

Revisiting the question of the small business development in the agricultural sector

Elena Bakanova

*Department of Marketing, Economics of
Enterprises and Organizations.
Saratov Social and Economic Institute (branch)
REU n.a. G.V. Plekhanov
Saratov, Russia
samginaelena@yandex.ru*

Abstract—The article is devoted to the development of small agricultural business in Russia. The aim of the study is to identify the importance and significance of digitalization in the agricultural sector of the economy, as well as the possibility of using digital technologies as a priority factor of state support for small businesses in the agro-industrial complex. The importance of digitization of a set of measures and services provided by state support tools to small forms of business in the agricultural sector of the country's economy is being revealed. The purpose of the study is to reveal the significance of digitalization in state support to small forms of agricultural business in the context of achieving food security in the country, “the effectiveness of state support provided to small forms of business in the agro-industrial complex” [1]. Conclusions about the positive trends in the development of small business entities in the context of new opportunities and constraints are being made. In the conclusion of the article, development prospects are substantiated and attention is being paid to problematic factors of introducing digital technologies as an integral element in the development of small forms of agricultural business in the Russian Federation.

Keywords—*agriculture, agrarian sector, state regulation of agriculture, small agricultural business, methods of state support of small agricultural business, digital technologies in the development of agriculture, entrepreneurship in agriculture.*

I. INTRODUCTION

The introduction of digital technologies in the agro-industrial complex of Russia contributes to the global digital transformation of the agrarian sector of the economy, and also to the improvement of competitiveness of the national economy, as it is one of the most important and significant components in the country's total produced GDP. The Russian Federation has sufficient potential to reach the leading levels and consolidate positions among the states of the world market participants - producers of agricultural products and consumer goods.

For Russia, it is important to ensure the stability of social aspects, including increasing the potential and growth of the national economy in terms of the development of small agricultural business. To accomplish these tasks, digitalization and information technology development of mechanisms in the interaction of small subjects of the agro-industrial complex with other structural directions of the

country's economy are being actively used and introduced. The priority direction in the medium term of digitalization is the strategy of introducing digital technologies into programs of crediting, subsidizing, information support for small agricultural businesses by improving the efficiency and optimizing the interaction of integrating horizontal and vertical links of small businesses in the agro-industrial complex with clusters and government bodies. Through the use of innovative products, concessional lending programs, subsidy and leasing programs, with a focus on small agricultural business, improving biotechnology, developing biotechnology programs and updating land improvement systems aimed at more efficient and rational use of land resources, as well as reducing food production and distribution derived from genetically modified plants.

II. LITERATURE REVIEW

To implement the main objectives of the state policy in the field of development of small and medium agricultural enterprises in the agricultural sector, the Russian Federation has developed a set of measures and programs, as well as financial support mechanisms for lending, subsidizing and leasing. The State Program for the Development of Agriculture and Regulation of Agricultural Products, Raw Materials and Food Markets for 2013–2020, adopted by the Decree of the Government of the Russian Federation of July 14, 2012, following the meeting of the Presidium of the Presidential Council of the Russian Federation on March 22, 2017 was from 01/01/2018 made subject to project management program in order to improve the efficiency of its implementation [2]. The Digital Economy of the Russian Federation Program [3] was approved in order to increase the availability of goods and services produced in the digital economy using modern digital technologies, increase literacy and awareness, improve the quality of public services and accessibility, and improve information literacy and security of subjects, including small agricultural business.

The documents below were also used as analytical materials in the article:

- Decree of the President of the Russian Federation dated July 21, 2016 No. 350 “On measures to implement the state scientific and technical policy in the interests of agricultural development” [2.4];

- Decree of the President of the Russian Federation of May 5, 2018 No. 204 “On the national goals and strategic objectives of the development of the Russian Federation for the period up to 2024” [2.4];
- “The Federal Scientific and Technical Program for the Development of Agriculture for 2017–2025,” approved by the Decree of the Government of the Russian Federation of August 25, 2017, No. 996 [2.4].

The purpose of the study is to justify the importance of the digital economy in the implementation of the designated strategic goals for the development of small agricultural business in the Russian agricultural sector and directions for further improving the digital and information state support system to overcome the existing barriers for the further stable development of small businesses in the Agricultural sector.

III. RESEARCH METHODOLOGY

As a research method, the systematic approach was used, implying a study of small agricultural business as a component of the agro-industrial sector of the economy as a complex organism of a socio-economic environment. The results of scientific work are based on the use of a functionally-targeted approach, in accordance with which the paradigms of the development of small agricultural business are considered, as well as its functions in achieving the strategic goals of the development of the AIC of Russia. The findings are confirmed by comparative and computational methods of studying the role of small agricultural business in the Russian economy, its dynamics, structure, as well as analytics of digital and information methods and tools of its state support. To analyze the most problematic areas of interaction of representatives of small businesses in the agro-industrial complex with the mechanisms and structures of state support in the framework of ongoing activities of the digitalization program and the development of the agricultural industry, a survey method was used.

IV. PRACTICAL RELEVANCE

The scientific hypothesis of the study represents the assumption that the use of the latest digital and informational technologies in the agricultural sector of the country's economy makes it possible to create intelligent, digital agriculture in the regions of Russia, thus providing social,

technological, economic and demographic development of the country's regions. As part of Russia's food policy, the small agricultural business sector is most susceptible to the use of digital and information technologies, as the most problematic, economically unstable and exposed to unfavorable external socio-economic factors. Small agricultural business can be one of the growing points of agricultural raw materials and food products exports with high added value in the global food market. It may occur with the creation of a favorable informational and digital climate, as well as with appropriate financial state support. Sustainable development of small farms in the agro-industrial sector using digital technologies will solve the problem of accelerated import substitution of the main types of agricultural products. The state program for the development of agriculture and regulation of agricultural products, raw materials and food for 2013–2020, laid down in dynamics of the volume of livestock production in 2020 by 10.2 percent compared to 2015, and crop production by 14.3 percent [5].

V. RESEARCH RESULTS

According to the information of the 2016 All-Russian Agricultural Census, there are 36.1 thousand agricultural organizations in Russia, 24.3 thousand of which are small enterprises, including micro enterprises, 174.8 thousand peasant farming units and sole entrepreneurs, 23.5 million citizens keep their private subsidiary farms [1]. The volume of agricultural products produced by small forms of management in 2017 is about 12.5% of the industry's products. The share of agricultural production made by peasant farming units, including sole entrepreneurs in 2017 increased by 2.7% comparing to 2013, (Table 1). The growth rates of the production of agricultural products produced by small forms of agricultural enterprises are ahead of the growth rates of production in agricultural organizations. The agricultural production index in agricultural organizations was 105.8% in 2017, and in peasant farming units and sole farming it was 109.8%, as can be seen from table 2. According to preliminary estimates, contribution of small agricultural business to solving the problem of import substitution by the end of 2020 in prices of 2015, maintaining the same growth trend as of 2017 to 2014, will be about 843.63 billion rubles and 14.5% of the industry's output, respectively [6].

TABLE I. AGRICULTURAL PRODUCTION BY CATEGORIES OF FARMS (IN ACTUAL PRICES; MILLION RUBLES)

Years	Farms of all categories			Peasant farming units, sole entrepreneurs			
	agriculture	including		agriculture	specific weight to farms of all categories, %	including	
		Plant growing	Livestock breeding			Plant growing	Livestock breeding
2013	3 687 075	1 918 774	1 768 301	361 321	9,8	277 762	83 559
2014	4 319 050	2 222 464	2 096 586	429 745	9,9	330 451	99 294
2015	5 164 877	2 791 370	2 373 507	574 981	11,1	459 986	114 995
2016	5 505 755	3 035 819	2 469 936	664 179	12,1	536 556	127 623
2017	5 111 771	2 601 014	2 510 757	637 038	12,5	500 630	136 408

* Compiled according to the data [6].

TABLE II. INDICES OF AGRICULTURAL PRODUCTION BY CATEGORIES OF FARMS (IN COMPARABLE PRICES; AS A PERCENTAGE OVER THE PREVIOUS YEAR).

Years	Agricultural units			Peasant farming units, sole entrepreneurs		
	Agriculture	including		Agriculture	including	
		Plant growing	Livestock breeding		Plant growing	Livestock breeding
2013	108,4	112,8	104,6	118,4	124,0	102,3
2014	106,7	107,2	106,2	110,4	111,6	106,2
2015	104,5	102,8	106,0	107,6	108,0	106,2
2016	108,0	111,5	104,5	113,1	115,2	104,9
2017	105,8	105,3	106,3	109,8	110,5	106,8

* Compiled according to the data [6].

From the above given data, the consolidation of peasant farming units and private subsidiary farms is clearly seen, their stability is increasing, and the production volume of the agro-industrial complex industries is going up. But, nevertheless, the necessary further building up and effective use of the potential of small agricultural business in Russia requires further improvement of the system of state support, including the full range of tools. One of such tools is the introduction of digitalization into the agrarian sector of the economy, since the development of the digital economy in agriculture can make it possible in the long run to transform it into a high-tech business due to the explosive growth of productivity and lowering of costs [7].

When analyzing the statistics provided by the Russian Federation Ministry of Agriculture [5], one can see that the share of the digital economy in Russia's GDP in 2016 was only 2.8%, while it was 12.4% in the UK, 8.0% in South Korea, 6.9% in China, 5.6% in India and Japan. Russia is only 15th among the G20 countries in this list, and there is nothing to say about small agricultural business... But in the same group in terms of growth rate Russia holds the 8th position in relation to 2010. The digital transformation of agriculture, with an emphasis on supporting small agricultural business, will bring the agrarian segment of GDP to a new, more technological level, and will solve such tasks as:

- increase in the contribution to the economy in 2024 to 5.9 trillion rubles;
- growth in export earnings of enterprises up to \$ 45 billion;
- improvement of management efficiency at all stages from production to marketing;
- increase in the efficiency of agricultural production and sales of products, reducing the cost of production processes;
- involvement of new professions in agricultural production;
- increase of incomes in the countryside.

According to analytical data, at different stages of production of agricultural products in the land-selection chain, seed production-production-storage-sale, up to 40% of the cost is lost. So, for example, savings and, consequently, increase in the profitability of small agricultural enterprises with the use of information-digital technologies could be: from land monitoring - 3%, application of breeding activities - 4%, reduction in production costs - 15%, loss reduction during storage - 15%, increase the profitability from sales to 3% with monitoring of prices and export-import. Digitization

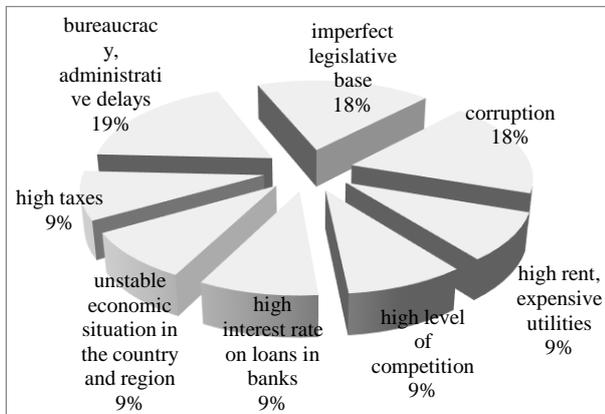
of small agricultural enterprises could allow creating a business model that differs from the traditional ones, characterized by increased use of agricultural machinery and equipment, accessibility of modern technology, the inability to increase productivity, the high costs of energy and materials. Create a new model with optimized processes in: production planning, data management, production control and safety, service maintenance, tracking the processes of moving raw materials and finished products, integrating cycle management into a single information management center for production. Combining the means of production, vehicles and other means of servicing the production process into an integrated information space will allow you to: transfer part of the functionality of enterprise employees to machines and equipment, carry out work remotely at any time from any place, strengthen control over production processes and reduce losses of resources and labor results. Digital management methods will allow small agricultural businesses to be closer to the consumer, and these are: preparing forecasts and the needs of the market, supply and demand; identifying consumer preferences when analyzing big data (social networks, search queries, purchases); building a chain of product sales without intermediaries, directly through electronic trading platforms which guarantees product quality, taking into account the participation of the manufacturer in digital traceability systems. Digitalization of small agricultural business with the use of ERP-systems, electronic trading platforms, digital traceability, electronic document management, will enable its integration into the global space, combine and optimize the processes of supply and marketing of agricultural products; improve the efficiency of financing using electronic services for issuing loans, subsidies, insurance, hedging risks; integrate management of various equipment, repair and logistics of spare parts and components into a single software product. The introduction of digital economy technologies will ensure the receipt of positive economic effects and reduce costs in the implementation of an integrated approach to 23%. The cost of Russian IT-products of the agro-industrial complex is by several orders less than foreign analogues: from 0.75 euro / ha, while foreign farmers use services at a price of 800 euro / ha. The results of the study on the example of grain production are given in table 3.

TABLE III. DIGITAL TECHNOLOGY IMPACT ON THE COST OF GRAIN PRODUCTION.

Expense item	Before applying IT technologies, %	After applying IT technologies, %	Effectiveness of application
Salary	13,2	7,8	Higher qualification
Fertilizers	8,7	4,5	Reduces damage from fertilizers overuse
Planting material	16,2	11,4	-
Oil products	15,6	10,2	Reduces exhaust emissions
OS content	18,3	15,7	Transition to modern power equipment
Use of chemicals	5,1	3,2	Prevention of excessive use of herbicides
IT costs	0,1	5	-
Other expenses	22,8	19,2	-
Total	100	77	-

* Compiled according to the data [5].

To identify problems hindering the integration of digitalization with the goal of sustainable development of small forms of agricultural business, a sociological survey of representatives of small agricultural business in the Saratov region was conducted. The study showed that the most frequent answers of respondents about the problems of small business development in the region were the answers: “high taxes”, “high interest rate on loans in banks”, “unstable economic situation in the country and region”, “high level of competition”, “corruption” (Fig. 1) [7].



* Source: compiled by the author

Fig. 1. The most frequent answers to the question “What hinders the development of small and medium-sized businesses in the Saratov region?”, %.

Of course, the results of the survey look more than pessimistic, but at the same time, they revealed a serious gap between the small business environment and the mechanisms of state support. And one of the reasons for this is low awareness of people and small business representatives. Thus, the introduction of modern digital technologies without a sufficient information component becomes quite a challenge. To this end, within the framework of a pilot project, information state support centers “My Business” were created, combining the whole range of support from information consulting and drawing up business plans to the

process of registering a company and recruiting staff, programs of preferential financing, loans, subsidies or other types of financial support.

Due to the active information support by authorized representatives of the state, by December 31, 2017, according to the Russian Federation Ministry of Agriculture, authorized credit organizations entered into 7873 credit agreements worth 664 billion rubles with borrowers, of which 5110 credit agreements for preferential short-term loans worth 205 billion rubles, 2763 loan agreements for preferential investment loans in the amount of 459 billion rubles. In 2017, small agricultural business support was provided in the form of grant support and development of family livestock farms, entry-level farmers, consumer cooperatives, and reimbursement of interest rates on loans. 10.3 billion rubles or 26% of the “single” subsidy was allocated for these purposes. Evaluation of the impact of financial support for small business entities of the agro-industrial complex is given in Table 4.

TABLE IV. IMPLEMENTATION OF THE PLANNED VALUES OF THE TARGET PERFORMANCE INDICATORS OF THE EVENT “SUPPORT FOR PREFERENTIAL LOANS TO AGRICULTURAL ORGANIZATIONS” IN 2017

Indicator	as it was planned	result	implementation
Volume of issued short-term loans for the development of the agro-industrial complex at a preferential % rate, based on 1 ruble of subsidies, units	10	26.29	2.6 times more
Volume of investment loans issued for the development of the agro-industrial complex at a preferential% rate, based on 1 ruble subsidies, units	10	44.28	4.4 times more
Share of subsidies received by small forms of management on concessional loans, %	20	11	55

* Compiled according to the data [5].

VI. CONCLUSION

Therefore, we can conclude that the digitalization of small agricultural business in Russia is of high importance, as well as the existing mechanisms of state information support in the development of small agricultural business, solution the country's self-sufficiency in key areas of agricultural production and strengthening its position in the global market for agricultural producers. As can be seen from the above analytics, the introduction of digital technologies and state information support mechanisms in the small business management segment of the agro-industrial complex of the Russian Federation, positive conclusions can be made about the effectiveness of the activities carried out. But, nevertheless, the problem of insufficient level of digitalization for small agricultural entrepreneurs remains unresolved. Global agro-export market, realizing the potential of the small business segment in the agrarian economy, addressing geopolitical issues of small business in agriculture require further digital development. According to the World Bank, “in order to be ready to meet the future in which the pace of innovation will accelerate, we must look for new ways to help countries increase the volume and efficiency of investment in their population” [9].

VII. DISCUSSION OF THE RESULTS

The digital transformation of agriculture is not a matter of choice or competitive dominance, it is the basis for the survival of the agro-industrial complex, the state as a whole. Its key advantages are speed, flexibility, adaptation to rapid changes. At the same time, we must not forget that the digital economy is not about things, but about people. Along with the introduction of digital technologies (artificial intelligence, big data, Internet of things, robotics, block-chain, etc.), there is a global task of forming and changing culture, ethical norms and rules. The main objective of digitization of the agro-industrial complex is to influence the most susceptible to the introduction of new technologies - small agricultural business, as it is more mobile and flexible in the context of sanctions restrictions. Speed of development and application of new technologies in an ever-changing digital world is a major factor in business viability. Solution to this problem is the creation of financial conditions, a strong reputational platform for technology start-ups with high-speed, mobile perception of everything new, and good flexibility. The "My Business" Centers, created as part of a pilot project, make it possible to create a startup ecosystem, enjoy the benefits of strategic planning, achieve profit growth through breakthrough solutions and improving the quality of services for small agricultural business entities. On the other hand, their aim is to bring the startup to the international market,

provide valuable customer bases, operating mechanisms. As President Vladimir Vladimirovich Putin stresses, development of the digital economy, the launch of new business models will allow Russian companies to become more competitive, and also will generally provide higher standards of living for the citizens of Russia.

REFERENCES

- [1] E.N. Bakanova, "Tools for small business information and financial support," *Vestnik of SSSEU*, No. 3 (67), pp. 9-15.
- [2] Government of the Russian Federation. <http://government.ru/news/>
- [3] Order of the Government of the Russian Federation, July 28, 2017. Program "Digital Economy of the Russian Federation". <http://static.government.ru/>
- [4] Russia's computer reference legal system Consultant Plus. <http://www.consultant.ru/>
- [5] The Russian Federation Ministry of Agriculture. <http://mcx.ru/>
- [6] Federal State Statistics Service <http://www.gks.ru/>
- [7] E.N. Bakanova, "Problems of digital technologies in information state support of the agro-industrial complex. Scholarly articles collection: Actual problems of modern economy," *Proceedings of the VI International Scientific Practical Conference, Part 2*, pp. 140-143, 2018.
- [8] E.N. Bakanova, "Role of government mechanisms in the information security system in the development of small businesses," *Information security of the regions*, No. 2 (27), pp. 29-33, 2017.
- [9] World Bank. Annual report 2018. <http://www.worldbank.org>