V. Grigoruk and E.V. Klimov (2016) and O.O. Karamatov (2021) the main reason for this is the lack of demand for Kazakhstan's environmentally safe products in the domestic market.

As a result of the study, it was found that in the specialised departments of the republic's stores, eco-products were represented by goods of imported origin, the most common were: buckwheat, mash, lentils, red quinoa, dried cranberries, walnuts, flour (whole wheat, oatmeal, chickpeas, corn, rice, and buckwheat), semolina, coconut milk powder, organic coconut sugar, etc. Their cost exceeded similar traditional goods by 2-7 times, and local products that have not passed certification for compliance with organic standards – by 2-3 times. Most goods, except exotic ones, can be produced by Kazakh farmers, but this requires appropriate conditions. Organic products have a number of characteristics that are divided into individual and social (environmental). The group of individual characteristics of organic food includes taste, health value, freshness, usefulness, and social attributes include aspects of environmental protection (Grzybowska-Brzezińska et al., 2017).

To investigate the state and growth prospects of the domestic organic production market, a survey was conducted using questionnaires in the North Kazakhstan, Akmola, Karaganda, and Kostanay regions of the Republic of Kazakhstan. Data on the retail market in these areas were obtained. The survey showed that the consumers of Kazakhstan made a choice in favour of organic products, focusing on such characteristics as the impact of an eco-product on health and the environment, and its taste qualities. Among the consumers of eco-products, families with high incomes or with children under 5-7 years old prevailed, as well as young people engaged in sports. The analysis of the survey showed that the main consumers of organic products were two categories of people aged 31 to 40 years and 26 to 30 years, which accounted for 37.6% and 32.3% of the total number of respondents, respectively (Table 4).

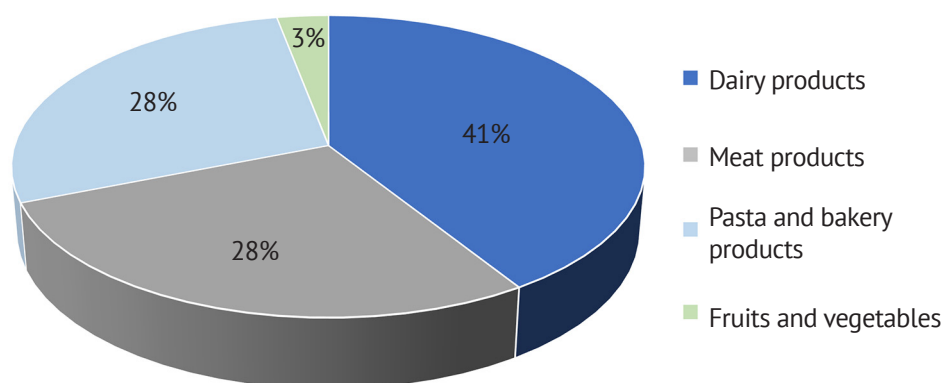
**Table 4.** Structure of Kazakh respondents – consumers of organic products

Consumer group by age category			Gender of the consumer of eco-products, %	
Years	Peoples	%	Male	Female
18-25	47	14.6	38.3	61.7
26-30	104	32.3	27.9	72.1
31-40	121	37.6	43.8	56.2
41-50	21	6.5	33.3	66.7
51-59	18	5.6	44.4	55.6
over 60	11	3.4	18.2	81.8
Total	322	100	–	–
Average	–	–	34.3	65.7

**Source:** compiled by the authors

According to the gender ratio, women predominated among the respondents, that is, 65.7% of women and 34.3% of men out of 322 respondents. The analysis of responses showed that the majority of consumers (68.3%) were familiar with organic products and used them frequently, the rest (41.7%) have heard something or did not know anything about it. Nevertheless, such awareness of the population and the consumption of eco-products are quite low. Most of the respondents learned about eco-products from advertising on the Internet (31.2%), the second-ranked

source of information was familiarisation with products in organic departments of stores (38.6%), 19.7% of survey participants learned about organic products from other sources. It was found that the majority of consumers (59.4%) preferred the products of Kazakh manufacturers. They believe that if local products have a “BIO” or “ECO” mark, then they are organic. According to the analysis of the survey, the most frequent buyers purchased dairy products (41%), while meat products, pasta and bakery products ranked second in popularity and gained 28% each (Fig. 3).

**Figure 3.** Diagram of consumption of organic products in the Republic of Kazakhstan

**Source:** compiled by the authors

The survey also showed that 34% of consumers of eco-products had an income of KZT 100-150 thousand, 29.5% – KZT 150-200 thousand, 19% – over KZT 200 thousand, and 17.5% – KZT 50-100 thousand. This indicated that the majority of respondents who spent enough money on organic products had an average income and could buy these products, but not on a permanent basis. At the same time, 42.5% of respondents were willing to spend 10-15% of their personal income on eco-products, 15-20% of their income – 38.2%, more than 20% of their income – 6.9%, and less than 10% of their income – 12.4% of respondents. When buying organic goods, most of the respondents focused on the

quality of products (62.5%), environmental characteristics (52%), and price (50.5%). Among the reasons for buying organic agricultural products were health benefits (62.2%) and high quality of eco-products (45.8%). Thus, the survey showed an increase in interest in organic products and the establishment of a steady demand for the purchase of environmentally friendly products.

## DISCUSSION

It is believed that organic agriculture is less productive in terms of yield than traditional agriculture, nevertheless, it is able to bring 3-5 times more profit due to the higher price of the final product, as well as eco-products



are safe for human health, animals, and the environment. Unfortunately, organic production is not able to feed the ever-growing population of the planet, therefore, to achieve food and environmental security of all countries in the future, joint management of traditional and organic agriculture will be promising. The transition to organic farming does not mean simplification and does not exclude an integrated approach to solving problems using modern methods and tools, but only introduces some restrictions, for example, on the use of mineral fertilisers, pesticides, GMOs (Bulkhairova *et al.*, 2020). In addition, according to A. Proshchalykina *et al.* (2019), the market of ecological agricultural products is niche, that is, it is focused on some buyers who are willing to overpay for a better product. Despite the above, organic agriculture is gaining more and more momentum on a global scale. H. El Bilali (2020) suggests that it can contribute to climate change mitigation, biodiversity conservation, and environmental impact reduction. However, the comparative indicators of organic farming depend on the specific region of production, just as the difference in the yield of organic and traditional agricultural plants depends on the crops and methods of their cultivation.

T.C. Durham and T. Mizik (2021) have proved that organic farming is less capital-intensive in contrast to traditional. This may be of particular interest to small farmers, who usually do not have the financial means to purchase resources. Thus, organic farmers may be less exposed to financial risks associated with fluctuations in market prices for synthetic fertilisers and plant protection products. Studies by A. Proshchalykina *et al.* (2019) have shown that the market of organic agricultural products can reach a very high level only with balanced consumption and quality control of manufactured products. Examples are such Nordic countries as Denmark, Sweden, France, Switzerland, and Germany. The high level of consumer income also contributes to the development of this market. This can be seen in the example of the USA, Canada, China, and Australia. The prospects for the development of the organic products market in the country are closely related to the development of the following groups of factors: organisational and legal, financial and economic, technological, and socio-psychological. Such a systematisation of factors allows improving and developing effective measures for the introduction of an organic agricultural production system, considering the influence of these factors (Turner *et al.*, 2015).

V.V. Grigoruk and E.V. Klimov (2016) report that since 2000, the agricultural sector of the Republic of Kazakhstan has shown a positive development trend, except for certain dry periods that reduce agricultural production. Over 15 years, grain production has increased by 1.6 times, potatoes – by 2.1 times, and vegetables by 2.2 times. In addition, the area for oilseed crops has expanded by 4.5 times. At the same time, the gross grain

harvest fully meets the needs of the domestic market of the country and provides the potential to export up to 8 million tonnes of wheat grain. The Republic of Kazakhstan is one of the leading exporting countries of organic wheat, soybeans, cake, and sunflower seeds. These products are mainly imported by the countries of the European Union. According to J. Rustamov *et al.* (2020) and Baydildina *et al.* (2000) Kazakhstan is among the top 10 leading exporters of organic products in the EU. In 2019, the export of all environmentally-friendly products increased by 70.5% compared to the previous year, while the volume of exports of sunflower cakes during this period fell by 4.6 thousand tonnes. Organic wheat exports had good indicators, its volume increased by 31.8 thousand tonnes over the same period. In 2019, the republic also increased the supply of organic oilseeds to the EU market by 60.7%. A similar pattern was observed in the export of ecological soybeans, the volume of exports of which to the EU market increased by 3.4 thousand tonnes.

A brief analysis of the main areas of development of organic agriculture in Kazakhstan showed that the Concept for the transition of the Republic of Kazakhstan to a “green economy” (Decree of the..., 2013) and the Law of the Republic of Kazakhstan No. 423-V ZRK “On the Production of Organic Products” (2015) laid the legal basis for ecological agriculture. According to a number of researchers, to improve the state of organic farming in the republic at all stages of the production of environmentally-friendly products, it is necessary to introduce a system of total control, clear labelling of eco-products, carry out inspections and certifications of production (Uskenov *et al.*, 2016; Rustamov *et al.*, 2020). Currently, in Kazakhstan, only the regulations of importing countries are applied for the export of organic goods, which have some differences from the requirements of national legislation. This hinders the development of the organic industry. According to a number of researchers (Raihan & Tuspekova, 2022), only technical support from IFOAM (2022) can ensure the promotion of Kazakhstan’s environmentally friendly products on the global organic market, and the implementation of the legislation of the republic into the IFOAM Family of Standards can give additional advantages, for example, the recognition of the Law of the Republic of Kazakhstan No. 423-V ZRK “On the Production of Organic Products” (2015) by the export markets of Saudi Arabia and Australia, and the private programmes, for example, the Global Organic Textile Standard.

O.O. Karamatov (2021) and Lazzat *et al.* (2014) argues that, despite the results achieved on the introduction of organic agriculture, there are a number of problems in the Republic of Kazakhstan: there are no organisational and economic mechanisms for the implementation of adopted legislative documents designed to stimulate organic production in the country; farmers incur significant costs when obtaining international certificates

of eco-products from international experts and auditors; there is no single database where all information on the structure and volumes of production and export of organic products would be collected; there is an acute shortage of specialists in this field; there is an insufficiently developed infrastructure for the distribution and marketing of environmentally safe products. To improve the situation, the authors of this study suggests the following solutions: to develop a regional programme for the development of environmentally-friendly production, which should include tools for optimising and specialising producers of organic goods, considering the specific conditions of the republic; to provide financial and technical assistance for the effective implementation of organic projects and programmes; it is necessary to create a common information database of demand and supply for eco-products in markets of all levels (from local to global); to create a national certification service; to improve the infrastructure for the transportation and storage of organic agricultural products.

### CONCLUSIONS

The investigation of the main global trends has shown a positive trend in the development of organic agriculture on a global scale. However, at the regional level in a number of countries, this process is still in its infancy. Over the past 20 years, the global area under organic agriculture has increased fivefold and in 2020 amounted to 74.9 million hectares. Togo and Kenya had the largest increase in organic production areas, while Uganda, Kazakhstan, and Mexico had a significant decrease (more than 40%). The growth of farmland under organic production was observed in 44 of the 50 countries under study. In the Republic of Kazakhstan, after the active growth of organic agricultural areas since 2012, which reached more than 300 thousand hectares in 2016, their gradual reduction began and by 2020, the land under organic farming amounted to 114 thousand hectares or 0.1% of all farmland in the country. This negative phenomenon is associated with the deterioration of the economy as a result of the coronavirus pandemic and the global

economic crisis. Internal problems also contributed to this: low awareness of the population about the prospects for the development of organic agriculture, underdeveloped infrastructure, lack of a domestic market, high prices for international eco-product certificates, and dependence on international experts.

The results of the reports of the FiBL and the IFOAM showed that in 2020 Kazakhstan entered the 50 countries-producers of eco-products in terms of occupied organic areas and took 49<sup>th</sup> place among 190 certified producers. It was also among the 20 exporting countries of environmentally friendly products, however, exports decreased by 30.8% compared to 2019. The decline in export volumes also occurred in China, Ukraine, Turkey and other countries. In 2020, 279 organic producers were registered in the republic. The main exports to the EU countries were wheat, soybeans, seeds and oilcake, which brought about EUR 9 million to the country's economy. Analysis of the regulatory framework of Kazakhstan has shown that the country is actively working to promote organic agriculture. This is evidenced by the adopted the Law of the Republic of Kazakhstan No. 423-V ZRK "On the Production of Organic Products", the Strategy "Kazakhstan-2050", etc. The survey conducted by the population of four regions of Kazakhstan showed an increase in interest in eco-products, and the establishment of a steady demand for this type of goods: 42.5% of respondents agreed to spend 10-15% of their income on organic goods. For a more detailed study of this issue, it is necessary to conduct regular surveys in all regions of the republic, and it is also necessary to create a common database on social, environmental and economic indicators of organic agriculture in Kazakhstan.

### ACKNOWLEDGMENTS

This research is funded by the Ministry of Agriculture of the Republic of Kazakhstan BR 10765064 "Regulatory and methodological support for the development of organic production in the Republic of Kazakhstan in accordance with international and foreign standards and requirements and priority markets".

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## Основні напрями розвитку органічного сільського господарства в Республіці Казахстан

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**Анотація.** Республіка Казахстан має хороший потенціал для розвитку екологічно чистого сільськогосподарського виробництва: великі сільськогосподарські угіддя, велика кількість фермерських господарств, зацікавленість у виробництві екологічно чистої продукції. Ці фактори зумовили актуальність дослідження, основною метою якого було дослідити основні напрями розвитку органічного сільського господарства в Казахстані. Проаналізовано статистичні дані та звіти Науково-дослідного інституту органічного сільського господарства, Міжнародної федерації руху органічного сільського господарства, Продовольчої та сільськогосподарської організації ООН; використано логічні та емпіричні методи; проведено опитування споживачів і виробників екологічно чистої продукції в Казахстані. У даній роботі показані основні тенденції розвитку органічного сектора в Казахстані і в світі в цілому. Дослідження показали тенденцію зростання органічного виробництва в світі, проте багато країн все ще знаходяться в зародковому стані щодо цієї тенденції. На даний момент світова площа земель під органічним сільським господарством становить 74,9 млн. га, але в Казахстані, починаючи з 2016 року, спостерігається скорочення таких площ. У 2020 році вони склали 114 тис. га або 0,1% всіх сільгоспугідь країни, що пов'язано з пандемією коронавірусу та світовою економічною кризою. За даними міжнародних організацій Research Institute of Organic Agriculture та International Federation of Organic Agriculture Movement, в 2020 році з 190 країн світу Казахстан увійшов до списків 50 країн-виробників і 20 країн-експортерів органічної сільськогосподарської продукції, а експорт цієї продукції склав близько 9 млн. євро. Зроблено висновок, що в Республіці Казахстан поступово створюються необхідні умови для впровадження екологічного сільського господарства, що сприятиме поліпшенню економічного становища країни. Практична значимість дослідження полягала в проведенні соціологічного опитування споживачів і виробників екологічної сільськогосподарської продукції в чотирьох регіонах Казахстану з метою виявлення стану та основних напрямів розвитку вітчизняного ринку органічного сільського господарства

**Ключові слова:** екологічно чиста продукція, експорт, стандартизація, сертифікація, зелена економіка

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