

Artículo de investigación

Optimization of the agrifood market infrastructure (the potato market in the Krasnoyarsk region)

Оптимизация Инфраструктуры Агропродовольственного Рынка (на Примере Рынка Картофеля Красноярского Края)

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Abstract

A brief financial and economic description of agrifood market entities was provided in the course of the study, based on the previously developed authors' methods, and used in further studies when developing mechanisms for the agrarian market infrastructure development. The expediency of reviving the system of procurement organizations is justified in the article, conditions are outlined for such revival, and recommendations are given on the rational use of budget funds in order to secure the optimal infrastructure of the agrifood market in the Krasnoyarsk region.

Keywords: Agrifood market; potato market; agricultural enterprises; Krasnoyarsk region; state support; procurement organizations.

Аннотация

в ходе проведенного исследования на основе разработанных ранее авторских методик дана краткая финансово-экономическая характеристика субъектов агропродовольственного рынка, которая была использована в дальнейших исследованиях при разработке механизмов развития инфраструктуры аграрного рынка. В работе обоснована целесообразность возрождения системы заготовительных контор, обозначены условия, при которых это возрождение возможно, даны рекомендации, по рациональному использованию бюджетных средств с целью обеспечения оптимальной инфраструктуры агропродовольственного рынка Красноярского края.

Ключевые слова: агропродовольственный рынок; рынок картофеля; сельхозтоваропроизводители; Красноярский край; государственная поддержка заготовительные конторы.

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Introduction

In the context of the anti-Russia economic sanctions, the problem of ensuring food security is particularly relevant, which is proved by the Doctrine of Food Security of the Russian Federation (Doctrine of Food Security of the Russian Federation: approved by Decree of the President of the Russian Federation, 2010).

The implementation of the doctrine provisions is impossible without the market infrastructure development, continuous improvement of mechanisms for expanding product sales markets, and establishing conditions for the integration of cross-sectoral relations among agriculture, food and processing industries, and trade (Parshukov et al., 2017).

The program mechanism of state support for the development of agribusiness and food markets implemented in the Krasnoyarsk region is aimed at overcoming the existing negative phenomena in the industry, but the taken measures have not been sufficient. This is why it appeared relevant to develop a regional mechanism for the development of the agrifood market infrastructure (Organizational and economic mechanism for ensuring import substitution and food security of the Krasnoyarsk region, 2017).

Methods

Entities at any agrifood market are divided into food suppliers and its consumers (population). According to the official statistics, the population of the Krasnoyarsk region amounted to 2,870,895 people as of January 1, 2017.

Of the total population of the region, 49.01% lived in the Central group of districts (covering the regional center Krasnoyarsk and cities, such as Divnogorsk, Sosnovoborsk, and Zheleznogorsk), 15.75% lived in the Northern group of districts, 13.69% lived in the Achinsk group of districts, 13.35% lived in the Kansk group of districts, and 8.21% lived in the Southern group of districts (Figure 1).

There were 325 agricultural organizations and 38 enterprises of the food and processing industry in the agrifood market of the Krasnoyarsk region in 2016. 34.46% of all enterprises in agribusiness operated on the territory of the Kansk group of districts, 22.46% were in the Achinsk group of districts, 18.77% were in the Central and Southern groups of districts, and 5.54% were in the Northern group of districts (Figure 2) (Priority areas of development of the agrifood market in the Krasnoyarsk region, 2017).

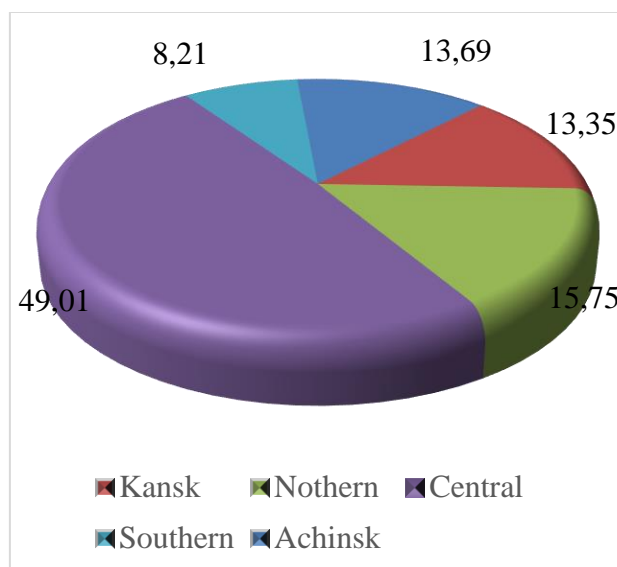


Figure 1. Territorial structure of the population in the Krasnoyarsk region as of January 1, 2017 by groups of regions, %

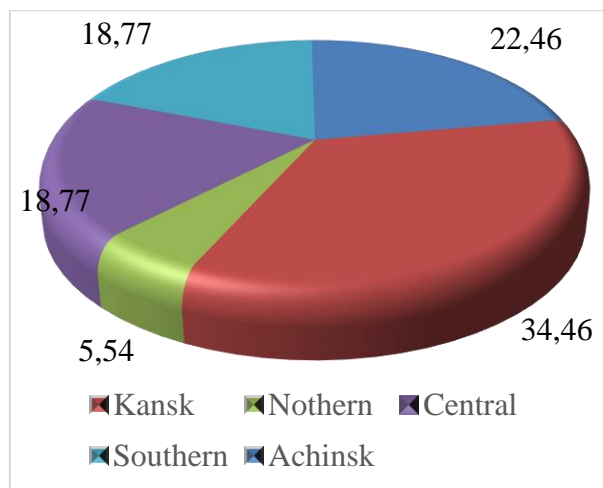


Figure 2. Territorial structure of agricultural organizations in the Krasnoyarsk region in 2016 by groups of regions, %

The entities of the agrifood market differed by the headcounts employed at the core production, return on investment (net of subsidies from the budget), level of financial and economic stability, and the probability of bankruptcy.

The probability of bankruptcy of agricultural organizations in the Krasnoyarsk region and the level of their financial and economic stability were rated using the methods previously developed by the authors (Pykhanova, Vlasova, 2005; Pykhanova, Pyzhikova, Hodos, n.d.; Pykhanova, Pykhanov, 2010; Shorokhov et al., 2019).

The financial and economic characteristics of each agricultural organization were used in further studies to develop mechanisms for the agricultural market infrastructure development and to regulate market relations.

The infrastructure of the agrifood market in any region primarily depends on the natural and climatic conditions. They allowed agricultural enterprisers of the Krasnoyarsk region to supply milk, grain, meat, fish, fruit and vegetables (both raw and processed), as well as products intended for animal fodder, to the domestic market. Agricultural products were processed either at

agricultural enterprises or at enterprises of the specific food and processing industry. The domestic agrifood market cannot be studied in full within the scope of this article, and the authors decided to review the market for one type of product – potatoes.

Results

Twenty agricultural organizations and 76 family farms (FFs) operating in 21 agricultural districts were engaged in the production and sale of marketable potatoes in the Krasnoyarsk region in 2016 (Figure 3).

The largest number of agricultural producers of potatoes was located in the Berezovsky district: 30 FFs and seven agricultural organizations. Thirteen FFs and one agricultural enterprise were engaged in potato production in the Shushensky district. One farm (the minimum number of potato producers) operated in Boguchansky, Bolshemurtinsky, Bogotolsky, Dzerzhinsky, Yeniseysky, Idrinsky, Ilansky, Irbeysky, Nazarovsky, Nizhneingashsky and Sharypovskiy districts. Besides, the local population was growing potatoes for their own needs in private farms.

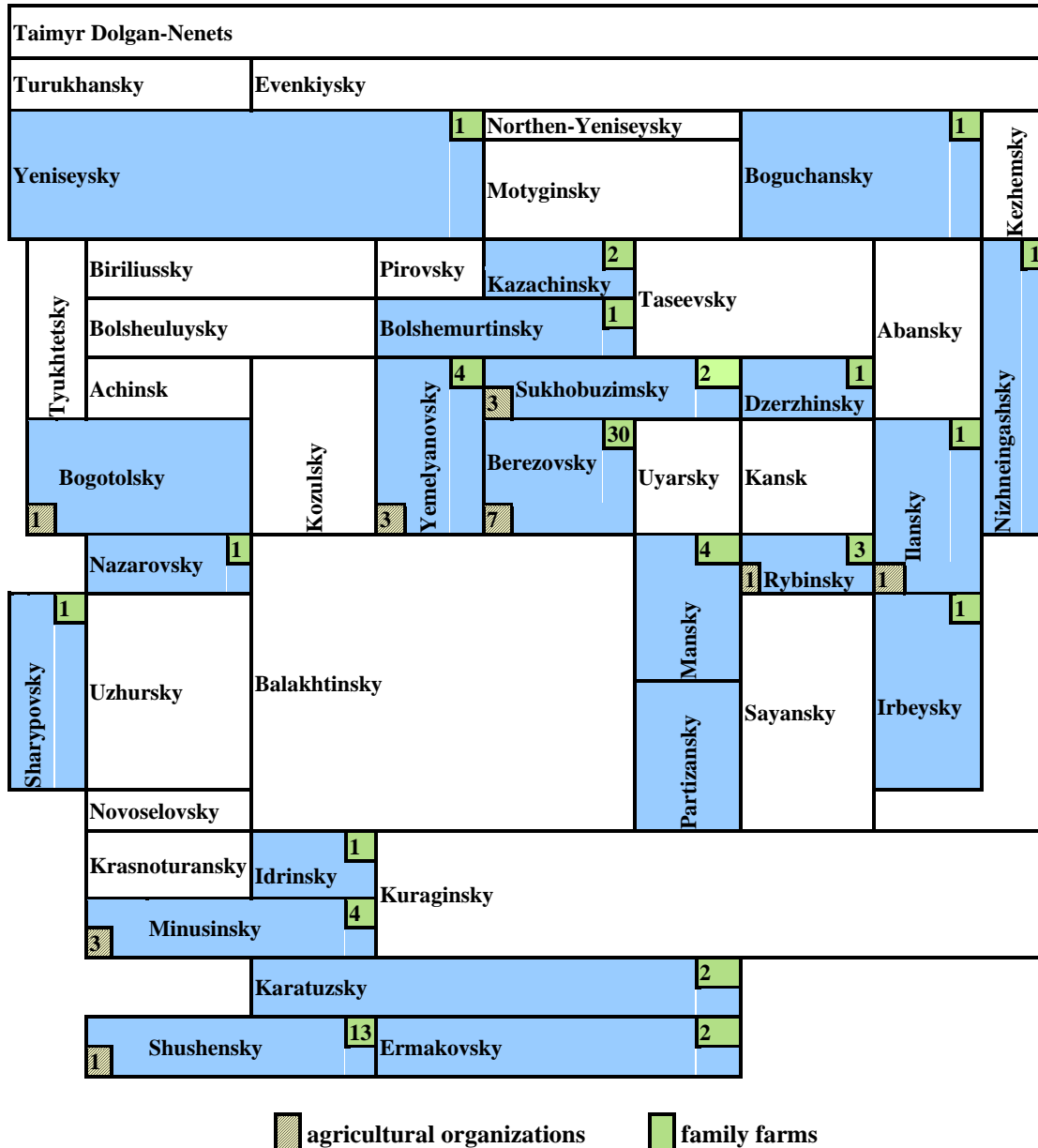


Figure 3. Territorial distribution of the agricultural producers of potatoes

As a rule, production of potatoes grown in private farms is sufficient both to cover their own needs and sell some on the market. However, only the villagers who live in close proximity to cities and urban-type settlements can sell potatoes on the market. Therefore, the authors believe that it is advisable to revive the system of procurement organizations, which will supply the urban population with high-quality products and provide additional income to rural areas. Procurement organizations should be arranged on a territorial basis in each district or in a group of agricultural districts based on the specific financially

sustainable agricultural organizations, which have been long operating in the food market.

For example, the Berezovsky district has the best location in territorial terms in the Central group of districts, as it borders with five agricultural districts, Krasnoyarsk, and Sosnovoborsk.

Six agricultural organizations operated on the territory of the Berezovsky district in the reporting year, their main activity being the production of marketable potatoes: Ovoshchi Sibiri LLC, AGROHOLDING OGOROD LLC, Urozhai LLC, APK Ovoshchi Sibiri LLC, VOZROZHDENIE LLC and Alyonushka APcO (Table 1).

Table 1. Brief financial and economic characteristics of the agricultural organizations of the Krasnoyarsk region (fragment)

Name of agricultural organization, group of agricultural districts	Length of operation in the food market	Average for the enterprise life		group of financial and economic stability	Headcount employed at agricultural production
		return on investment (net of subsidies from the budget)	probability of bankruptcy		
<i>l</i>	2	3	4	5	6
Achinsk group of districts, Bogotolsky district					
Zelenyy Mir LLC	7 – 9 years	≥ 100 %	n/a	II	< 15 people
Kansk group of districts, Rybinsky district					
Iskra LLC	7 – 9 years	80 – 99 %	average	II	≥ 400 people
Central group of districts, Berezovsky district					
Ovoshchi Sibiri LLC	3 – 6 years	≥ 100 %	average	III	< 15 people
Urozhai LLC	7 – 9 years	80 – 99 %	average	III	< 15 people
AGROHOLDING OGOROD LLC	≥ 10 years	≥ 100 %	n/a	I	15 – 49 people
APK Ovoshchi Sibiri LLC	3 – 6 years	≥ 100 %	high	III	< 15 people
VOZROZHDENIE LLC	≥ 10 years	≥ 100 %	n/a	I	< 15 people
Alyonushka APcO	≥ 10 years	≥ 100 %	n/a	II	15 – 49 people
Southern group of districts, Minusinsky district					
FSUE Minusinskoye	7 – 9 years	80 – 99 %	average	II	50 – 99 people
Production focus in 2016					
Name of agricultural organization, group of agricultural districts	core activity (> 50 % of sales revenue)	side activities (5 – 50 % of sales revenue)	related products (< 5 % of sales revenue)		
<i>l</i>	7	8	9		
Achinsk group of districts, Bogotolsky district					
Zelenyy Mir LLC	potatoes	vegetables	—		
Kansk group of districts, Rybinsky district					
Iskra LLC	milk and diary products	grain and its products, cattle and pigs in live and slaughter weight	potatoes, vegetables, rape, hay, straw, haylage, animal fodder, horses and deer in live and slaughter weight, marketable fish		
Central group of districts, Berezovsky district					
Ovoshchi Sibiri LLC	potatoes	—	—		
Urozhai LLC	potatoes	grain and its products, vegetables	—		
AGROHOLDING OGOROD LLC	potatoes	vegetables	—		
APK Ovoshchi Sibiri LLC	potatoes	grain and its products, vegetables	—		
VOZROZHDENIE LLC	potatoes	—	—		
Alyonushka APcO	potatoes	grain and its products, vegetables	—		
Southern group of districts, Minusinsky district					
FSUE Minusinskoye	—	potatoes, vegetables, fruit and berries, canned fruit and vegetables	—		

In this case, Ovoshchi Sibiri LLC and VOZROZHDENIE LLC received revenues only from the sale of potatoes, while other enterprises also had revenues from the sale of vegetables, grain, and grain products in their structure of sales revenue. Three of the above farms have been operating in the food market for more than a decade, one has been operating for more than seven years and two farms have been operating for three to six years. Small enterprises Alyonushka APcO, AGROHOLDING OGOROD LLC, and VOZROZHDENIE LLC have been operating on the market for more than a decade.

Return on investment (net of subsidies from the budget) in these enterprises exceeds 100%, but AGROHOLDING OGOROD LLC is larger in size and its level of financial and economic stability is higher – therefore, the authors chose it for the study.

Discussion

It is advisable to set up a procurement organization for the purchase of potatoes in the Kansky group of districts. It can be created on the basis of a large agricultural enterprise Iskra LLC from the Rybinsky district, which has been operating on the food market for more than seven years and is in group II by financial and economic stability. The choice in favor of Iskra LLC is also supported by its favorable location. The Rybinsky district borders with six agricultural districts.

It is advisable to create a procurement organization for the purchase of potatoes in the Southern group of districts on the basis of the medium-sized agricultural enterprise FSUE Minusinskoye of the Minusinsky district, which has been operating on the food market for more than seven years and is in group II by financial and economic stability (Table 1). FSUE Minusinskoye can accept products from agricultural enterprises and the population of the Krasnoturansky, Idriinsky, Karatuzsky, Shushensky, and Ermakovsky districts.

Only one small enterprise, Zelenyy Mir LLC from the Bogotolsky district, was engaged in the production and sale of potatoes in the Achinsk group of districts. Due to the lack of choice, it is advisable to create a procurement organization for the purchase of potatoes on the basis of this enterprise. Zelenyy Mir LLC, which has been operating in the food market for more than seven years, has a high level of financial and economic stability and low probability of bankruptcy

(Table 1). Zelenyy Mir LLC can accept products from agricultural enterprises and the population of the Tyukhtetsky, Achinsk, Kozulsky and Nazarovsky districts.

In the Northern group of districts, only FFs were engaged in the production and sale of potatoes: EP Head of FF Glushko T.N. (Boguchansky district) and FF Aliev A.T. (Yeniseysky district). It is advisable to create a procurement organization for the purchase of potatoes from the population of the Boguchansky and Yeniseysky districts on the basis of these enterprises.

Conclusion

For the agricultural organizations located at a considerable distance from each other, as well as for those without stable sales channels, it is advisable to purchase technological equipment for the primary processing of agricultural products, which will allow to increase the shelf life of agricultural products, expand sales channels, and increase the share of agricultural organizations in the structure of the retail price of products.

State support is required to attract agricultural organizations to serve as a basis of procurement organizations to be created for purchasing products from other agricultural enterprises. State support is required to compensate for the difference between the market price of products procurement and the prime cost of products produced in the farm, as well as to secure the return on investment in production not lower than the key interest rate of the Bank of Russia (Key interest rate of the Bank of Russia, n.d.).

Besides, the authors consider it advisable to conduct a survey of the population engaged in the agricultural production in the districts, which lack agricultural organizations and FFs of the appropriate specifics, in order to select the districts where procurement organizations must be set up for the purchase of products from the population. In this case, procurement organizations can be set up either on the basis of nonspecific enterprises, or as independent organizations. It must be taken into account that the state support will be required in both cases for the construction of warehouses needed for the temporary storage of accepted products (Kuznetsov et al., 2017; Ukibayeva et al., 2018). To utilize the production capacities of processing enterprises in full, it is required to set procurement prices for purchased raw materials not lower than market prices and to compensate

from the regional budget for the difference between the market price of the products acquisition and the prime cost of products that have been processed in an amount sufficient to secure the return on costs of the finished products not lower than the key interest rate of the Bank of Russia (Key interest rate of the Bank of Russia, n.d.).

It is advisable to change the structure of state support from the regional budget in order to prevent surplus of certain types of products. The authors believe that the state should support agricultural enterprises following the results of the enterprise's operation for a year and only for those types of products that provide the food security of the region. In this case, the size of cost recovery should not exceed the key interest rate of the Central Bank at the time of allocation of budget subsidies.

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Optimización de la infraestructura del mercado agroalimentario (por el ejemplo del mercado de la papa en la región de Krasnoyarsk).

- Creo conveniente modificar parcialmente el título del artículo. Aparece como: **Optimización de la infraestructura del mercado agroalimentario (por el ejemplo del mercado de la papa en la región de Krasnoyarsk)**, y lo modifiqué a: **Optimización de la infraestructura del mercado agroalimentario (el mercado de la papa en la región de Krasnoyarsk)**.
- No hay inconvenientes con el citado.
- Al final de la sección metodológica se esboza el procedimiento seguido, sin que se den detalles. No obstante, los autores manejan cifras sobre el mercado agroalimentario, en particular, el mercado de papas, en el contexto de la seguridad agroalimentaria de Rusia y la relación de este aspecto con las sanciones económicas.
- Hay coherencia entre las secciones que conforman el artículo.
- Las referencias bibliográficas guardan relación con el tema del artículo.