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THE ANALYSIS OF THE AGRICULTURAL MARKET CONDITIONS IN CENTRAL ASIAN COUNTRIES

Abstract

This article is focused on analyzing the market conditions for agricultural products in Central Asian countries. The study was conducted in order to identify the current state and prospects for the development of the agricultural sector in the region. The authors analyzed the volume of production and consumption of agricultural products, market structure, trends in price dynamics, as well as domestic and external demand for agricultural products. Special attention is paid to the role of international cooperation and cooperation of entrepreneurs in the development of the agricultural sector. The results of the study can be used to develop strategies for the development of the agricultural sector in Central Asian countries. The purpose of the study is to determine the optimal range of agricultural products, study options for their possible processing into a finished product in order to create an effective production chain within the framework of cooperation between entrepreneurs in Central Asian countries based on an analysis of the market conditions for agricultural products in these countries. The analysis of domestic and external demand for agricultural products will assist in developing strategies to increase export opportunities and attract investment. The findings of the study can be used by Central Asian governments to make informed decisions in the field of agricultural policy and entrepreneurship support. In addition, the research will help strengthen international cooperation and cooperation between entrepreneurs in the region, which will lead to sustainable development of the agricultural industry.

Key words: market conditions, Central Asian countries, agricultural products, economic relations, international trade, production chain, sustainable development.

Introduction

Agriculture is an important sector of the economy of the Central Asian countries, which plays a key role in ensuring food security and socio-economic development of the region.

An analysis of the market conditions of agricultural products in these countries is a necessary step to understand the current state and prospects for the development of the agricultural sector. The agricultural sector in Central Asian countries is characterized by a variety of crops produced, including

cereals, vegetables, fruits and nuts. It also has a high proportion of small and medium-sized farms, which creates a special dynamic in the market.

In recent years, there has been an increase in agricultural production, but the clash with climate change and price instability on world markets creates challenges for the sustainable development of the industry. An important aspect of the analysis is the role of international cooperation in the development of the agricultural sector. Infrastructure modernization projects and the exchange of experience and technology with other countries can help improve the productivity and competitiveness of the industry.

The main prospects for the development of the agricultural products market in Central Asian countries are related to the diversification of production, the introduction of innovations and improvement of product quality. An important aspect is also the strengthening of cooperation between entrepreneurs to create efficient production chains. The analysis of the market conditions of agricultural products in the countries of Central Asia allows us to identify the main trends and challenges faced by the industry, as well as identify areas for further development to achieve a sustainable and prosperous agricultural sector in the region.

Materials and methods

The research includes the use of a variety of data sources and analysis methods to obtain a comprehensive understanding of the current state and prospects for the development of the region's agricultural sector.

To obtain a general understanding of the state of the agricultural sector, general scientific methods were used, such as comparison to identify differences and similarities between countries; analysis and synthesis to identify the main trends in value-added growth in agriculture across the region, and induction and deduction to uncover cause-and-effect relationships in the development of the agricultural sector. The historical method was used to analyze past events and the logical method to develop logical conclusions.

For a special analysis of market conditions, the following methods were used: horizontal and vertical analysis to study the structure of the market, volumes of exports and imports, as well as changes over time. MS Excel was used to collect and analyze statistical data, as well as graphical tools to visualize the results and conveniently present the information.

When conducting the study, various scientific approaches were used: comprehensive analysis, combining various research methods to obtain a complete and comprehensive understanding of the agricultural market; system analysis to consider the agricultural market as a complex system that includes interrelated elements such as production, consumption, trade and regulation; indicator analysis to assess the state of the market based on various indicators, such as price index, inflation rate, import and export volumes, etc.; comparative analysis to compare data on agricultural markets of various Central Asian countries to identify common trends and characteristics of each market.

The selected research methods helped to conduct a comprehensive analysis of the market conditions for agricultural products in the countries of Central Asia and determine the optimal range of products and processing capabilities to create an effective production chain.

The reliability of the data is ensured through the use of quantitative and qualitative methods as a mechanism for collecting primary objective information from official sources, analytical reports of international organizations, official websites of states, monographs and scientific publications from peer-reviewed journals, information from the media, etc.

The study's information base comprised data from the World Bank Open Data, The Observatory of Economic Complexity, Central Asia Analytical Network, Eurasian Development Bank on the economic development of Central Asian countries from 1990–2022, as well as data from official statistical agencies of the countries studied.

In collecting data, the following principles were considered: openness, accessibility, and transparency of statistical materials, as well as the comparability of data and results over time, ensuring accurate comparisons.

One limitation of the study was the absence of official data on the exports and imports of certain goods from Turkmenistan, Tajikistan, and Uzbekistan. There is also a lack of statistical data for the

Central Asian region on the structure of exports and imports of agricultural goods, grain yields and value added in agriculture for 2022–2023.

Main provisions

The present time is characterized by rapid changes in world politics, economics and sociocultural sphere. In this context, the Central Asian region is becoming increasingly important as a key node in the global geopolitical and economic architecture. The development of the agricultural sector in Central Asian countries is strategically important for ensuring food security in the region and promoting sustainable economic growth.

However, the region faces food security challenges due to a variety of economic and social factors. The main problem is the limited range of agricultural products. Most agricultural commodities are exported unprocessed, reducing the profitability and competitiveness of the industry. The lack of modern technologies and imperfect production chains leads to product losses and increased costs. In the context of globalization and integration of the economies of Central Asian countries into the world market, cooperation between entrepreneurs should become one of the key factors for improving the competitiveness and sustainability of the industry. The creation of efficient production chains contributes to the sustainable development of the agricultural sector and the economy as a whole. Processing agricultural products into finished products will increase the export potential of Central Asian countries and diversify exports. The development of production and processing of agricultural products helps create new jobs and improve the socio-economic situation in the region.

Literature review

The region is most commonly studied through comprehensive publications that cover a wide range of topics, with experts specializing in relevant issues (international collaborations) presenting the region's problems. Both Kazakh and foreign authors have significantly contributed to research on Central Asian economic interactions. Kazakh authors like M. Laumulin and M. Augan argue that from the outset, nearly all foreign studies on Central Asia are politicized to some extent [1–2]. F.T. Kukeeva and K.I. Baizakova, in their studies of the political and economic integration of Central Asia, identify factors hindering this process and offer their forecasts and recommendations for expansion cooperation in the region [3].

For Russian scientists, Central Asian integration is traditionally important. In their opinion, Central Asia should be included in the Eurasian integration, which is considered as an economic project taking into account the global trends of regionalization and globalization [4–6]. Vinokurov E. Yu., Libman A.M., and Maksimchuk N.V. [7] examine the dynamics of integration processes in Central Asia, evaluating the quantitative characteristics of integration over the past decade. They also identify two additional trends: the increasing influence of China in the region and the emergence of Kazakhstan as a secondary “integration core”. Stefan Barizits [8] delves into the centuries-long history of Central Asia's economic development, highlighting the significance of the Silk Road trade routes. His work offers an overview of the region's economic interactions with other parts of the world and examines their impact on the modern Central Asian economy. Richard Pomfret [9] analyzes the economies of Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan, covering the period from the early 2000s commodity boom to the collapse in 2014.

There are not many studies devoted to the analysis of the current state and prospects for the development of the agricultural market in the region. Western experts studying this particular aspect of the region's development present their visions of the features of the integration of Central Asia. Ma J.L., Balezentis T., Zhao Z.J., Fang C. [10] attempt to investigate whether “One Belt One Road” initiative brings certain impacts to the Agricultural Trade of China and Central Asia. The study by Batmunkh A., Nugroho, A.D., Fekete-Farkas M., and Lakner Z. [11] aimed to determine the impact of agricultural economic globalization on environmental sustainability and to test the environmental Kuznets curve hypothesis within the agricultural sector of six Central Asian countries. Specifically, the researchers proposed several main hypotheses using secondary data from Kazakhstan, Kyrgyzstan, Mongolia, Tajikistan, Turkmenistan, and Uzbekistan, spanning from 1994 to 2019. The study

employed five explanatory variables: agricultural export value, agriculture, forestry and fishing value-added, exchange rate, total natural resource rents, and external debt stocks. The dependent variables included CO2 emissions from on-farm energy use, temperature changes, and forest fires. Sun Z.L., Zhang D.F. [12] assess the impact of trade openness and other factors in Central Asian countries on food security in the region.

These works represent just a fraction of the extensive literature focused on Central Asian economic interaction and the development of agricultural cooperation among Central Asian countries under current conditions.

Results and discussion

Agriculture is one of the key sectors of the economy of many countries of the world, including the countries of Central Asia (CA). In this region, the agricultural sector is an important source of economic growth and employment. However, despite significant potential, this industry still has many challenges and challenges, such as lack of funding, production inefficiencies, and problems in product marketing. In line with economic development trends, the share of agriculture in the GDP in the subregion has been declining in all North and Central Asian countries over the years (figure 3) as jobs have shifted to the service sector and manufacturing industry [13].

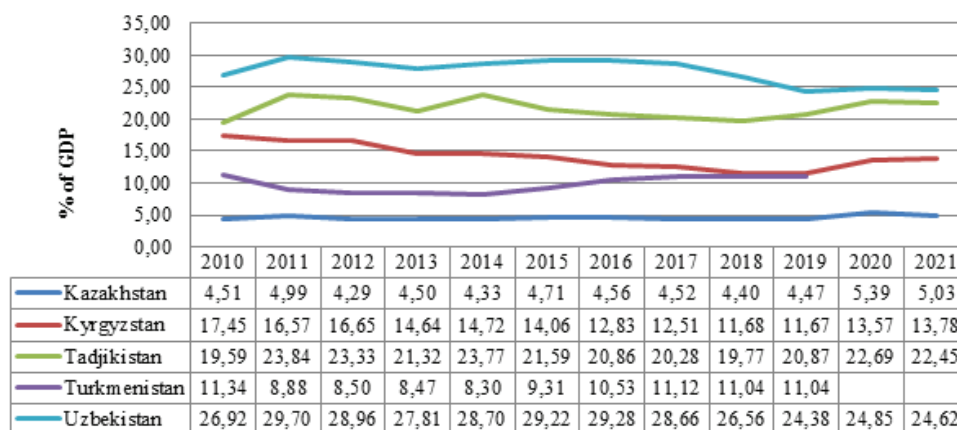


Figure 1 – The share of agriculture, forestry and fisheries, value added in the GDP of Central Asian countries, %, source [14]

Note: Data for Turkmenistan for 2020 and 2021 is not available.

The trajectories of development and economic transformations in recent decades have led to the fact that the potential of intrasectoral transformations in the agricultural sector has been underestimated and not given sufficient attention. During this transition period, employment in the agricultural sector tended to be marginalized, while labor and capital moved to more profitable and fast-growing sectors of resource extraction or services. These events increase the risk of rural poverty, food insecurity and unemployment [13].

Although the share of agriculture in GDP and the total number of people employed in agriculture has declined over the years, value added in agriculture continues to grow (figure 2, p. 159).

The increase in the gross value added of agriculture in Turkmenistan in 2022 compared to the previous year amounted to 5.7%. This is the third indicator after trade and industry and is significantly higher than in construction and transport and communications [16].

Despite the general trend of value added growth in agriculture, Kazakhstan showed limited growth rates. In Tajikistan and Kyrgyzstan, there was an increase in value added in agriculture. In Uzbekistan, there was a sharp increase in value added in agriculture. The Tajik economy is still characterized by a high level of agricultural production and the highest share of employment in agriculture among the countries of North and Central Asia. Such heavy dependence on the agricultural sector, combined with development assistance that has been focused on agriculture, may explain the increase in value added

in agriculture. Changes in value added in agriculture in Uzbekistan reflect the country's departure from a monocultural economy with the support of state policy to diversify the agricultural sector and transition to agricultural products and value chains with higher added value.

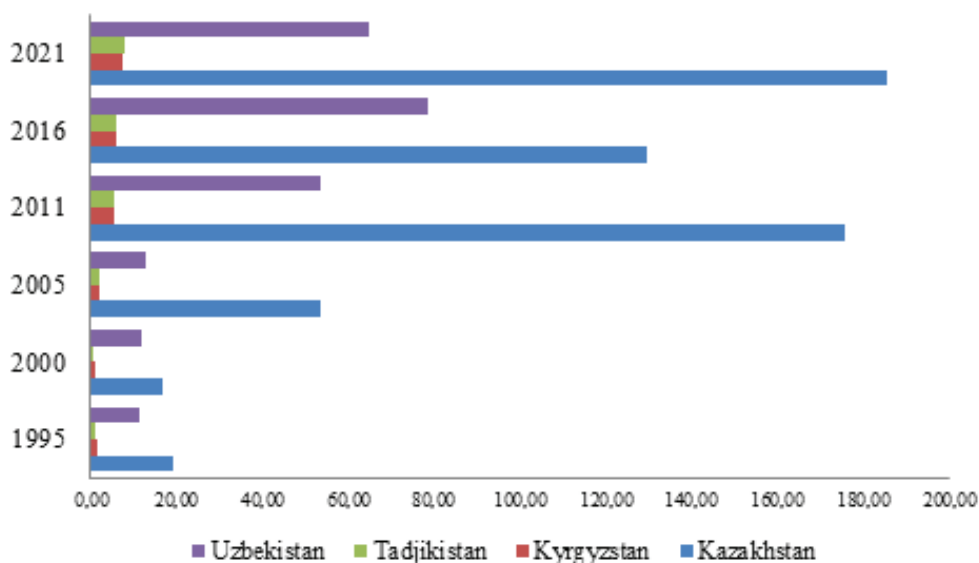


Figure 2 – Value added in agriculture of Central Asian countries, 1995- 2021 (in billions of US dollars), source [15]

Note: Turkmenistan is not included in the chart due to lack of data.

The relationship between GDP per capita and the share of value added in agriculture in Central Asian countries generally fits into the usual picture of other developing countries, where the share of value added in agriculture decreases as income levels rise [13, p. 5].

In recent decades, due to the development of economic processes, the potential of the agricultural sector within the country has not been assessed enough, and little attention has been paid to it.

There is an extensive variety of agricultural production in Central Asia. Historically, agriculture has been one of the main components of the economic specialization of the Eurasian countries. In this region, an established ecosystem of production factors, socio-economic relationships and other integral components necessary for the successful functioning of the agro-industrial complex has already developed and is functioning.

480 million hectares of agricultural land are concentrated in the region. This is 10.1% of all agricultural land on the planet — with a population share of about 3% of the world's population. At the same time, the region is characterized by a low coefficient of use of arable land, there is a possibility of entering previously decommissioned areas (reduction from 165 million hectares to 115 million hectares in 1990–2021) [17].

Researching the agricultural market is an important step for successful activities in this industry. Conducting research allows you to determine the needs and preferences of consumers, as well as the competitive advantages and disadvantages of the industry. The study also allows you to assess the current market situation, expected development and growth prospects.

Turkmenistan, Uzbekistan and Tajikistan became the main cotton producers of the Soviet Union, but at the same time these countries such as Tajikistan were also important fruit and vegetable producers. Today, cotton is still the main, so-called currency crop for the Turkmen, Uzbek and Tajik economies, and most often its production does not involve any additional processing and added value. Processing and further production take place elsewhere. Cotton is also grown in the southern regions of Kazakhstan and some regions of Kyrgyzstan. However, in Turkmenistan and Uzbekistan, there is state monopsony in the cotton sector, while Tajikistan predominantly experiences private monopsony (buyer monopoly). In Kazakhstan and Kyrgyzstan, the market and production environment is more

liberal. This is particularly important for determining cotton purchase prices. Where cotton producers/cotton ginning factories compete, producer prices are generally higher than in situations where there is only one buyer [18].

In present-day Central Asia, wheat remains the main agricultural crop grown by both commercial farmers and private plots of rural households. Kazakhstan plays a key role in the production of grain in the region and is the only country that provides itself with grain and exports wheat and flour. Flour from Kazakhstan is considered of higher quality compared to local wheat in Tajikistan. Approximately half of Tajikistan's wheat demand is met by supplies from Kazakhstan.

The regional market is important for Central Asian countries. Important trading partners are Russia, the European Union and China [5]. Cotton and wheat represent important export crops from the region to specified partner countries. Vegetables and fruits, though to a lesser extent, also play a role in trade. The Ferghana Valley, covering eastern Uzbekistan, northern Tajikistan and southern Kyrgyzstan, is an example of a similar production model. Farmers in this region mainly grow fruits, vegetables and nuts for the domestic market. All three countries are similar in terms of the production and sale of these products, both in the domestic and to a lesser extent in the foreign market. Kazakhstan plays an important role as a market for fruits and vegetables. Dried fruits and nuts are exported further outside the region.

Kazakhstan is the main exporter of the region. It supplies significant volumes of grain, flour, and at least dairy products to other Central Asian countries. Wheat and grain products make up more than 60% of Kazakhstan's agricultural exports. Tajikistan depends on grain imports from Kazakhstan, since about half of its demand is met by this import. Tajikistan prefers Kazakh flour because of its high quality. Some rural households mix Kazakh flour with their own wheat.

Cotton and wheat are important exports from the Central Asian region to Russia, the EU and China. Vegetables and fruits are also important in trade, but to a lesser extent.

Agricultural products also play a significant role in Central Asian imports. The main share of import costs is a fairly small range of goods such as tea, sugar, chicken meat, vegetable oil, as well as dairy products such as butter, coffee and cocoa (including chocolate). Some of these products come from different countries, while others, for example, are imported from Kazakhstan. In some cases, Kazakhstan re-exports these products to other countries in Central Asia.

The commodity structure of exports and imports of agricultural products of Central Asian countries (separately) for 2020–2021 is considered below (tables 1–5). The basis for the analysis was the website of The Observatory of Economic Complexity, the world's leading tool for visualizing international trade data. It should be noted that some information on Tajikistan, Turkmenistan, Uzbekistan is missing both on official websites and in international agencies, which may be due to various complex factors that may vary from political to structural features of each country.

An overall analysis of the data in table 1 indicates that Kazakhstan has strong potential in agriculture, particularly in grain crop production. However, in a number of product categories, such as fruits and vegetables, as well as meat and dairy products, the country has not yet reached self-sufficiency and continues to import significant volumes. Most likely, the country exports some goods to generate revenue, but imports them to meet domestic demand. Improving production technologies, investing in agriculture and developing local markets can help reduce dependence on imports in these categories.

Table 1 – The structure of exports and imports of agricultural products of Kazakhstan for 2020–2021, in \$ thousand

Type of product	Export		Growth rate,%	Import		Growth rate,%
	2020	2021		2020	2021	
Potato	30 080,00	20 170,00	-32,95	5 110,00	8 180,00	60,03
Tomatoes	20 930,00	15 550,00	-25,72	36 570,00	17 060,00	-53,35
Onion	9 670,00	9 520,00	-1,64	24 130,00	23 000,00	-4,66

Continuation of table 1

Cabbage	1 420,00	2 300,00	61,42	10 460,00	12 320,00	17,74
Cucumbers	2 870,00	3 110,00	8,22	5 120,00	4 040,00	-21,12
Grape	1 560,00	2 560,00	64,17	52 540,00	41 260,00	-21,47
Apples and pears	2 250,00	2 980,00	32,45	55 400,00	37 090,00	-33,04
Wheat	1 131 560,00	943 640,00	-16,61	86 960,00	215 550,00	147,87
Barley	175 960,00	40 660,00	-76,89	11 790,00	23 080,00	95,69
Corn	15 570,00	19 080,00	22,57	6 230,00	9 790,00	56,97
Rice	31 910,00	37 740,00	18,26	33 160,00	131 010,00	295,07
Buckwheat	5 380,00	7 210,00	33,92	1 520,00	1 040,00	-31,38
Linseed	212 460,00	265 420,00	24,93	460,00	1 300,00	185,67
Sunflower seeds	82 580,00	82 280,00	-0,37	26 360,00	45 610,00	73,03
Wheat flour	489 050,00	120 390,00	-75,38	3 890,00	3 860,00	-0,68
Rapeseed oil	40 700,00	21 770,00	-46,52	3 440,00	540,00	-84,20
Raw sugar	12 680,00	4 220,00	-66,75	182 480,00	181 670,00	-0,45
Milk	18 370,00	13 950,00	-24,06	23 640,00	23 030,00	-2,55
Oil	6 080,00	17 480,00	187,42	21 660,00	19 890,00	-8,17
Cheese	10 860,00	11 670,00	7,52	102 110,00	119 340,00	16,88
Eggs	9 990,00	4 060,00	-59,40	25 380,00	35 420,00	39,55
Bovine	25 530,00	67 860,00	165,79	45 250,00	24 990,00	-44,77
Poultry meat	17 020,00	31 480,00	85,01	169 390,00	165 400,00	-2,36
Note: Compiled by the authors based on [19].						

According to the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan, the gross output of agricultural products and services in 2022 totaled 9,481.2 billion tenge, marking a 9.1% increase from the previous year (7,515.4 billion tenge). The largest share in the total gross output of agriculture in the reporting period was held by North Kazakhstan (12.4%), Akmola (11.5%), Turkestan (11.1%), and Kostanay (10.8%) regions. The growth in crop production during this period (15.1% compared to the previous year) was driven by increased production of grain and leguminous crops by 38.2% and oilseeds by 24.6%. Crop production in agricultural enterprises increased by 35.1%, while in individual entrepreneurs and peasant or farm farms it grew by 11.8%. However, there was a decrease of 3.1% in crop production in households of the population. The largest share in the total gross crop production is traditionally occupied by North Kazakhstan (15.7% in 2022), Kostanay (14%), Akmola (13.3%) and Turkestan (11.2%) regions [20].

Cooperation with nearby neighboring countries can contribute to a more sustainable regional agricultural system, allowing countries to exchange agricultural goods and products, depending on their specialization and resources. This can help reduce dependence on imports and promote stability in the region.

According to table 2 (p. 162), there is an imbalance between the export and import of some products. The relatively high volume of imports of some products (tomatoes, onions, cucumbers) may indicate low competitiveness of domestic producers. This may indicate that the domestic market is not fully provided by its own products. A significant amount of imports of wheat, rice, eggs and other goods could signal a lack of domestic production. Some goods, such as barley and buckwheat, show low export volumes, which may indicate insufficient competitiveness in these sectors. High value-added products such as sugar and butter are imported in large quantities, affecting the country's trade balance.

Table 2 – The structure of exports and imports of agricultural products of Kyrgyzstan for 2020–2021, in \$ thousand

Type of product	Export		Growth rate,%	Import		Growth rate,%
	2020	2021		2020	2021	
Potato	7 655,18	5 962,16	-22,12	420,70	1 381,89	228,47
Onion	1 977,55	3 831,66	93,76	4 922,61	3 169,33	-35,62
Tomatoes	340,16	670,84	97,21	21 473,13	25 893,45	20,59
Cucumbers	66,66	114,59	71,90	4 136,24	6 146,12	48,59
Cabbage	1 453,62	927,73	-36,18	686,09	847,29	23,50
Grape	4 671,25	3 072,67	-34,22	43 950,43	35 239,50	-19,82
Apples and pears	5 060,91	4 303,25	-14,97	9 425,11	12 588,91	33,57
Wheat	14,14	5,76	-59,29	38 957,61	72 357,71	85,73
Rice	776,89	629,50	-18,97	2 533,26	4 247,93	67,69
Corn	526,79	1 104,01	109,58	1 765,62	3 408,15	93,03
Barley	84,98	115,91	36,40	62,41	5 484,41	8 687,15
Buckwheat	42,87	0,89	-97,92	50,31	679,12	1 249,81
Raw cotton	27 121,56	38 747,61	42,87	717,00	33,43	-95,34
Wheat flour	220,10	no data	-	24 626,28	15 093,63	-38,71
Dried legumes	66 775,91	74 923,84	12,20	19 874,23	31 051,17	56,24
Dried fruits	17 750,97	48 090,01	170,91	2 186,54	12 416,60	467,87
Oil	17 140,72	14 899,98	-13,07	565,36	2 536,71	348,69
Cheese	9 692,97	7 708,24	-20,48	4 875,32	8 137,72	66,92
Eggs	0,21	45,09	21 787,38	6 973,10	6 337,96	-9,11
Milk	5 782,79	5 193,99	-10,18	2 383,02	2 578,15	8,19
Raw sugar	1 483,89	0,35	-99,98	12 965,78	38 562,16	197,41
Bovine	249,25	6 030,17	2 319,32	2 140,02	9 950,11	364,95

Note: Compiled by the authors based on [19].

The growth rate of agricultural production in Kyrgyzstan in the first half of 2023 amounted to 102.5%, which is 0.5% more than in the same period in 2022. The products of the food and processing industry amounted to 24.7 billion soms (~133 billion tenge), which is 5.8 billion soms (~31 billion tenge) more than this period in 2022. The trend of growth of macroeconomic indicators in the agro-industrial complex of the republic remains stable [21].

According to the press service of the Ministry of Economy and Commerce of the Republic, in 2022, Kyrgyzstan produced gross agricultural output in the amount of 354.6 billion soms (~1.9 trillion tenge). The real growth rate to the level of 2021 was 107.3% .

The increase in the volume of gross output of agricultural products compared to January-December 2021 was achieved mainly due to an increase in the yield of wheat – 1.6 times, barley – 2 times, fodder crops – by 13%, corn for grain – by 6%, vegetable crops – by 6%, fruit and berry crops – by 5%, as well as sugar beet – by 28% and oilseeds – by 10% [22].

Kyrgyzstan's agriculture is still an important part of the economy, has a variety of products and shows stable results in some sectors. However, there are problems related to import dependence and low competitiveness in some categories. It is important to develop strategies to increase the production of competitive products and reduce dependence on imports in some categories. Kyrgyzstan's agriculture has the potential to develop cooperation with neighboring countries such as Kazakhstan, Tajikistan, Turkmenistan and Uzbekistan. The exchange of experience, technology and agricultural products can be mutually beneficial for all participants.

Table 3 – The structure of exports and imports of agricultural products of Tajikistan for 2020–2021, in \$ thousand

Type of product	Export		Growth rate,%	Import		Growth rate,%
	2020	2021		2020	2021	
Raw cotton	136 765,55	204 535,58	49,55	114,70	no data	-
Lightweight pure woven cotton	1733,245	1990,268	14,83	13 915,33	28 057,19	101,63
Corn	39,99	0,10	-99,74	2 343,12	7 407,06	216,12
Dried fruits	7 416,14	15 819,34	113,31	no data	1 437,42	-
Grape	1 828,18	9 838,62	438,16	527,48	349,47	-33,75
Onion	8 050,62	5 476,20	-31,98	1 013,79	125,10	-87,66
Wheat flour	124,92	1 152,83	822,89	28 095,86	19 529,53	-30,49
Eggs	208,13	148,67	-28,57	3 363,93	5 995,02	78,21
Milk	13,66	no data	-	486,52	546,78	12,39
Cheese	no data	0,98	-	747,12	1 243,61	66,45
Raw sugar	4,51	7,23	60,32	46 435,55	74 037,60	59,44
Rolled tobacco	4 472,49	1 711,47	-61,73	18 578,86	6 649,24	-64,21
Rice	170,25	2,55	-98,50	11 738,15	8 956,01	-23,70
Wheat	no data	161,00	-	243 497,84	224 756,43	-7,70
Apples and pears	112,11	146,66	30,82	283,51	398,36	40,51
Cabbage	85,27	127,36	49,36	36,80	130,25	253,90
Cucumbers	17,36	16,68	-3,94	266,92	535,66	100,69
Tomatoes	no data	no data	-	4 009,23	1 017,97	-74,61
Nuts	693,45	3 196,22	360,91	464,74	2 736,62	488,85
Silkworm cocoons	168,23	2 075,50	1 133,74	no data	no data	-
Poultry meat	3 198,23	no data	-100,00	9 485,87	5 455,92	-42,48
Oil	no data	no data	-	508,53	390,08	-23,29
Potato	no data	no data	-	2 488,19	3 682,09	47,98

Note: Compiled by the authors based on [19].

In general, Tajikistan imports most agricultural products. This indicates low self-sufficiency in this industry and high dependence on foreign supplies. In 2020, there were no data on potato and wheat exports. This may indicate uncertainty in the production and potential instability of the market for these crops. Low exports of poultry meat with significant imports indicate insufficient competitiveness of local poultry farming. Tajikistan has the potential to produce vegetables such as onions, cabbage and cucumbers. These crops are in demand in the markets of foreign countries. Grapes have the potential for development as a raw material for winemaking, which can improve export opportunities. Cotton products have a significant export potential, which indicates the advantages of the textile industry of the country. In the field of agricultural products, there are also opportunities for the development of dried fruit production. Some crops, such as apples and pears, can be more competitive if the quality of products is improved and its supply to the markets of foreign partners is organized.

Agricultural production in Tajikistan has grown to 40 billion somoni (~1.8 trillion tenge) in 2021. Currently, more than 90% of agricultural production is accounted for by the private sector. The main types of agricultural products in Tajikistan, for example wheat, are imported from abroad in large volumes [23].

The Ministry of Agriculture of Tajikistan states that the country has produced agricultural products worth almost 44 billion somoni (~1.9 trillion tenge) for 9 months of 2023. The volume of crop production is about 33.4 billion somoni (~1.5 trillion tenge), and livestock production is more than 10.4 billion somoni (~455 billion tenge). The Ministry of Agriculture of Tajikistan stressed that the indicators of crop production increased by almost 9%, while animal husbandry – by 5% [24].

The agricultural economy of Tajikistan has the potential for development in a number of areas, especially in the production of vegetables, grapes, textiles and dried fruits. However, it is necessary to solve problems with dependence on imports and increase the competitiveness of local production in a number of sectors, such as poultry and dairy industry.

Table 4 – The structure of export and import of agricultural products of Turkmenistan in 2020–2021, in \$ thousand

Type of product	Export		Growth rate,%	Import		Growth rate,%
	2020	2021		2020	2021	
Rolled tobacco	326,15	109,51	-66,42	8 106,91	24 702,06	204,70
Raw sugar	7,56	no data	-	37 947,63	45 673,16	20,36
Non-retail yarn made of pure cotton	117 205,18	169 688,60	44,78	90,51	188,92	108,73
Raw cotton	11 139,44	58 564,47	425,74	no data	22,00	-
Cotton waste	6 996,27	21 024,29	200,51	no data	no data	-
Wool	no data	1 922,52	-	no data	no data	-
Cotton	902,43	1 176,76	30,40	340,20	101,45	-70,18
Buckwheat	no data	10,92	-	no data	16,15	-
Tomatoes	35 306,45	53 208,86	50,71	35 306,45	5,51	-99,98
Apples and pears	291,40	277,22	-4,87	4 751,16	3 301,84	-30,50
Grape	268,69	150,34	-44,05	311,69	400,34	28,44
Onion	30,67	no data	-	2 564,77	2 943,56	14,77
Potato	no data	8,54	-	16 124,56	651,72	-95,96
Rice	no data	1,18	-	607,80	283,80	-53,31
Eggs	no data	no data	-	511,07	3 271,40	540,11
Poultry meat	no data	no data	-	11 894,95	30 075,56	152,84
Oil	no data	no data	-	3 295,04	2 948,84	-10,51
Cheese	no data	no data	-	2 608,10	1 962,71	-24,75
Milk	no data	no data	-	542,95	235,12	-56,70
Wheat	no data	no data	-	15 094,69	3 640,07	-75,89
Wheat flour	no data	no data	-	12 705,64	3 544,71	-72,10
Corn	no data	no data	-	2 114,15	257,22	-87,83
Nuts	no data	no data	-	2 197,04	1 786,36	-18,69
Dried fruits	no data	no data	-	991,76	499,75	-49,61

Note: Compiled by the authors based on [19].

The lack of information nevertheless allowed us to draw the following conclusions. According to table 4, Turkmenistan demonstrated an increase in tomato exports in 2021 compared to 2020. This may indicate the high quality and competitiveness of agricultural products in this category. Turkmenistan successfully exports cotton goods, including non-retail yarn made of pure cotton and cotton waste. This indicates a developed textile industry and the demand for these goods on the world market. In 2021, the export of cotton waste increased markedly, which may indicate the development of the cotton processing industry. Cotton wool exports are also a strong point, which indicates a developed textile industry and competitiveness in the world market.

A high level of potato imports may indicate limited production of this vegetable within the country. This could potentially mean problems in agriculture related to the mismatch of supply and demand. Turkmenistan imports large volumes of poultry meat, which may also indicate a shortage of domestic production in this category. Large volumes of products such as butter, cheese, sugar and others are also imported. This indicates a lack of self-sufficiency and dependence on world markets.

In Turkmenistan, agriculture remains one of the leading sectors of the economy. The country has a high proportion of the rural population (58%) and the number of people employed in agriculture in relation to the total workforce (48%). In recent years, there has been an increasing role of the agricultural sector in the national economy. So, in the period 2017–2022, only once the share of agriculture in the GDP structure was below 11% (in 2019 it was 10.8%). In other years, it fluctuated between 11.0–11.8%. Moreover, in 2021–2022, its values were 11.8% and 11.6%, respectively [16].

High indicators were achieved in 2022 in the production of many types of crop products. So, grain growers delivered about 1.5 million tons of grain, cotton growers — more than 1.2 million tons of

raw cotton, and silk growers – more than 2,300 tons of cocoons. In the whole country, the increase in vegetable production compared to the previous year was 15.2%, melons – 9.2%, potatoes – 30.4%, fruits and berries – 7.2% and grapes – 0.9% [16].

Diversification of agricultural crops and the development of other types of products, such as cereals, meat, dairy products and food, can reduce dependence on imports and strengthen the economy. An increase in domestic production and a decrease in import volumes will ensure stability and reduce dependence on global price fluctuations. High-value-added products, such as textiles and textile goods, have the potential for long-term sustainable profits. Turkmenistan can improve its agricultural products to increase its export opportunities and strengthen its economy. However, it is also important to pay attention to reforms and investments in order to diversify production and reduce dependence on imports.

Table 5 – The structure of export and import of agricultural products of Uzbekistan in 2020–2021, in \$ thousand

Type of product	Export		Growth rate,%	Import		Growth rate,%
	2020	2021		2020	2021	
Poultry meat	no data	94,51	-	19 553,82	50 770,83	159,65
Rolled tobacco	326,15	109,51	-66,42	10 667,75	14 440,82	35,37
Raw sugar	7,56	no data	-	198 688,57	138 977,32	-30,05
Non-retail yarn made of pure cotton	117 205,18	169 688,60	44,78	1 178,28	527,30	-55,25
Raw cotton	11 139,44	58 564,47	425,74	10 256,59	23 873,80	132,77
Cotton waste	6 996,27	21 024,29	200,51	873,23	834,94	-4,38
Lightweight pure woven cotton	21 347,54	25 073,22	17,45	28 544,95	10 414,01	-63,52
Cotton	902,43	1 176,76	30,40	13 470,36	12 809,58	-4,91
Buckwheat	30,96	10,92	-64,71	122,88	149,77	21,88
Tomatoes	35 306,45	53 208,86	50,71	126,04	61,26	-51,39
Apples and pears	291,40	277,22	-4,87	8 450,74	10 207,46	20,79
Grape	268,69	150,34	-44,05	544,62	849,20	55,93
Onion	30,67	no data	-	2 519,41	451,89	-82,06
Potato	no data	8,54	-	41 370,34	61 265,73	48,09
Rice	no data	1,18	-	6 279,67	20 203,12	221,72
Bovine	no data	no data	-	43 005,30	80 884,43	88,08
Cheese	no data	no data	-	10 040,33	16 648,28	65,81
Oil	no data	no data	-	8 836,73	10 220,19	15,66
Eggs	no data	no data	-	3 320,67	6 659,59	100,55
Milk	no data	no data	-	2 136,20	1 147,56	-46,28
Wheat	no data	no data	-	597 867,11	534 974,41	-10,52
Wheat flour	no data	no data	-	87 564,40	85 574,15	-2,27
Corn	no data	no data	-	18 504,84	22 153,88	19,72
Barley	no data	no data	-	13 711,11	12 626,42	-7,91

Note: Compiled by the authors based on [19].

Uzbekistan remains one of the largest exporters of cotton and its processed products (for example, non-retail yarn). The country produces and exports a variety of agricultural products, including grapes, apples, pears, rice, wheat and corn.

The country imports significant volumes of potatoes, which may indicate a lack of its own production of this product. Uzbekistan imports significant volumes of grain crops, which may be caused by a lack of its own production in this area. The country continues to import meat and milk, which may indicate a lack of domestic production of livestock products.

The export of high-value-added products, such as non-retail yarn and cotton waste, can bring additional income and contribute to the development of the textile industry. According to preliminary data of the Statistics Agency under the President of the Republic of Uzbekistan, the total volume of products (services) of agriculture, forestry and fisheries in January – June 2023 amounted to 154,467.4 billion sum (~6.1 trillion tenge), including in crop and animal husbandry, hunting and provision of services in these areas – 149,662.7 billion sum (~5.9 trillion tenge) [25].

In January – June 2023, the growth rate of products (services) of agriculture, forestry and fisheries, compared with the corresponding period of 2022, amounted to 103.8% (in January- June 2022, compared with the same period of 2021, – 102.7%). According to the results of January – June 2023, 96.9% of the total output (services) of agriculture, forestry and fisheries are accounted for by crop and livestock production, hunting and services provided in these areas (in January–June 2022, it amounted to 96.9%), 2.5% – forestry (2.5%), 0.6% – fisheries (0.6%) [25, p. 3].

From January to June 2023, agriculture, forestry, and fisheries accounted for 20.1% of the gross domestic product (GDP) (gross value added (GVA)). When analyzing the share of agriculture, forestry, and fisheries within the gross regional product across different regions, it is notable that the Surkhandarya region had a significant share at 46.6%, while the Navoi region had a lower proportion at 11.3% [25, p. 4].

In general, Uzbekistan has a diverse agricultural sector and the potential to develop exports of agricultural products and products with high added value. The development of the industry requires concentrated efforts to increase productivity and product diversity to meet both domestic and global demand.

When analyzing the market conditions of agricultural products, an important aspect of the economic situation in Central Asian countries is the impact of inflation on agriculture and consumers. Inflation, as a key economic indicator, plays a significant role in the formation of prices for agricultural products and affects the financial well-being of both rural households and commercial producers. So, for example, Table 6 shows the index of producer prices of Kazakhstan for certain types of agricultural products for 2010–2022.

Inflation and agricultural market conditions in Central Asian countries represent two important aspects of the economic situation in the region.

Table 6 – Index of prices of Kazakhstan’s producers for certain types of agricultural production, 2010–2022, in %

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
	to the previous year												
Agricultural products	93,3	127,6	96,2	115,5	99,1	106,9	107,8	104,7	102,8	114,6	113,9	115,6	117,2
Crop production	83,5	135,6	86,9	123,5	96,0	112,1	106,7	103,6	103,2	117,9	116,5	116,9	119,8
crops													
cereals	80,4	135,9	86,9	125,9	94,0	113,3	107,6	102,2	102,0	127,9	122,6	114,8	120,3
oilseeds	97,0	137,4	93,5	108,2	93,7	103,8	123,9	107,8	97,4	114,9	113,8	129,5	119,5
potatoes	91,6	128,2	77,6	107,0	104,5	104,5	92,7	113,0	104,9	88,8	115,0	123,2	117,4
vegetables	97,5	128,2	83,8	110,8	101,6	108,3	100,0	100,2	103,3	102,5	108,3	110,2	108,1
Note: Compiled by the authors based on [26].													

The price index for agricultural products in 2021 was 115.6%, which means an increase in prices compared to the base period (usually the base period is taken as 100%). Then, in 2022, the price index rose to 117.2%, which indicates a further increase in the overall price level in the economy. An increase in the price index indicates inflation in the economy (figure 3, p. 167). This means that the overall level of prices for goods and services is growing. An increase in the price index may mean a decrease in the purchasing power of money. That is, for the same money now you can buy fewer goods and services.

High inflation can lead to an increase in production costs, which can affect the competitiveness of products in the market. Low inflation contributes to the stability of prices for agricultural products, which is usually favorable for farmers and consumers. Moderate inflation and stable agricultural market conditions can contribute to the sustainable development of agriculture in the region

In general, it can be noted that high inflation can affect the prices of agricultural products, increasing their cost to consumers. However, despite high inflation in some years, some countries, such as Kyrgyzstan, have been able to contain the rise in prices for agricultural goods. In general, it is worth noting that there is some correlation between the level of inflation and the prices of agricultural goods, but there are also other factors, such as yields, seasonal fluctuations and geopolitical events that can affect the agricultural market in the region.

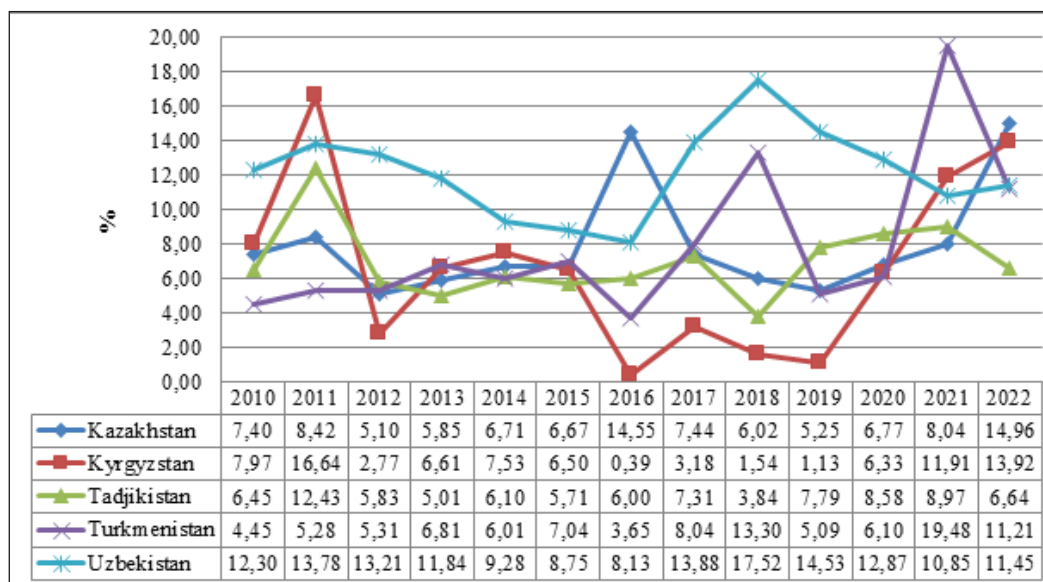


Figure 3 – Inflation rate in Central Asian countries from 2010–2022, in %

Note: Compiled on the basis of sources [27–29].

Cereal yields directly affect a country’s ability to provide its population with food (figure 4). High yields help prevent food shortages and reduce dependence on imports. In general, the analysis of grain yields helps to assess the state of agriculture in the country, identify problem areas and develop measures to improve the productivity and sustainability of the rural sector.

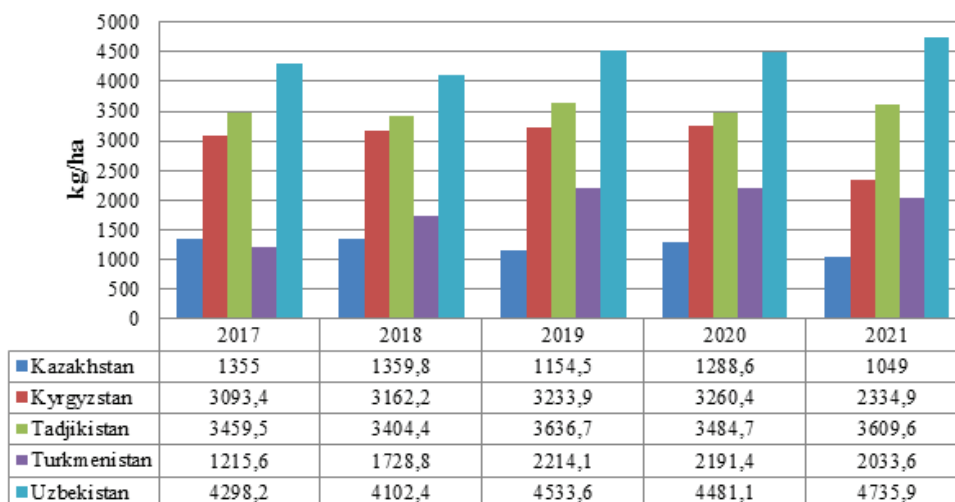


Figure 4 – Cereal yield in Central Asian countries, 2017–2021, in kg/ha

Note: Compiled on the basis of source [30].

Cereal yields in most of the countries represented tend to increase from 2017 to 2019. In 2020 and 2021, due to probably various factors (climatic, technological, etc.), changes in yields are observed. Kyrgyzstan in 2021 stands out for a significant decrease in crop yields, which may be due to various factors, including climatic anomalies. Turkmenistan and Uzbekistan show stable yields with some fluctuations. Overall, the analysis suggests that the impact of various factors, including climate change and technological innovation, strongly influences grain yields in the countries examined. Successful harvests can lead to increased supply in the market, which affects prices. Abnormal weather conditions or low yields can lead to product shortages and increased prices.

It is possible to increase the yield by 1.5–2 times. In Eurasian countries, generally, the level of agricultural yields lags behind those of developed countries. This is explained, in particular, by the insufficient use of fertilizers and the lack of modern agricultural machinery.

Conclusion

After conducting a study of the agricultural market conditions, it is possible to propose a range of products that will be produced, as well as options for their processing. This will create a production chain within which entrepreneurs can cooperate with each other and increase production efficiency. The creation of such a chain will increase production efficiency, reduce costs and improve product quality.

The production chain may include the following participants:

1. Producers of agricultural products: farmers, cooperatives, agricultural holdings and other producers who grow agricultural products.

2. Processors: companies that process agricultural products, for example, canning, drying, freezing, etc.

3. Distributors: companies that distribute products, deliver to markets, stores, etc.

4. Retailers: shops, supermarkets, markets and other outlets that sell products.

5. Consumers: people who use products as food.

The creation of a production chain will improve the quality of products. Thus, cooperation between entrepreneurs within the framework of creating a production chain can contribute to increasing economic efficiency, as well as improving the quality and accessibility of products for consumers.

Taking into account the peculiarities of each of these countries, as well as the fact that agriculture plays a significant role in the economy of these states, potentially promising products for creating production chains can be:

♦ Cotton – all the listed countries are major cotton producers. Creating a production chain for processing cotton into fabrics and textiles can be a profitable option.

♦ Grain crops (wheat, barley, corn) – these crops are important for the nutrition of the population and have the potential for processing into products with high added value.

♦ Fruits and vegetables, including tomatoes, onions, apples, pears, etc. – creation of production chains for processing and packaging of fresh fruits and vegetables can be profitable.

♦ Dairy products – the impact on the production of milk and dairy products, such as cheese and yogurt, can be promising, especially in countries with a developed dairy industry, such as Kyrgyzstan and Kazakhstan.

♦ Meat and meat products – the production, processing and packaging of meat products may be of interest, especially in conditions of growing demand for protein.

♦ Oilseeds (sunflower, cotton) – depending on the opportunities and demands of the market, the production and processing of oilseeds may be a promising direction.

♦ Textile and clothing products – having an agricultural base (for example, cotton), it is possible to create production chains for the textile and clothing industry.

♦ Production of dried fruits and nut pastes – these products are popular in the health food market and have potential for export.

♦ Tobacco products – in some of the listed countries, the tobacco industry is developed. This can be an interesting area for cooperation and creation of production chains.

However, for the successful implementation of the project, it is necessary to take into account many factors, such as climatic conditions, soil quality, availability of modern technological base, state

support and others. In addition, it is important to take into account the requirements of the market and the needs of consumers in order to form an effective product range and methods of its processing.

In this regard, it is necessary to constantly monitor the state of the market and the needs of consumers in order to adapt to changing conditions and improve production efficiency.

Thus, the creation of a production chain of agricultural products in the countries of Central Asia is a promising direction for the development of the agricultural industry and the economy of the region as a whole. At the same time, it is important to take into account many factors and constantly monitor the market and consumer needs to achieve maximum production efficiency.

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ОРТАЛЫҚ АЗИЯ ЕЛДЕРІНІҢ АУЫЛШАРУАШЫЛЫҚ ӨНІМДЕРІНІҢ НАРЫҚТЫҚ ЖАҒДАЯТЫН ТАЛДАУ

Андатпа

Бұл мақала Орталық Азия елдеріндегі ауылшаруашылық өнімдерінің нарықтық жағдаятын талдауға арналған. Зерттеу өңірдің аграрлық секторының ағымдағы жай-күйі мен даму перспективаларын анықтау мақсатында жүргізілді. Авторлар ауылшаруашылық өнімдерін өндіру және тұтыну көлемін, нарық құрылымын, баға динамикасының тенденцияларын, сондай-ақ аграрлық өнімге ішкі және сыртқы сұранысты талдады. Ауылшаруашылық секторын дамытуда кәсіпкерлердің халықаралық ынтымақтастығы мен кооперациясының рөліне ерекше назар аударылды. Зерттеу нәтижелері Орталық Азия елдерінде аграрлық саланы дамыту стратегияларын әзірлеу үшін пайдаланылуы мүмкін. Зерттеудің мақсаты — ауылшаруашылық өнімдерінің оңтайлы ассортиментін анықтау, осы елдердегі ауылшаруашылық өнімдерінің нарықтық жағдаятын талдау жүргізу негізінде Орталық Азия елдері кәсіпкерлерінің кооперациясы шеңберінде тиімді өндірістік тізбекті құру мақсатында оларды дайын өнімге қайта өңдеу нұсқаларын зерттеу. Ауылшаруашылық өнімдеріне ішкі және сыртқы сұранысты талдау экспорттық мүмкіндіктерді ұлғайту және инвестиция тарту стратегияларын әзірлеуге көмектеседі. Зерттеу нәтижелерін Орталық Азия үкіметтері ауылшаруашылық саясаты мен кәсіпкерлікті қолдау саласына негізделген шешімдерді қабылдау үшін пайдалана алады. Сонымен қатар зерттеулер халықаралық ынтымақтастық пен аймақ кәсіпкерлері арасындағы ынтымақтастықты нығайтуға көмектеседі, бұл ауылшаруашылық саласының тұрақты дамуына әкеледі.

Тірек сөздер: нарық жағдаяты, Орталық Азия елдері, ауыл шаруашылығы өнімдері, экономикалық қатынастар, халықаралық сауда, өндіріс тізбегі, тұрақты даму.

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АНАЛИЗ КОНЬЮНКТУРЫ РЫНКА СЕЛЬХОЗПРОДУКЦИИ СТРАН ЦЕНТРАЛЬНОЙ АЗИИ

Аннотация

Данная статья посвящена анализу конъюнктуры рынка сельскохозяйственной продукции в странах Центральной Азии. Исследование проведено с целью выявления текущего состояния и перспектив развития аграрного сектора региона. Авторы проанализировали объемы производства и потребления сельскохозяйственной продукции, структуру рынка, тенденции ценовой динамики, а также внутренний и внешний спрос на аграрную продукцию. Особое внимание уделено роли международного сотрудничества и кооперации предпринимателей в развитии сельскохозяйственного сектора. Результаты исследования могут быть использованы для разработки стратегий развития аграрной отрасли в странах Центральной Азии. Цель исследования состоит в определении оптимального ассортимента сельскохозяйственной продукции, исследовании вариантов ее возможной переработки в готовый продукт с целью создания эффективной производственной цепочки в рамках кооперации предпринимателей стран Центральной Азии на основе проведения анализа конъюнктуры рынка сельскохозяйственной продукции в этих странах. Анализ внутреннего и внешнего спроса на сельскохозяйственную продукцию окажет помощь в разработке стратегий для увеличения экспортных возможностей и привлечения инвестиций. Выводы исследования могут быть использованы правительствами стран Центральной Азии для принятия обоснованных решений в области сельскохозяйственной политики и поддержки предпринимательства. Кроме того, исследование будет способствовать укреплению международного сотрудничества и кооперации между предпринимателями региона, что приведет к устойчивому развитию сельскохозяйственной отрасли.

Ключевые слова: конъюнктура рынка, страны Центральной Азии, сельскохозяйственная продукция, экономические отношения, международная торговля, производственная цепочка, устойчивое развитие.