

Market research for pig breeding in the Russian Federation

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Abstract. The article examines the features and problems of economic activity in pig breeding. Trends in the development of the world pork market and its role in the life of the world community are evaluated. The Russian market of pork producers is analyzed, sales leaders and the efficiency of their activities are determined. According to the level of economic concentration, this market is defined as a market of perfect competition, in which large businesses are in the best economic position, and small businesses are subject to financial instability and self-liquidation. The market for pig breeding in the Sverdlovsk region is studied, as a special region of Russia, which is strategically important and has a developed scientific and industrial potential. A conclusion is made about the existence of a monopolistic competition market, in which a large producer - JSC "Pig Complex "Uralsky" operates, as well as about the exit from the market of manufacturers that cannot withstand competition. The main results of the study are to obtain information on the state of the market for pig breeding, as well as to identify the main problems and challenges faced by pig breeding organizations in the context of global changes and sanctions policy.

1 Introduction

One of the most prolific and fastest-growing livestock industries is pig farming. Products produced in this industry are meat and lard, the use of which is widely used to feed the population, as well as leather, bristles and other materials that are used in light industry. Pork is one of the most consumed meats worldwide and the demand for it continues to grow [1]. This ensured the creation of a significant market, making pig farming a highly profitable business. Pigs are one of the most abundant animal species in the world, being the main available source of protein for millions of people in many geographic regions. In 2021, there were more than 752 million pigs in the world. At the same time, China had the largest livestock - 406 million (or 54%). That year, the European Union and the United States were second and 40th third on the list with more than 150 million and 77 million head, respectively. These countries are followed by Brazil with 37 million head, Canada (14 million), Mexico and South Korea with 11 million each [2, c.39-40; 3, c.92]. Pork is one of the most popular and widely consumed sources of meat worldwide, especially in Europe and Southeast Asia. According to a report by the U.S. Department of Agriculture,

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the most commonly consumed meat in the world is poultry and pork.

At the end of 2020-2022, Russia entered the Top 10 world exporters of pork. Over the past 15 years, Russia has built one of the most modern pig industries in the world. 20 billion dollars of investments were made, modern technologies, genetics, feed were introduced, and as a result, the country became competitive in the world market [4, p.114]. According to experts, the export of pig products in the coming years may increase by more than 100 thousand tons and reach a record 260-270 thousand tons (\$550 million). However, reaching the level of the Top-5 requires, at least, an increase in exports, according to Kukhlevskaya Y., to 350-400 thousand tons [4, p.115], and according to the calculations of Kovalev Y., to 400-500 thousand tons per year [5, p.24].

In all economic regions of Russia, pig breeding is carried out. Preference is given to local breeds of animals that are adapted to specific climatic and economic conditions. Over the past 12 years, the number of pigs in Russia has grown 1.6 times and reached almost 27 million heads [6]. According to Yuri Kovalev, General Director of the National Union of Pig Breeders, over the past 8 years (2015-2023), the annual consumption of meat in our country has increased by 11% and reached 79 kg/person per year [5, c.22]. At the same time, pork consumption increased by 28% and reached almost 30 kg/person (38% of the total). All these indicators have become a record for the last 30 years [2, p.113]. However, this is not the limit. According to Vladimir Kravchenko, Head of Animal Husbandry at the Center for Agroanalytics, pork consumption in the Russian Federation may grow to 32 kg per person [7, p.21]. According to the Ministry of Agriculture of the Russian Federation, pork production in Russia has increased in slaughter weight by more than 1.8 times since 2010 and amounted to 4312 thousand tons in 2023 [AGROMIX website]. Improving the efficiency of pig breeding complexes contributes to the growth of the standard of living of the population and food security of the country.

For any commercial organization, it is important to sell its products on the market, using its resources and analyzing the needs of consumers. To do this, you need to know the market conditions and find new ways to promote products. The purpose of our research is to study the market for pig breeding in the Russian Federation and the Sverdlovsk region. To achieve this goal, we solved the following tasks: studied the trends and current state of the global and national pork market; systematized and evaluated the pig breeding market in Russia and the Sverdlovsk region, identified sales leaders, and assessed the effectiveness of their activities; identified possible ways for further development of pig breeding complexes in the Sverdlovsk region and increasing their efficiency.

2 Materials and methods

The assessment of the situation in the pig breeding market will be carried out using the sites of disclosure of information on the activities of small, medium and large businesses that carry out as the main type of economic activity (according to the OKVED code rev.2): 01.46 - Pig breeding. The resources of the List-Org website - checking counterparties allow you to form a database and rating of commercial organizations operating in this type of economic activity, assess the capacity and type of market, determine the TOP-10 leaders in sales in 2023, assess the financial results of their activities and the economic situation in the context of global changes and sanctions policy. The resources of the TestFirm website - Comparison of the financial condition of the company with industry indicators and competitors, made it possible to make a sample of indicators for 2023 and compare the profitability of sales of pig breeding organizations with the industry average. The website of JSC "Pig Farm "Uralsky" allowed a more in-depth study of the work of the leader of the

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To conduct the study, the methods of grouping and comparison, data analysis, synthesis

and a systematic approach were used.

3 Results and discussions

Based on the results of work for 2022, 476 operating agricultural organizations reported to the state statistics and tax authorities. They are represented mainly by joint-stock companies and limited liability companies. Of these, according to the TestFirm website, 62 organizations had revenues of over 2 billion rubles, 50 organizations - from 800 million to 2 billion rubles. The TOP-10 largest pork producers and sales leaders included organizations from different regions of the Russian Federation (Table 1).

Table 1. Key performance indicators of the leading organizations in Russia in terms of pig breeding in 2023

№	Name	Constituent entity of the Russian Federation, region	Sales revenue, RUB mln	Market share,%	Net profit, RUB mln.	Profitability of sales, %
1	ZAO "Pig Complex Korocha"	Belgorod	69 544	20,97	4122	5,93
2	OOO "Miratorg-Kursk"	Kursk	65 110	19,63	4137	6,35
3	OOO "Tambovskiy bacon"	Tambov	42 553	12,83	4925	11,57
4	OOO "Cherkizovo-Pig Breeding"	Lipetsk	32 837	9,90	6433	19,59
5	OOO "VSGC"	Pskov	30 626	9,23	10670	34,84
6	OOO "APC - Kursk"	Kursk	29 395	8,86	7301	24,84
7	OOO "Ariant Agricultural Firm "	Chelyabinsk	16 656	5,02	924	5,55
8	AO "Siberian Agrarian Group "	Tomsk	16 370	4,94	827	5,05
9	OOO "Agroeco-Vostok "	Voronezh	15 340	4,63	4630	30,18
10	OOO "Znamensky Selection and Hybrid Center "	Orlovskaya	13 213	3,98	3354	25,38
Total			331 644	100,00	47323	16,9

Note: the table was compiled by the authors using the primary reporting of organizations presented on the websites List-Org - Counterparty Verification and TestFirm - Comparison of the financial condition of the company with industry indicators and competitors.

The table shows that the top five sales leaders occupy almost two-thirds of the market – 72.57%. At the same time, unlike in 2022, when four out of 10 organizations showed a negative financial result, in 2023 all sales leaders worked with a net profit. With an industry average return on sales of 10.3%, almost half received a better result. Characterizing the national market of pig breeding, it should be noted that in terms of the level of economic concentration (methodology of the FAS of Russia), it should be attributed to a low-concentration market with a large number of competing companies and

low entry barriers. In other words, it is a market of perfect competition.

In the Sverdlovsk region, the industrial center and growth pole of Russia, the situation on the pig breeding market is somewhat different. In 2022, there were 8 organizations. Among the operating ones, four showed no sales revenue. For the period 2016-2021, 7 enterprises ceased their work. The results of the work of operating firms in 2023 are presented in Table 2.

Table 2. Results of pig breeding in the Sverdlovsk region for 2023

№	Name	Employees	Revenue, million rubles	Market share, %	Profit, million rubles	Profitability of sales, %
1	AO "Pig farm "Uralsky"	1038	8688,00	81,51	1876,00	21,59
2	OOO "Agrocomplex "Gornouralskiy""	272	1546,00	14,50	189,00	12,23
3	AO "Talitskoe"	174	378,00	3,55	18,50	4,89
4	OOO "Agroline"	3	41,70	0,39	-97,50	-233,81
5	OOO "Korn Ds"	1	4,86	0,05	0,26	5,35
6	OOO "Danilov & K"	1	0,25	0,00	0,07	28,00
7	OOO "Polevskoy Pig Farm"	16	0,00		-0,45	
			10658,81	100,00		

The pig breeding market of the Sverdlovsk region is a highly concentrated market, in which two producers occupy a share of 96%. Such a market can be characterized as a duopole market. But, at its core, it is very close to the market of monopolistic competition. In addition, it should be noted that small businesses do not survive well in this market. Only large agricultural organizations work with a positive financial result.

The sales leader in the Sverdlovsk region is JSC Uralsky Pig Complex. In 2013, after the completion of the construction of the second stage of the pig complex and the launch of a modern slaughterhouse, this organization began to carry out a full closed cycle of meat processing processes. It is a subsidiary owned by one of the leading agro-industrial holdings in the Siberian region (Sibagro [Uralsky Pig Complex website]).

The Uralsky Pig Farm embodies new production standards, being a modern and high-tech agro-industrial enterprise. Its capacity is more than 45 thousand tons of pork per year, which makes it the largest meat producer in the region. One of the features of the Uralsky pig farm is the high bacon of meat, which is more than two layers. This means that the pork from this enterprise is not only fresh and natural, but also has a high content of meat without fat layers. All these characteristics make pork produced by the Uralsky pig farm an ideal choice for consumers who appreciate the quality and taste of meat products. Regardless of whether you need pork for cooking homemade meals or for selling in a restaurant, the Uralsky pig farm guarantees the high quality of its products.

In order to ensure a reliable supply of products, JSC "Pig Complex Uralsky" strictly complies with all requirements and standards established by regulatory bodies and regulatory organizations in relation to its activities. Thanks to this, the company has a stable and successful position in its market. Sales volumes have a steady upward trend, which cannot be said about the company's income (Figure 1). An organization's profit, both gross and net, is subject to both growth and decline.

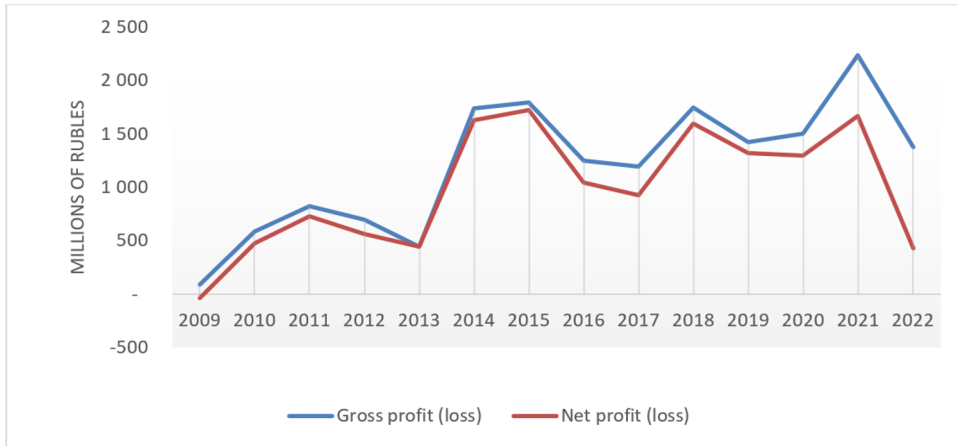


Fig. 1. Dynamics of gross and net profit of JSC "Pig Complex Uralsky" for 2009 – 2022

Periods of decline may be associated with investment in the modernization and renewal of fixed assets. This stimulated periods of income growth during the payback periods of investment projects. Between 2020 and 2022, the golden rule of economics, which implies an increase in profits with an increase in sales, was not followed. However, an interesting situation was found in Uralsky Pig Complex JSC: although the profit decreased by 67.37%, the volume of sales increased significantly by 30.76%, and all the company's assets increased by 45.53%. It is possible that the company has actively invested in the development of production, modernization of equipment and improvement of product quality. This explains the increase in sales and the increase in all assets of the organization. Maslova V.V. in his research also notes that in the second decade of the 21st century, state support measures were implemented aimed at the construction of new high-tech pig farms, which made it possible to reconstruct and modernize ...

One of the problems of the organization is the use of expensive pre-starter feed. Their rise in price in recent years has led to an increase in costs by almost 25%. Based on current trends, the increase in feed prices automatically leads to an increase in production costs and an increase in the cost of the product in animal husbandry. The possibility of using its own feed base will allow the company "Pig Complex "Uralsky" not only to reduce the cost of production, but also to ensure the strategic security of the enterprise. The organization has farmland and arable land at its disposal. We believe that in a company engaged in pig breeding, the effective use of grown feed crops is possible through their processing into compound feed for its own needs. To do this, it is necessary to reconstruct a temporarily empty building into a workshop for the production of compound feed.

In a constantly changing economic environment, a company needs to actively adapt to the market and look for new opportunities for development. The only way to ensure the sustainable growth and success of a company is to identify and attract solvent consumers. It is necessary to go through a thorough selection and analysis of the market in order to identify more attractive target audiences. Connecting new partners and establishing long-term contractual relationships with them can be seen as a strategic advantage. This allows the company to create stable and reliable ties with key players in the market, which will increase its competitiveness and stimulate growth.

Both foreign and Russian researchers pay great attention in their scientific works to the introduction of innovative technologies in pig breeding. They relate to both the reduction of the anthropogenic load [9] and the automation of pig breeding [10,11], the introduction of intelligent systems for monitoring and feeding pigs [12].

4 Conclusion

To sum up, the following conclusions can be drawn:

Pig breeding is a promising industry for development, since consumers have an increased interest in this meat, which has a good taste and digestibility;

Russia is an active exporter of pork to the world commodity market. In the context of the sanctions policy, the country has reoriented its sales to the Asian market;

Pig breeding is evenly distributed across the economic regions of Russia. A large number of livestock organizations operate in the pig breeding market. However, the economic situation of many is unsustainable, resulting in inefficiencies and closures;

The Russian pig breeding market can be characterized as a market of perfect competition with low entry barriers, but requiring certain initial investments to create fixed production assets;

To increase the efficiency of economic activities for pig breeding, we recommend the development of our own feed base, the revision of contractors for the supply of finished products in order to increase the reliability and longevity of the concluded contracts, as well as the introduction of innovative technologies.

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