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THE MAIN RESULTS OF THE TRANSITION TO ORGANIC AGRICULTURE IN THE REPUBLIC OF KAZAKHSTAN

Principales resultados de la transición a la agricultura orgánica en la República de Kazajistán

Principais resultados da transição à agricultura orgânica na República de Cazaquistão

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ABSTRACT
In modern realities, countries that specialize in selling agricultural products abroad are conditionally divided into two types: those that are mainly engaged in the cultivation of organic products, and those that actively use synthetic fertilizers, pesticides. The Republic of Kazakhstan is one of the examples of states that are switching to the principles of organic agriculture. Thus, consideration of the main results of Kazakhstan in the context of the transition to such principles of functioning remains relevant. The purpose is to show what the Republic of Kazakhstan has managed to achieve in terms of the transition to organic agriculture, and what trends are currently observed in the industry. The work showed that the country has achieved some indicators in terms of the transition to organic agriculture. In particular, the foundation was laid for the legislative framework, which created the opportunity to develop this business in principle. Nevertheless, a significant number of problems remain relevant that prevent the achievement of the intended goals in the industry. The main one is the lack of national production in the domestic market of the country due to the complex certification process.

KEYWORDS
Agricultural sector, innovation, state management, sustainable development, farming.

RESUMEN
En la realidad moderna, los países que se especializan en la venta de productos agrícolas en el extranjero se dividen condicionalmente en dos tipos: aquellos que se dedican principalmente al cultivo de productos orgánicos y aquellos que utilizan activamente fertilizantes y pesticidas sintéticos. La República de Kazajistán es uno de los ejemplos de estados que están adoptando los principios de la agricultura orgánica. Por lo tanto, sigue siendo pertinente considerar los principales resultados de Kazajistán en el contexto de la transición hacia tales principios de funcionamiento. El objetivo es mostrar lo que la República de Kazajistán ha logrado en términos de transición a la agricultura orgánica y cuáles tendencias se observan actualmente en la industria. El trabajo demostró que el país ha alcanzado ciertos indicadores en cuanto a la transición a la agricultura orgánica. En particular, se sentaron las bases para el marco legislativo, que en principio creó la oportunidad de desarrollar este negocio. Sin embargo, sigue siendo relevante un número significativo de problemas que impiden el logro de los objetivos previstos en la industria. El principal es la falta de producción nacional en el mercado interno del país debido al complejo proceso de certificación.

PALABRAS CLAVE
Sector agrícola, innovación, gestión estatal, desarrollo sostenible, agricultura.

RESUMO
Na realidade moderna, os países especializados na venda de produtos agrícolas no exterior são condicionalmente divididos em dois tipos: aqueles que se dedicam principalmente ao cultivo de produtos orgânicos e aqueles que utilizam ativamente fertilizantes e pesticidas sintéticos. A República do Cazaquistão é um dos exemplos de estados que estão a adoptar os princípios da agricultura biológica. Por conseguinte, continua a ser relevante considerar os principais resultados do Cazaquistão no contexto da transição para tais princípios operacionais. O objetivo é mostrar o que a República do Cazaquistão conseguiu em termos de transição para a agricultura biológica e quais são as tendências observadas atualmente na indústria. O trabalho mostrou que o país alcançou alguns indicadores relativos à transição para a agricultura orgânica. Em particular, foram lançadas as bases do quadro legislativo que, em princípio, criou a oportunidade de desenvolver este negócio. No entanto, um número significativo de problemas que impedem o alcance dos objetivos pretendidos na indústria continuam relevantes. A principal delas é a falta de produção nacional no mercado interno do país devido ao complexo processo de certificação.

PALAVRAS-CHAVE
Setor agrícola, inovação, gestão estatal, desenvolmiento sustentável, agricultura.

Introduction

In general, organic farming is a way of doing business in which farmers use minimal synthetic fertilizers, pesticides, plant growth regulators and feed additives. Over time, it has attracted the attention of more and more scientists around the world. It is believed that this method of growing products makes it possible to make it not only more useful for humans, but also less harmful to the environment. In addition, this creates additional benefits for the farmer: in particular, it increases its resilience to climate change and reduces dependence on the market for synthetic fertilizers and pesticides. However, despite all the benefits provided, an independent transition to organic agriculture seems impossible due to the peculiarities of the functioning of the market economy as such.

This becomes the reason for the large role of the state in terms of influencing these processes. For example, due to the consumption patterns of the population, organic agriculture brings lower incomes than traditional agriculture in developing countries (in developed countries, the situation is slightly different, due to which the role of the state there may be lower, or it may generally not interfere to industry). It is also worth remembering that the transition to organic agriculture requires a significant investment of time and resources to educate farmers and change production processes. This suggests that the role of the public sector is important in terms of motivating farmers during the transition to such principles of functioning. Thus, it remains relevant to conduct research on how individual countries make such a transition and what results they achieve. Within the framework of this study, the analysis was carried out for the Republic of Kazakhstan, which is a developing country with existing potential for the development of organic agriculture.

A fairly large number of scientists have been studying the features of organic agriculture. So, Smith et al. (2019) considered which benefits bring organic farming principles to the external environment. In addition, they write about some features of the functioning of such enterprises in comparison with "traditional farms". However, their study is too complex and general, which is why research taking into account regional characteristics is still relevant. Typical problems of the introduction of organic agriculture were studied by Meemken and Qaim (2018), however, scientists do not offer sufficiently effective methods for solving them. There are not enough works that assess organic agriculture in Kazakhstan. However, some of them can still be distinguished. So, Samenbetova and Patlasov (2022) describe in sufficient detail the current problems and their causes in the context of organic agriculture. Nasiyev et al. (2022) studied some features of the application of organic agriculture technologies and their impact on products and soil.

Kazakhstan has made meaningful progress on the legal and regulatory framework to support organic agriculture, resulting in growth in certified production and exports. However, obstacles like high domestic certification costs and lack of access for small farmers to local markets continue to hinder significant expansion. Targeted policy measures and support programs to incentivize domestic consumption and streamline certification processes are needed to realize the full economic, social, and environmental promise of organic agriculture in Kazakhstan.

Thus, the purpose of this work was to show how the transition of the Republic of Kazakhstan to organic agriculture takes place, what difficulties arise and what trends are observed.

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This will help in creating a better policy on the part of the state in this area, as well as help enterprises in the agricultural sector in the transition to organic farming principles. In order to achieve this aim, the following objectives were set:

1. Show what Kazakhstan has achieved so far in terms of transitioning towards organic agriculture
2. Identify current trends and developments in Kazakhstan's organic agriculture sector
3. Highlight major problems and obstacles that are preventing further growth of organic agriculture in Kazakhstan
4. Analyze the economic, social, and environmental results linked to the expansion of organic farming in Kazakhstan thus far.

This study offers a comprehensive look at the organic agriculture sector in Kazakhstan, covering its recent legislative progress, the challenges it faces, and the trends in its production and exportation. The author emphasizes the need for greater government prioritization of this sector for Kazakhstan to fully benefit from it.

Materials and methods

Throughout the investigation, the author employed a substantial array of diverse information sources. Therefore, the legislative foundations were applied to specific individual components. The Republic of Kazakhstan has enacted the law "On the Approval of the Rules for Maintaining the Register of Producers of Organic Products" (FAO, 2015). Additionally, the Standard of the Republic of Kazakhstan 3109-2017 pertains to organic products. Certification indicating compliance with national standards for organic products. The document, titled "Technical requirements and procedure for labelling organic products" (2017), refers to the standards of the Republic of Kazakhstan, specifically Standard 3110-2017 which outlines the requirements for bodies to confirm the conformity of organic product production, and Standard 3111-2017 which pertains to organic products themselves. Production process requirements (2017). In addition, the study utilised reports from several organisations, including the "Report on the Situation of Development of Organic Agriculture and Food Industry in Kazakhstan" (Ekoconnect, 2021).

It should be noted that obtaining a substantial amount of freely available data on this subject from the public domain is challenging. This is attributed to the industry's relatively low degree of development, limited distribution within the country, and its importance in the economy. Throughout the study, the sole source of information on the export of organic agricultural goods from Kazakhstan (and other countries) to the European Union (EU) was the website of the European Commission dedicated to the import of organic products. The quantitative data was analysed using the Microsoft Excel software suite to perform descriptive statistics.

The main approach that was used during the study was systemic. It made it possible to more accurately represent the impact of organic agriculture on the general condition of the Republic of Kazakhstan (its individual components – economic, social and environmental) within a single system and interrelated processes within it. A systemic framework underpins the multifaceted analysis of organic agriculture's effects and future policy needs. Fur-

thermore, an analytical methodology was employed to identify patterns of operation and growth within the organic agriculture industry across different countries worldwide, and subsequently adapt them to the specific circumstances in Kazakhstan. As part of the study, the author employed a substantial variety of research methodologies. One of the primary methods used was the historical approach, which allowed the author to evaluate the industry's evolution in hindsight. Deduction also had a significant role in identifying the primary factors contributing to the current situation of organic agriculture nationwide. Hence, the inductive approach was employed to evaluate the influence of this sphere's advancement on the economic, social, and environmental aspects of Kazakhstan and other nations. Given that the study involved analysing quantitative data, statistical research methodologies played a crucial role. Comparison was employed to evaluate the progress of organic agriculture in Kazakhstan and other nations, with the aim of identifying both shared and distinct characteristics. Forecasting has been crucial in evaluating the future potential for industrial growth during the past few years.

Results

At the moment, the transition to organic agriculture in the Republic of Kazakhstan is at an early stage of development. However, in recent years, the government of Kazakhstan has been taking measures to support and develop this area. In particular, this can be seen on the basis of the legislative framework. Thus, the main moment of the emergence of agriculture in Kazakhstan is considered to be 2010, when in Astana, The International Conference on Organic Agriculture in Central Asia was organized. Subsequently, a decree was issued on the transition of Kazakhstan to a "green economy" in 2013-2020, which made it possible to engage in the development of environmentally friendly production. The legislative base as for the transition to the organic agriculture has begun to take shape since 2015 with Laws of the Republic of Kazakhstan "On the Approval of the Rules for Maintaining the Register of Producers of Organic Products" (FAO, 2015) and "On the Production of Organic Products" (Republic of Kazakhastan, 2015).

In its turn, for correct functioning these legislative acts were formed other bills in particular "Report on the Situation of Development of Organic Agriculture and Food Industry in Kazakhstan" (Ekoconnect, 2021) and "On the Approval of the Rules for Maintaining the Register of Producers of Organic Products" (FAO, 2015). In 2017, national standards for the regulation of organic production and labelling were introduced: Standard of the Republic of Kazakhstan 3109-2017 "Organic Products. National Mark of Conformity for Organic Products. Technical Requirements and Procedure for Labelling Organic Products" (Republic of Kazakhstan, 2017a), Standard of the Republic of Kazakhstan 3110-2017 "Conformity Assessment. Requirements for bodies to confirm the conformity of the production of organic Products and Organic Products" (Republic of Kazakhstan, 2017b) and Standard of the Republic of Kazakhstan 3111-2017 "Organic Products. Requirements for the Production Process" (Republic of Kazakhstan, 2017c). Thus, the legislative framework in Kazakhstan has developed quite strongly in the context of organic agriculture over the past fifteen years.

However, such a result as expected from these legal acts in the form of a rapid development of the national organic product for the domestic market is not observed. Currently, a new law on organic agriculture has been developed and is being approved, which should solve the identified problems in this area of agriculture. The results associated with the transition

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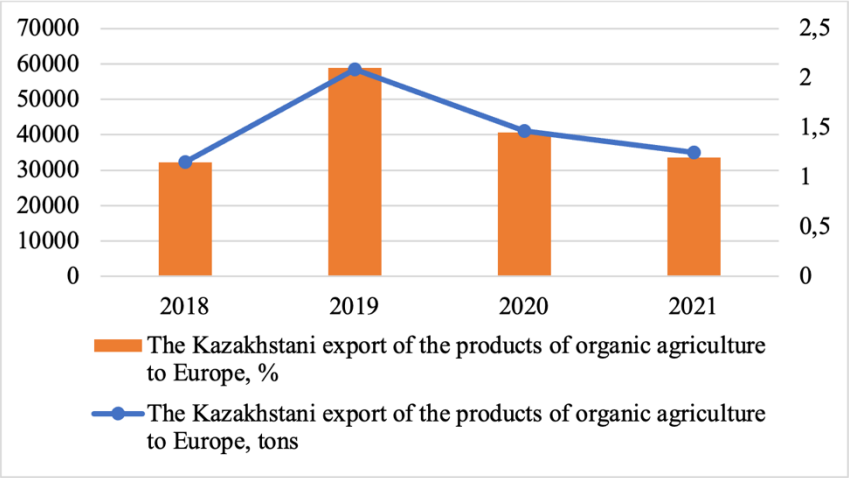
to organic agriculture can be divided into three groups: economic, social and environmental. In short, the main benefits for the country in terms of organic farming in Kazakhstan can be noted as follows: safe and long-term food supply, conservation of resources, conservation of unique habitats through climate-friendly agricultural practices, and conservation and improvement of water quality.

Nevertheless, all these components should be considered in more detail, starting with the economic component. Unfortunately, it is very difficult to find at least some amount of data to evaluate it in the public domain. The reason for this is that organic agriculture is a fairly new industry, which makes it difficult to find information on this topic on the Internet. Some data is provided by the website of the European Commission on the import of organic products. However, the information provided to her relates only to the European Union. It can be seen below in Figure 1.

Figure 1. Kazakhstan's export of organic agricultural products to the European Union, 2018-2021
Figura 1. Exportación de productos agrícolas orgánicos desde Kazajastán a la Unión Europea, 2018-2021



Source: own elaboration. Fuente: elaboración propia.

As can be seen from Figure 1, the amount of Kazakhstani organic agricultural products exported to the European Union has changed significantly during 2018-2021. The largest value was observed in 2019 and decreased very much in 2020, which is associated with the onset of the Covid-19 pandemic. It should be noted that the trend in percentage terms and real indicators in tons is very correlated, which is due to the fact that the total amount of organic agriculture production in the European Union in tons practically does not change. It can be assumed that over time, the supply of Kazakh products will increase again, in particular, after the final solution of the problems associated with the disruption of supply chains due to the onset of the Covid-19 crisis. In addition, it is important to distribute our products to other markets, in particular Asian and African.

Considering the peculiarities of the structure of producers of these products in the country, it is worth noting that they are most often small farms. In general, the development of small and medium-sized enterprises is a fairly important component of the development of any

country. Therefore, the fact that large companies have not yet monopolized this industry can be considered positive. However, their complete absence also does not allow for the full potential of the industry due to the lack of economies of scale. Thus, one of the components of the future policy of Kazakhstan should be to attract a sufficient number of them to the industry. It should be noted that the small size of Kazakh farms is one of the reasons for the lack of national products on the shelves of the country, but more on that below.

A modern feature of organic agriculture in the Republic of Kazakhstan is that the national products of this area can rarely be seen in supermarkets: basically, goods from far abroad or nearby markets are offered. There are certain types of products that are of Kazakh origin, but were packaged and certified in other countries, and then imported into Kazakhstan as imported products. The reason for this lack of goods is that there are no manufacturers certified by domestic authorities in the country. At the same time, most companies have documents for sale in foreign countries and thus export their products outside of Kazakhstan. Problems with domestic documents arise due to the literal impossibility of obtaining them: a large financial investment, which makes it impractical for farmers to request certification of less than 1.000 hectares of arable land. Since most Kazakh entrepreneurs own small plots, they are unable to obtain such certificates. Thus, the problem of obtaining them is the issue of reducing the price by at least 2.5 times, and even stronger, up to 5 (Samenbetova and Patlasov, 2022).

A small range of national products in domestic markets becomes a significant problem for several reasons. First, imported products are much more expensive than national ones; secondly, citizens of the Republic of Kazakhstan rarely buy organic products, and foreigners form the basis of the domestic market. It should be noted that the problem of a small national market of organic agriculture arises not only because of the relatively low solvency of the local population, but also the lack of products of national producers, since quality products among the citizens of the country are considered to be exactly those that were produced in Kazakhstan. In addition, it is believed that about 40% of Kazakh consumers are willing to spend part of their income to buy organic rural products (Ekoconnect, 2021). This speaks to the prospects for generating income for producers in the local market, and also indicates the need to reduce the price of products by reducing imports and increasing the share of national production by activating such latent demand. Thus, one of the most important points of state policy in the context of organic agriculture is the motivation of local producers to undergo internal certification and reorientation to the market of Kazakhstan. Another problem in terms of the economic development of organic agriculture is the unwillingness of farmers to develop in the segment, despite the existing success in terms of exporting products. So, entrepreneurs are not interested in opportunities for scaling, they are not interested in how they can establish contacts with retail stores (Samenbetova and Patlasov, 2022). Thus, the state should contribute to the development of this process by educating farmers and increasing their awareness.

As already mentioned, the transition to organic agriculture also affects the social component of the country's development. In particular, it affects rural communities through the creation of jobs among local residents. This is due to the move away from synthetic fertilizers and pesticides, which requires relatively more work from the local population to produce the products. In addition, there are effects in the context of the medium and long term, which is associated with an increase in the income of workers in connection with the deve-

lopment of organic farming. Improving the well-being of citizens in poorer rural areas in this way significantly increases their standard of living and positively affects the overall social well-being of the country. In addition, the technologies that organic farming brings with it make it possible to develop local infrastructure in general and attract new faces to it. Positive is the attraction of membership of individuals in different kinds of groups. With the increase in the number of farmers in Kazakhstan, an increasing number of people become members of their association, whose members can share experience and information about doing business, as well as create social ties, thus increasing their well-being. Another positive component is the health benefits, which can have very positive consequences in the long term, at least through the possibility of increasing the retirement age. Although at the moment it is difficult to say exactly how much the social well-being of the citizens of Kazakhstan has improved, however, some positive effects are already observed now and are likely to manifest themselves in the future.

Finally, consider the environmental results of the transition to organic agriculture. In general, organic farming ensures the reduction and prevention of pollution, as well as the conservation of the gene pool, the environment, and the landscape (Smith *et al*., 2019). Adoption of these principles does not necessarily guarantee a reduction in the negative impact on the environment, however, due to the less use of synthetic pesticides, mineral fertilizers and genetically modified organisms (GMOs) in organic agriculture, the damage is indeed reduced. For Kazakhstan, the preservation of the external environment plays a particularly important role in view of the fact that it allows to preserve the unique biodiversity in the regions of the country. Although the positive effect of the more active development of organic agriculture in the country is still difficult to detect, nevertheless, it can already be said that it has not led to a reduction in the burden on the environment and an increase in its sustainability, as well as an improvement in product quality. In particular, it was possible to achieve a decrease in the incidence of animals and birds due to the abandonment of the use of chemicals and antibiotics and the use of natural feed. In addition, it will make it possible to maintain soil fertility in the long term (Shahini et al., 2023).

The organic agriculture sector in Kazakhstan is currently at an early stage of development. Over the past decade, significant legislative efforts have been made to support this sector, including the introduction of national standards for organic production and labeling since 2015. Despite these legislative developments, the sector has not seen rapid growth, particularly in the domestic market. One of the main challenges is the difficulty in obtaining domestic organic certification, primarily due to the high costs involved and the small size of Kazakh farms, making it impractical for many farmers to seek certification for smaller plots of land.

As for the growth of the sector compared to five years ago, it is challenging to determine specific growth rates or market share due to the lack of comprehensive statistical data. However, it is noted that the amount of Kazakh organic agricultural products exported to the European Union showed significant fluctuations between 2018 and 2021, with a peak in 2019 followed by a decrease in 2020, largely attributed to the Covid-19 pandemic.

A key issue is the limited range of national organic products available in domestic markets, with many organic products being imported or exported after obtaining foreign organic certification. This situation limits the development of the organic market in Kazakhstan and the demand among local consumers. It's estimated that about 40% of Kazakh consumers

are willing to spend part of their income on organic rural products, highlighting potential for growth in the local market if certification barriers are reduced and the share of national production is increased.

In any case, Kazakhstan has enough prospects to develop organic agriculture in the country (Karabassov et al., 2022). However, it should be provided with state support, which is not actually provided to such enterprises due to the lack of a separate register for all product manufacturers. In addition, it would be relevant to conduct mass educational campaigns on organic farming in order to show the existing advantages in the context of this type of business. It is also relevant to tighten internal checks on the quality of organic products, which can simplify the process of exporting to the countries of the European Union, which are quite meticulous in terms of product quality and do not trust products from developing countries. At the same time, it is necessary to motivate domestic producers to enter the domestic market. It is also important to create such conditions under which specialists in organic agriculture will be created in the country. Expanding the ability to create personnel in this area would have a positive impact on the future of this area in the country.

Discussion

Thus, organic agriculture is a special type of activity in the sector, which combines both the possibility of generating income and minimizing harm to the external environment. Moreover, as noted by Crowder and Reganold (2015), organic farms are often more profitable than conventional farms due to the organic premiums received, which can vary depending on market conditions and mitigate the impact of lower yields. In other words, farming according to these principles allows farms to be more resilient to external crises. It also has a positive effect on overall food security, which is very important in the current realities of the functioning of the world economy. In addition, as noted by S. Das *et al*. (2020) based on empirical research on organic farming in India, the popularity of such food is gradually increasing in the world due to the fact that it is considered safer and healthier. This provides a higher price level for the industry's products, which increases revenues compared to other manufacturers.

Reddy et al. (2022) come to slightly different conclusions. Scientists note that organic agriculture still generally reduces the level of profitability of agriculture in most cases, but may be more effective in rainfed and hilly areas (a study conducted in India). This indicates the possibility of targeted stimulation of certain areas by the state to apply the organic principles of the functioning of farms to increase both the general national welfare and improve the ecological state of the external environment. In addition, scientists note that while consumers are indeed often willing to pay more for organic products due to greater health benefits, this trend is less common in developing countries due to the fact that their citizens are more vulnerable to price. Thus, this is also relevant for the Republic of Kazakhstan, which indicates the role of increasing state influence to support organic farming, including financial methods. Features of organic agriculture as such were also studied by Durrer et al. (2021). Their empirical research shows that organic farming systems can compete with the yield of traditional farming or even surpass it. The scientists show that the soil improvements seen in organic systems correlate with changes in certain groups of the bacterial soil microbiome, suggesting the beneficial properties of bacteria associated with growing organic crops. This generally indicates the high efficiency of organic agriculture.

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In general, there are a few studies in which scientists have assessed the macroeconomic consequences of the transition to organic agriculture. However, such studies do exist. For example, Znaor et al. (2005) assessed the ecological and macroeconomic impact of organic agriculture in Croatia. Thus, their study showed that organic farming had a positive impact on various macroeconomic indicators, including Gross Domestic Product (GDP), employment, and the balance of trade. The authors also note that this type of farming has had a positive effect on the environmental and social spheres, by improving the quality of the soil and reducing the use of synthetic fertilizers and pesticides. Nevertheless, the introduction of these principles is a rather complicated process, also due to the fact that it is difficult for farmers to switch to such principles of work. This may be a reason to increase the role of the state and support such entrepreneurs from both financial and other points of view. As for Kazakhstan, as was shown in the work, it is still difficult to draw accurate conclusions on this matter.

In countries, most often, there are certain reasons that prevent the introduction of organic agriculture. It has already been noted in the work above that for developing countries, including the Republic of Kazakhstan, the problem of relatively lower incomes and opportunities for scaling what they receive is often relevant. As already noted, this effect is relevant specifically for developing countries due to the lower purchasing power of citizens, while in developed countries, organic farming, on the contrary, has more opportunities to make a profit due to the desire and willingness of citizens to buy organic products. However, there are many other reasons. For example, in Switzerland, as noted in their study Home et al. (2019), one of the reasons why local farmers do not move to organic farming is that their family members have a negative attitude towards this concept of farming. In addition, there are many technical difficulties in the transition to such a system. This suggests that problems in the context of the introduction of organic agriculture can arise on a variety of grounds, which indicates the need for constant monitoring of the state in the context of their occurrence.

Scientists Grigoruk and Ayulov (2019) note that the main reason that local companies cannot adequately develop in the country is the lack of sufficient volumes of the domestic market. The main methods of development of the industry, they note, the provision of an effective basis for the production of high-quality products of competitive products and the formation of demand for it. However, as noted by the author above, the problem is not so simple. This is due to the fact that the lack of domestic demand is caused primarily by the high price of domestic products, which are most often imported. Kazakh producers simply do not have the opportunity to obtain a licence to sell an impressive number of organic products on the domestic market. If this problem is solved, an increase in demand should also occur, which is why the state should urgently address this issue.

Kazakhstan has made significant strides in organic farming, marked by the adoption of the Law "On the Production and Turnover of Organic Products" in 2015. This law establishes a comprehensive legal, economic, social, and organizational framework for organic production, promoting land rationalization, healthy nutrition, and environmental protection. The country is continuing to develop new laws and innovations to integrate organic farming into its national agricultural system, recognizing its potential for profitability and triple benefits: environmental sustainability, farmer welfare, and public health. In the broader Central Asian context, other countries are also making progress in organic agriculture, albeit at var-

ying levels and with different focuses:

- Kyrgyzstan views organic agriculture as a key element of ecological modernization, integrating it into economic development and environmental protection strategies. The country has seen the development of organic cotton production since 2003 and is expanding into organic vegetable and fruit cultivation. Kyrgyzstan's approach emphasizes the need for active state involvement, including environmental subsidies and grants, and the development of human capital.
- Uzbekistan is implementing projects to enhance climate resilience and promote sustainable agricultural practices, particularly in arid regions. Initiatives like training workshops on organic farming and the use of modern methods such as drip irrigation and hand seeders are part of this effort. These initiatives aim to address soil depletion, drought, and salinization while improving socio-economic conditions.
- Tajikistan's agricultural sector, a significant contributor to its GDP and employment, is focused on improving agricultural productivity to enhance economic growth, reduce poverty, and improve food security. USAID has been promoting agriculture-led growth in Tajikistan by encouraging the production of nutritious crops and improving farming practices, especially in the southwestern region of the country (Beloev et al., 2020).

Kazakhstan and its neighbouring Central Asian countries are adopting organic farming practices with varying degrees of emphasis and progress, focusing on environmental sustainability, economic development, and improved public health.

Thus, over the past decade, the situation in terms of the transition to organic agriculture in Kazakhstan in the context of social, economic and environmental spheres has not undergone significant changes, and if there are any, they are difficult to track due to the lack of high-quality statistical information. However, it is possible to accurately identify the main problems associated with the implementation of this concept. In particular, the lack of a coherent certification system and the high cost of products. This is what should become the main part of the state policy in this area in the coming years, as well as the development of the social aspect of organic agriculture as such.

Conclusions

Kazakhstan has established a solid legal basis for organic agriculture. However, major obstacles restrict smallholder farmer access to domestic markets due to burdensome certification processes. Lowering these barriers should become a top priority through targeted policies. First, certification costs could be reduced 50-75% by offering direct subsidies or fee waivers to farms below 50 hectares. Paperwork and technical requirements should also be simplified for small producers. Additionally, stimulating public-private partnerships to construct certified organic input production infrastructure would aid farmer transition. Another imperative is nurturing market development on the demand side. Consumer awareness campaigns that highlight the health and sustainability benefits of organic food can help raise interest. Analyzing willingness-to-pay price premiums can inform policy design to incentivize domestic consumption. Retail partnerships to dedicate organic sections featuring Kazakh brands could also expand distribution channels.

While initial environmental and rural development impacts from organic conversion show

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promise, rigorous monitoring must continue. Comprehensive assessments of soil quality, biodiversity, and water system changes are needed to quantify ecological impacts. Employment and income effects on smallholders require appraisal to determine social welfare contributions and at-risk regions requiring greater support. Regional cooperation should additionally be pursued to exchange best practices and resources. Successful elements of organic agriculture support schemes in Kyrgyzstan, Uzbekistan and beyond could be adopted as models. Enabling cross-country organic certification to reduce costs also merits exploration. Shepherding the organic sector's advancement requires targeted recommendations centred on: market accessibility, demand catalysts, social-environmental tracking, and regional coordination. Ongoing evidence-based policy refinements will contribute to sustainable growth that benefits Kazakh consumers and farming communities amidst the global shift toward organic models.

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