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PROSPECTS FOR REGIONAL POTATO PRODUCERS IN THE CONTEXT OF AGRICULTURAL MARKETS GLOBALIZATION

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Abstract

Globalization of agricultural markets provides new opportunities for the development of regional producers, and at the same time sets the task of improving production efficiency. Formation of a single economic space in the context of globalization of markets, including the markets for agricultural products, ensures new prospects for regional producers and makes many countries face the goal of improving agricultural production efficiency. In this case, the tasks of primary importance include reduction of costs, increase in the residual value of products. The purpose of this study is to substantiate the prospects of regional potato producers in the context of agricultural markets globalization. The study is based on the data of the Russian Federation for the period 2010-2020. The research methods include such general scientific methods as logical and comparative analysis, review of information and statistical data. According to our calculations, the unused export potential in the aggregate estimate makes 365.3 thousand tons in the total amount of 72.7 million USD. The potato markets of Iraq, Uzbekistan and Ukraine have the largest potential for export from Russia. Implementation of the underused export potential will require an increase in production, which is possible due to the expansion of areas of potato cultivation by 189.8 thousand hectares, or an increase in yield by 26.9%, to 205 t from 1 ha, which is more preferable. The expansion of production will have a positive impact on both the economic indicators of regional producers and the employment of rural population.

Keywords: Agriculture, development prospects, efficiency, market, potatoes, production location

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1. Introduction

As stated in the World Bank report, the growth of agricultural production is the engine of the development of related industries, and in general the economies of low-income countries (World Bank, 2007), which is confirmed by numerous research.

In such conditions, the global market promotes the development of regional agricultural enterprises. The processes of economic integration and trade liberalization have a significant impact on market volumes (Agirbov et al., 2020) and food security (Demichev, 2019). The latter problem is urgent for potato markets in many countries of the world.

Availability of the agri-food market at the national and regional levels creates prerequisites for the development of export-oriented industries, although it is accompanied by objective difficulties in promoting products to final consumers (Bondarenko et al., 2019).

The problem of realizing the growth potential of agricultural producers is solved differently in various studies. Some researchers consider the rational placement of production as the basis for production development (Animitsa et al., 2014), taking into account natural factors, such as seasonality.

Others associate the possibility of developing agriculture with the predominance of one or another organizational form of management. For example, it is associated with the processes of cooperation and agro-industrial integration (Bagchi et al., 2021), as well as the formation of cluster-cooperative projects, or the possibility of developing small forms of economy (Tulcheev et al., 2020).

There are also those who consider the possibilities of developing a particular branch of agriculture with focus on innovative processes and improving the technological foundations of production (Myagkova, 2015), as well as on the widespread introduction of digital technologies (Karpunina et al., 2020).

At the same time, it is often concluded that it is necessary to expand the influence of state and subsidize certain programs (Ivanova & Merkulova, 2018). Moreover, many authors emphasize the need to ensure self-sufficiency of the regions through the effective use of available factors of production (Novak & Kozlova 2020).

2. Problem Statement

Both opportunities and difficulties in the development of regional agriculture indicate the need to identify prospects for production expansion in the regions, including the potato market.

The scientific hypothesis of the study is based on the assumption that in the context of agricultural market globalization, the prospects for the development of the industry are determined by the potential capacity of the world market and the ability of regional producers to meet these needs.

3. Research Questions

The issues under study follow directly from this hypothesis, which consists in the fact that in the conditions of a single economic space, the prospects for the development of the industry in certain regions are determined by the state of the world market. Accordingly, the article addresses the following tasks:

- to conduct an economic assessment of regional development of the potato industry;

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- to assess the prospects for expanding potato production in the regions;
- to justify possible directions of realization of potential opportunities for the development of the industry in the context of industry markets globalization.

4. Purpose of the Study

The purpose of this study is to substantiate the prospects of regional potato producers in the context of agricultural markets globalization.

5. Research Methods

The research methods include such general scientific methods as logical and comparative analysis, review of information and statistical data. The quantitative assessment of the parameters that determine possible expansion of the industry has been carried out on the basis of statistical indicators, by analyzing the dynamics and structure of potato production in the regions and its balance, taking into account exports and imports. Potential estimates of the capacity and availability of global potato markets have been used as the basis for determining promising indicators of the industry's growth. The study is based on the data of the Russian Federation for the period 2010-2020, as well as on the world statistics of potato production, trade and consumption.

6. Findings

The global potato market has been showing steady growth over recent years, updating record highs. According to experts, since 2007, the market has grown by an average of 3.0% per year and in 2019 amounted to 140.5 billion USD[1]. The volume of world exports made 4.9 billion USD. Russia is one of the world's leaders in potato production with an annual production volume of about 20 million tons. With a global production volume of 371 million tons, Russia ranks third after China and India, with a production share of 5.4%. The first place among the participants of the world potato market is occupied by the Netherlands with an export volume of 982.7 million USD. Russia ranks the nineteenth with an export volume of 36.8 million USD, and a market share of only 0.7%. This is explained by relatively high domestic consumption and low performance of the industry (Table 01).

Over the period from 2010 to 2019, the gross potato production increased by 19.3%, from 18.5 to 22 million tons. This trend takes place against the background of a significant reduction in the area of cultivation, which amounted to 693.6 thousand hectares or 35.6%. At the same time, the yield was increased by 78% to 178 centners from 1 ha. Despite the steady trend of yield growth, most closely described by the logarithmic equation $y = 25.949\ln(x) + 11.88$ with a confidence value of 0.8353, its level remains one of the lowest in the world. According to FAOSTAT data, the maximum yield level for 2019 of about 500 centners per 1 ha was obtained in Kuwait, the USA, and New Zealand. The Russian Federation is only the 91st in the ranking of countries in terms of this indicator.

[1] Report: The global potato market hits record highs. *Potato News Today, on June 30, 2020*
https://www.potatonewstoday.com/2020/06/30/report-the-global-potato-market-hits-record-highs/

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Table 1. Potato production and balance in Russia, thousand tons

Indicator	2010	2016	2017	2018	2019	2020*
Acreage, thousand hectares	1948.3	1441.3	1349.5	1324.6	1254.7	1188.2
Yield, centner per ha	100.0	157.6	162.5	170.4	178.1	166.0
Production	18498	22463	21708	22395	22073	19607
Import	1121.8	972.6	1344.0	1257.3	759.9	813.1
Industrial consumption	10515.6	9565.1	9140.5	8959.6	8603.3	8261.2
Personal consumption	13502.4	13134.1	13224.6	13084.8	13039.3	12993.9
Losses	1179.7	1404.3	1461.0	1450.2	1558.7	1450.2
Export	85.0	291.5	246.2	268.1	463.6	423.1

Source: According to Rosstat (https://rosstat.gov.ru/)
*Note: - Preliminary data

The Central Federal District and the Volga Federal District are the main regions of potato production in Russia. In 2019, they totally accounted for 59.3% of the overall potato production with a dynamic growth of almost 200%. At the same time, in the Siberian Federal District and the Far Eastern Federal District, potato production decreased by 41% and 19%, respectively, which was primarily due to unfavorable natural and climatic conditions that did not allow for stable and efficient potato production. According to Rosstat, potato production is expected to decrease to 19.6 million tons in 2020, which is 11% lower than in 2019. The largest decline in potato production is expected in the Central Federal District.

With a relatively constant level of industrial and personal consumption, the increase in production ensures an increase in exports. Over this period, it grew by 4.5 times, from 85 to 463.6 thousand tons. The main potato deliveries are carried out in the nearest countries of Eastern Europe and Central Asia (Figures 01, 02).

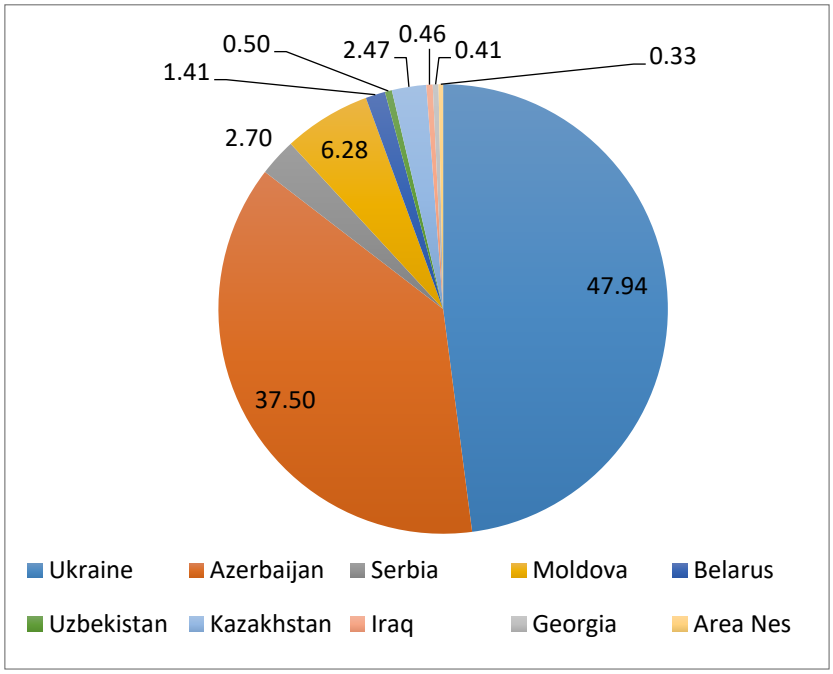

Figure 1. Volume structure of potato exports from Russia in 2019, %

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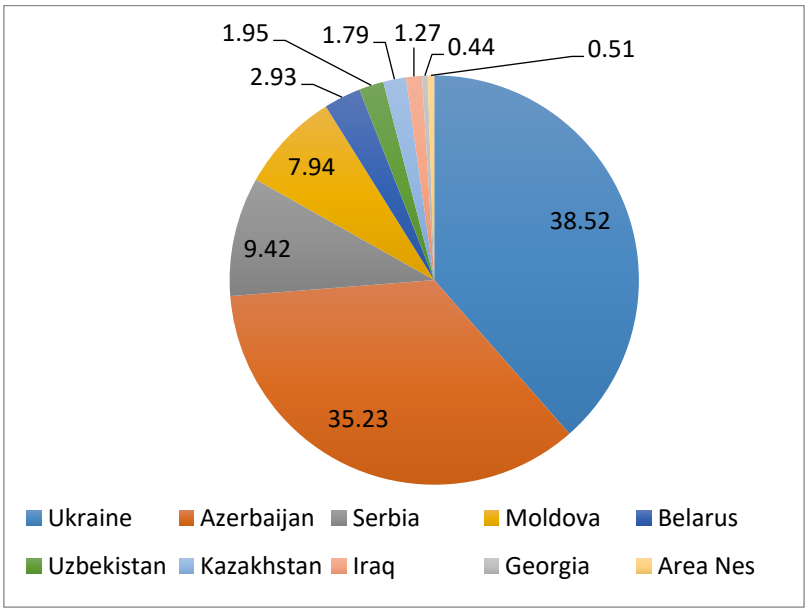

Figure 2. Cost structure of potato exports from the Russian Federation in 2019, %

The largest volumes of deliveries in 2019 were carried out in Ukraine – about 160 thousand tons or 47.94% of total exports in volume terms and 38.52% in value terms. Azerbaijan ranks second with a volume of 125 thousand tons, or 37.5% in volume terms and 35.23% in value terms. These countries account for more than 75% of total exports. The smaller share of these importers of products in value terms is explained by a lower price of sales to the mentioned countries. The cost of 1 ton of potatoes delivered to Ukraine was 89 USD, and to Azerbaijan – 104 USD. At the same time, potatoes had been delivered to Uzbekistan at 429 USD, to Serbia at 385 USD, to Turkmenistan at 292 USD, which creates additional prerequisites for increasing the value of exports. Based on the data about the volume and dynamics of exports to certain countries, as well as the share of the Russian Federation in the imports of the buyer countries, we have determined the prospects for expanding the sales markets of regional producers (Table 02).

Table 2. Prospective parameters of potato export from Russia (Tons)

Importers	Export, 2019	Share of the Russian Federation in imports, %	Average export growth over 2015-2019, %	Potential for export expansion			Prospective level of export
				Expansion of market share	Dynamic leveling	Combinatorial value	
Ukraine	159652	6.6	8	2259318	12772	82245	241897
Azerbaijan	124878	65	21	67242	26224	46733	171611
Serbia	9000	25.9	412	25749	37080	25749	34749
Moldova	20906	26.8	209	57101	43694	50398	71304
Belarus	4704	32.9	92	9594	4328	6961	11665
Uzbekistan	1675	2.8	126	58146	2111	30128	31803
Kazakhstan	8235	22.4	94	28528	7741	18135	26370
Iraq	1520	1		150480	0	75240	76760

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Georgia	1374	5.7	-19	22731	-261	11235	12609
Turkmenistan	308	4.4	-24	6692	-74	3309	3617
Macedonia North	309	1.1		27782	0	13891	14200
Mongolia	323	56.3	103	251	333	292	615
Poland	40			40	0	20	60
Armenia	42	12		308	0	154	196
Tajikistan	60	3.5	-51	1654	-31	812	872

Source: Authors' calculations based on the data of FAOSTAT (http://www.fao.org/faostat/en/#data)

According to our calculations, the potato markets of Iraq, Uzbekistan and Ukraine have the largest potential for export from Russia. In the Iraq potato market, Russia's share is only 1%, which creates the largest absolute difference between potential and actual exports and can provide additional sales of 75.2 thousand tons. Uzbekistan demonstrates the highest growth rate of imports from Russia, and with a market share of 2.8%, the export growth potential can reach 30.1 thousand tons. Russia's share in Ukraine is 6.6%, but due to the high market capacity, export prospects may reach up to 82.2 thousand tons. The unused export potential in the aggregate estimate makes 365.3 thousand tons at the price of 72.7 million USD in the prices of 2019. In this case, the prospective level of potato exports is 698.3 thousand tons, in value terms – 109.6 million USD.

Realization of the underused export potential will require the expansion of production by 365.3 thousand tons. There are two ways to achieve this indicator. The first way is to expand the area of cultivation. This requires an additional increase in the acreage for potatoes by 189.8 thousand hectares, or 15.1%. But this is the so-called extensive development of the industry, which is quite problematic to implement without decline of other industries, due to the limited land resources. The second way is to increase potato yield through a fundamental change in the technological basis of production, while meeting the necessary environmental requirements and preserving soil fertility, which was justified by us earlier (Dubovitski et al., 2019, 2020). In this case, the increase in yield should make 26.9%, up to 205 centners per 1 ha. This is a reachable level at an average global value of 213.6 centners per 1 ha. It will possibly be reached in the near future. As a result, the expansion of production based on the realization of export potential will have a positive impact on the economic results of regional producers, as proved by Agirbov et al. (2020), and ultimately, will have a positive effect on rural employment (Babushkin et al., 2021).

7. Conclusion

The economic condition of potato farming in Russia is characterized by the dynamics of increasing the efficiency of the industry and expanding exports. In terms of global production, Russia ranks third, and only nineteenth in terms of exports. The global potato market has shown constant growth over recent years, which will continue in the near future. In the current conditions, regional producers clearly need to expand exports of their products. Realization of the underutilized export potential is possible through the expansion of the area of potato cultivation, or increasing the yield on the basis of improving the technological basis of production while meeting environmental requirements, which is more promising. The expansion of production will have a positive impact on both the economic indicators of regional producers and the employment of rural population.

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