IOP Conference Series: Earth and Environmental Science

PAPER • **OPEN ACCESS**

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To cite this article: S Vorobyov *et al* 2019 *IOP Conf. Ser.: Earth Environ. Sci.* **274** 012031

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Economic efficiency of the integrated formations functioning in the regional agriculture

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Abstract. The study was conducted to determine the financial sustainability, profitability of activities, efficiency of using fixed assets, land, labor, independently managing agricultural enterprises and organizations that are part of agricultural holdings. The stages of creation and transformation of integrated formations are highlighted in the papers. The authors describe the experience of the functioning of agricultural holdings in the Altai region, which is one of the main agro-industrial regions of Russia. The prevalence of integrated formations of organizations of the agro-industrial complex, state, and municipal administration in the structure of head companies was revealed. Based on the annual financial statements of more than 750 agricultural organizations in the region, a number of financial and economic indicators were calculated. It was revealed that self-managing entities were characterized by higher efficiency in the use of labor, fixed assets, agricultural land and financial stability, having a more diversified industry sector than the agricultural holdings did. Similar results contradict the management practices of most regions of Russia, in which the membership of agricultural organizations to agricultural holdings leads to an increase in the economic efficiency of resource use and financial condition.

In the agrarian economy of Russia in the last one and a half decades, there are quite contradictory trends associated, on the one hand, with the increase in the value of large holding formations in agricultural production, and on the other hand, with the development of small business forms. According to the information of the audit and consulting company BEFL (www.befl.ru), 55 large companies operate in the field of agriculture, collectively controlling over 12.6% of agricultural land in Russia on other legal grounds, which is higher than in 2012 by 5.4 pp.

Research in the field of agro-industrial integration at all stages of the development of agriculture in Russia received considerable attention. In modern conditions, the priority tasks of research is to justify the effectiveness of organizational and economic relations between the subjects of holding groups [1, 2, 3, 4].

In the process of our research, general scientific (scientific abstraction, inductive, deductive, comparative analysis) and special approaches were used. Special methods: comparison, monographic, balance, regulatory, economic and statistical (statistical sampling, economic grouping, the calculation of statistical indicators, including averages, absolute and relative values). For the analysis of statistical data, the Microsoft Office software package was used.

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The Altai region is one of the few regions of Russia which agricultural potential allows to fully meet the domestic demand for almost all main types of food products, with the exception of heat-loving crops (melons, fruits). The resources of the regional food market are formed mainly due to the products of own production, which ensures a high level of food independence in the region. Over the past five years, in the Altai region, an average of 1.8 tons of grain has been produced, which is 1.8 times higher than the volume required for food security and 2.4 times higher than the average for the Russian Federation. In 2017, the region produced (per capita) about 595 kg milk, 131 kg of cattle and poultry for slaughter in live weight, 473 pcs. eggs, more than 2 tons of grain, 365 kg of potatoes, and 98 kg of vegetables, food melons and gourds.

However, in 1990-2017, there were significant transformations in the sectoral structure, the structure of organizational and legal forms, forms of ownership, relations with partners in the AIC system. In conditions of practically perfect competition in the industry, uncertainty of environmental factors, price volatility in the agricultural market, the complexity of modeling market strategy and tactics of competitors, unregulated and unpredictable trends of constant adjustment of commodity producers are formed. The instability of the agrarian economy with low management efficiency in the majority of agricultural organizations and peasant farms was a major factor in the financial insolvency of a number of organizations, the deprivation of rural communities, the development of predominantly corporate (property) integration in the AIC system. The contract form of relations in the agro-industrial formations is more developed abroad. In Russia, it is more contractual when the integrator company (as a rule, enterprises of the milling and food industry) became the owner of all or part of the assets of agricultural organizations in order to form their own raw materials [5, 6, 7, 8].

In the Altai region, only 27 companies acted as integrators in 2016-2017, two of which were in liquidation as of July 22, 2018 (Klyuchevskoy Elevator OJSC, Emerald Country Holding LLC). Evaluation of the structure of marketable products of agricultural organizations in the region, which are part of integrated formations in 2016, indicates its significant difference from the income structure of self-managing enterprises: 43.1% of all revenues were provided by poultry, 16.0% in grain crops, 12.4 % in beet breeding, practically no sunflower growing on oilseeds. In 2016, agricultural enterprises (that are part of integrated formations concentrating 23.2% of workers and 11.9% of arable land) produced 26.4% of gross output, paid 28.1% of taxes and contributions, received 21.6% of the budget funds.

The economic efficiency of using the resources of enterprises that are part of integrated formations, despite the prevalence in the structure of marketable products of marginal crop and livestock production (grain, sugar beet, poultry products, milk) was significantly lower than in independently functioning entities: per 1 employee received 24.7% less marketable products, 4.7% in gross income, 19.3% lower capital productivity of fixed assets, 1 ha of agricultural land received 63.0% less gross output. Lower wages at the level of 15.9 thousand rubles per month provided a higher level of profitability. It should be noted that the state support for agricultural activities of agricultural holdings is significant: the budget funds received higher profitability of their enterprises by 6.7 p.p., while in self-managing entities, profitability increased by no more than 4.2 p.p. (Table 1).

The lower efficiency of resource use in holding companies is explained by the instability of their financial condition: in 2016, every fourth company was in class 4 or 5 of financial sustainability, which is characterized either by a significant loss of solvency or a pre-bankrupt state (to determine the classes, the methodology approved by the Decree of the Government of the Russian Federation of January 30, 2003 No.52 “On the implementation of the Federal Law” On the financial rehabilitation of agricultural producers” was used). Accordingly, in these organizations cash flow is lower than their outflow, there is no possibility of confident maneuvering and efficient use of cash, the implementation of a stable production activity.

Thus, at the expense of available funds, agricultural enterprises in the structure of agricultural holdings in 2016 could repay no more than 23.3% of short-term debt (self-managing entities 27.4%), due to additional attraction of receivables and short-term financial investments – no more than 54, 4% (not included in holdings – 94.0%). Current assets exceeded current liabilities only by 83.2%, and it

was by 3.1 times in self-managing subjects. Formation of assets was carried out mainly through borrowed funds.

Thus, the conducted studies have revealed positive and negative factors for the development of integrated formations for the regional economy and society as a whole, as well as for agricultural producers, leading companies of holdings. The structure of the head companies of integrated formations operating in the Altai region was dominated by organizations in the agro-industrial sector, state, and municipal administration. Agricultural production in them is mainly related to poultry farming, grain field crops, and sugar beet farming, which differs significantly from the typical specialization of regional enterprises. At the same time, the economic efficiency of resource use and financial stability in agricultural enterprises that are part of agricultural holdings are significantly lower than in independently functioning economic entities. In other regions of Russia, on the contrary, the belonging of agricultural organizations to agricultural holdings led to an increase in the efficiency of their activities and an improvement in their financial condition [9, 10, 11, 14, 15].

Table 1. Economic efficiency of resource use of agricultural enterprises of the Altai region in 2016*.

Indicators	Agricultural organizations	
	included in integrated formations	not included in integrated formations
Labor productivity, thousand rubles / person.		
by revenue	1249	1658
gross income	772	810
Capital productivity, rub. / rub.	1.8	2.2
Received on 1 hectare of agricultural land gross production, thousand rubles	13.5	36.5
Average monthly wage of employees, rub.	15898	21021
The level of profitability of production, %	34.6	23.4
The level of profitability of production (including the budget funds received), %	41.3	27.6

* Calculated by the authors according to the online publication obtained from the following online datasets: SPARK (Spark-Interfax), “Rusprofile.ru”, and “Center for Disclosing Corporate Information”.

To improve the efficiency of the functioning of integrated formations in the agro-industrial complex, it is necessary to create conditions for improving the quality of management and entrepreneurial activity of the heads of agricultural enterprises, orienting financial policy to the interests of the direct participants in agricultural production. In addition, it is necessary to form the legislation regulating the activities of integrated formations in the agro-industrial complex, control of its observance, as well as the development of contractual relations between partners in the agro-industrial complex system. To prevent the appearance of negative externalities arising from the bankruptcy of entities that are part of agricultural holdings, it is necessary to carry out state monitoring and scientific and analytical support for their activities [12-13].

This work was financially supported by the Russian Foundation for Basic Research (project 18-410-220018).

References

[1] Lobova S V and Churina E V 2006 *Economics of Agricultural and Processing Enterprises* **7** pp 41-44
[2] Kolobova A I and Proschenko E A 2002 *Pricing in the agricultural sector of the agro-industrial*

complex monograph (Barnaul, Russia: GIPP Altai) p 326
[3] Uzun V Ya and Shagaida N I 2015 *Agrarian Reform in Post-Soviet Russia: Mechanisms and Results* (Moscow,Russia: Publishing house "Delo" RANEPA) p 352
[4] Graeub B E, Chappell M J, Wittman H, Ledermann S, Kerr R B and Gemmill-Herren B 2016 *World Development* **87** pp 1-15
[5] Altman M 2015 *Journal of Cooperative Organization and Management* **3** pp 14-23
[6] Bogdanov N, Rodić V and Vittuari M 2017 *Communist and Post-Communist Studies* **50** pp 319-330
[7] Vorobyov S P, Gritsenko G M and Vorobyova V V 2017 *Economics of Agricultural and Processing Enterprises* **10** pp 29-31
[8] Shagaida N I 2015 *Economics of Agricultural and Processing Enterprises* **3** pp 17-22
[9] Borisova L I 2010 *Economics of Agriculture of Russia* **1** pp 54-57
[10] Shilova N P 2009 *The Organizer of Production* **1** pp 27-32
[11] Epshtein D, Hahlbrock K and Wandel J 2013*Post-Communist Economies* **25** pp 59-81
[12] Bogoviz A V, Osipov V S, Chistyakova M K and Borisov M Y 2019 Comparative analysis of formation of industry 4.0 in developed and developing countries *Studies in Systems, Decision and Control* **169** pp 155-164
[13] Bogoviz A V, Chistov I V, Zakutnev S E, Shkodinsky S V and Prodchenko, I.A. 2018 Financial incentives for the creation of high-performance jobs *Quality - Access to Success* **19(S2)** pp 67-70
[14] Bogoviz A V, Semenova E I and Alekseev A N 2018 New challenges for regional economy at the modern stage *Advances in Intelligent Systems and Computing* **622** pp 574-580
[15] Semenova E I and Domrachev A S 2014 Evaluation of social and economic efficiency in agriculture *Economics of Agriculture of Russia* **12** pp 63-68