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Integration Processes in the Meat Products Sub-Complex of the Agro-Industrial Complex of Russia: Results, Specifics and Ways of Development*

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Abstract. The Russian agro-industrial complex is characterized by a variety of integration processes, complexity of their forms, contradictory nature of integration results, strengthening of the impact of the integration on the rates of economic growth and development of export potential of the country. In this regard, it is becoming highly relevant to study agro-industrial integration in various sectors of the agro-industrial complex, to define the socio-economic role of integration units, and to substantiate scientifically the prospects for further development of integration processes. The aim of the present work is to carry out a comprehensive study of the processes of agro-industrial integration in the meat products sub-complex of the agro-industrial complex of Russia, to identify their characteristics and areas of further development. The research is carried out in the framework of the system approach to the study of socio-economic phenomena and we use abstract-logical, historical, economic-statistical, and expert methods. The article analyzes the main indicators of development of the industry and concludes that the meat products sub-complex is one of the most dynamically developing sectors of the domestic agro-industrial complex, in which there is a trend of increasing production, import substitution, and exports of meat and meat products. We conclude that integration processes are dominated by vertical regressive integration, and the

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prevailing organizational form is agro-industrial holding; besides, we point out that Russian capital plays a major role in the production of meat and meat products. We reveal that among the branches of meat product sub-complex, poultry farming has the highest level of production concentration, it is followed by pig farming; as for beef cattle breeding, the concentration level is low there. In recent years, large agricultural holdings within the sub-complex deepened their vertical integration, continued expansion into the regions, and extended their production interests to other agricultural sectors. We conclude that the activity of integrated formations of the meat products sub-complex of the Russian agro-industrial complex fully demonstrates the implementation of advantages of large-scale production and agro-industrial integration, but it also has certain negative socio-economic consequences. In conclusion, we put forward the ways of further development of integration processes, on which the efforts of the state, business, industry associations and the scientific community should be focused.

Key words: agro-industrial complex, meat products sub-complex, integration processes, integrated unit, agricultural holding.

Introduction

Currently, agricultural economists pay much attention to the formation and development of integrated structures in the agro-industrial complex. This is due to the fact that the domestic agro-industrial complex includes a variety of integration processes, their forms are becoming more complex and their consequences ambiguous; economic growth rates, competitiveness of agro-food products and the development of export potential of the industry experience an increasing influence of integration.

Theoretical, methodological and practical aspects of agro-industrial integration in modern Russian agriculture were discussed in the works of such scientists, as O.Yu. Antsiferova, G.A. Baklazhenko, D.V. Bogachev, N.A. Borkhunov, A.S. Bychutkin, V.V. Kudryavtsev, I.A. Il'in, O.A. Makarevich, A.S. Mindrin, A.L. Poltarykhin, N.I. Pyzhikova, O.A. Rodionova, P.M. Sovetov, A.V. Tkach, V.Ya. Uzun, I.F. Khitskov, O.P. Chekmarev, N.I. Shagaida, I.V. Emanuel', etc. However, in the majority of cases, the research in this subject area concerns agriculture in general or deals with particular issues related to the creation of integrated structures and management, while there are virtually no works that analyze integration processes in various sub-complexes and industries within the agro-industrial complex and identify their features and outcomes. We consider it relevant and theoretically and practically significant to conducting such studies, which form the information base for the use of the potential of integrated structures, areas of further integration processes, and adoption of effective state and corporate management decisions.

Integration processes in the meat products sub-complex of the Russian agro-industrial complex constitute the subject of research in the present paper. The goal was to carry out a comprehensive study of agro-industrial integration processes in the sub-complex, identify their characteristics and areas of effective development.

We defined the following objectives for our research:

1) to study main development indicators in the industry in recent years;

2) to identify the types and forms of integration used most widely in the meat products sub-complex of the agro-industrial complex;

3) to identify advantages and disadvantages of agro-industrial integration in the sub-complex;

4) to substantiate areas of further development of agro-industrial integration processes in the meat products sub-complex.

Scientific novelty of the research consists in the fact that it develops methodological approaches to the study of agro-industrial integration; expands and specifies scientific notions concerning integration processes in the agro-industrial complex in the context of industry-related specifics of the meat products sub-complex; discloses the genesis, features and socio-economic results of implementation of agro-industrial integration within the sector; substantiates the ways in which integration processes and integrated structures in the sub-complex can be developed further.

The term “economic integration” appeared in the 1930s in the works of German and Swedish economists; in Latin, “integration” means “unification into a single whole”. Scientists consider integration from the viewpoint of different approaches: dialectical, system, political economy, and institutional; but in any case, integration means the development of an organization through its unification with other enterprises. The result is an integrated formation (structure), the relations between the participants of which go beyond market transactions.

Integration serves as a tool for connecting individual economic entities, leading to such a situation when on the basis of various relationships a qualitatively new production system is formed. At the same time, one of the main drivers of integration is the desire to obtain a synergetic effect from the unification [1, 2].

Having reviewed scientific works on the topic of the study, we can identify the following types of integration highlighted by the majority of authors *(Tab. 1)*.

Integration in the form of unification of enterprises can be implemented in various organizational forms, which include holding companies, consortia, corporations, syndicates, financial and industrial groups, groups of companies, alliances, etc. Researchers note the continuous evolution and increasing diversity of the forms into which companies are unified, the blurring of the boundaries between them, and the increasing complexity of relations between members of integrated structures [3-5].

At the same time, one of the most urgent and long-standing problems that needs to be solved is the fact that Russian law lacks direct legislative norms regulating the creation and functioning of integrated formations. The only current document, which is directly related to integrated structures, is the “Temporary regulations on holding companies that are created during the transformation of state-

Table 1. Integration types

Type	Description
Vertical regressive	Integration with suppliers in order to stabilize or protect a strategically important source of raw materials, and other resources, facilities and equipment.
Vertical progressive	Integration with consumers and buyers to ensure control over output channels.
Sectoral (horizontal)	Acquisition or control of competitors in order to strengthen one’s position in the market.
Diagonal	Association with the enterprise which is at other level of a vertical production cycle and produces parallel types of production.
Conglomerate	Association of enterprises in the technological chain with the simultaneous enlargement of one of the levels of the vertical and/or an association of companies representing different product markets.

owned enterprises into joint stock companies”[1]. The Civil Code of the Russian Federation does not mention any of the above forms of integration, and the provisions of articles on subsidiaries and dependent companies contained in the federal laws “On joint-stock companies” and “On limited liability companies” are obviously insufficient to regulate complex relationships between integrated enterprises.

Research methods

We used general scientific and special methods to achieve our research goals.

The study was based on the gnoseological principles of dialectics as a scientific approach that considers the objects in a holistic universal relationship and interdependence; the principles include a concrete and comprehensive review of phenomena, historicism, objectivity, and consistency. The meat products sub-complex within the agro-industrial complex is considered as a system: on the one hand, it consists of interrelated elements organized in a certain way; on the other hand, it acts as a single whole in relation to the external market environment.

In carrying out the research within the framework of the system approach to the study of socio-economic phenomena, we used abstract-logical, historical, economic-statistical, and expert methods. We chose the research methods and tools based on the principle of necessity and sufficiency to achieve the objectives of the study, to ensure the required depth and detail of the study of the main aspects of the tasks, and reliability of the results obtained.

In the course of the research we used statistical and analytical information of the Federal State Statistics Service, the Ministry of Agriculture of the Russian Federation, data from the websites of organizations within the Russian meat products sub-complex and companies that provide advisory support.

It should be noted that currently there is no separate state statistical monitoring of the functioning of integrated structures. Neither is there a uniform system for collecting and processing of statistical data on mergers and acquisitions. The range of organizations in the agricultural sector that are required to submit consolidated reports is limited[2]. It is difficult to carry out full-scale quantitative scientific studies in this subject area because the data available are fragmented and dispersed in various information sources about the activities of integrated formations within the agro-industrial complex.

Research findings and their analysis

Meat products sub-complex is one of the most dynamically developing sectors in the domestic agro-industrial complex. The development of the sector has become more stable than many other economic sectors in Russia. In recent years, we see a significant increase in the rate of recovery of pork production, and the pre-reform volume of poultry production has been achieved. The volume of cattle meat production continues to decline: today it is the only type of industrial meat, the production of which does not grow and the imports exceed 40%. However, there has been a positive trend in cattle breeding at agricultural organizations and peasant (farm) enterprises *(Tab. 2)*.

[1] On the measures to implement industrial policy during the privatization of state-owned enterprises: Decree of the President of the Russian Federation No. 1392 dated November 16, 1992.

[2] On consolidated financial statements: Federal Law No. 208-FZ dated July 27, 2010.

Table 2. Production of major livestock products, exports and imports of meat and meat products in Russia in 2010–2016, thousand tons

Product	2010	2011	2012	2013	2014	2015	2016
1. Cattle and poultry for slaughter in slaughter weight:							
in farms of all categories	7166.8	7519.5	8090.3	8544.2	9070.3	9565.2	9899.2
in agricultural organizations	4342.3	4760.1	5414.7	6007.9	6568.8	7129.5	7515.2
in households	2614.9	2532.1	2444.1	2300.2	2238.5	2156.8	2093.6
in peasant (farm) enterprises	209.6	227.2	231.5	236.1	263.1	278.8	290.4
2. Cattle for slaughter in slaughter weight:							
in farms of all categories	1727.3	1625.5	1641.5	1633.3	1654.1	1649.4	1619.0
in agricultural organizations	565.3	514.1	533.4	529.9	529.8	525.9	535.8
in households	1080.8	1024.8	1016.1	1001.3	1004.8	993.7	948.0
in peasant (farm) enterprises	81.2	86.5	92.0	102.0	119.5	129.8	135.1
3. Pigs for slaughter in slaughter weight:							
in farms of all categories	2330.8	2427.6	2559.5	2816.2	2973.9	3098.7	3368.2
in agricultural organizations	1228.0	1354.8	1593.7	1988.6	2230.2	2424.1	2716.8
in households	1033.9	1003.2	903.6	775.5	697.7	631.5	605.2
in peasant (farm) enterprises	69.0	69.7	62.1	52.1	46.0	43.1	46.2
4. Poultry for slaughter in slaughter weight:							
in farms of all categories	2846.8	3204.2	3624.8	3830.9	4161.4	4535.5	4620.8
in agricultural organizations	2515.7	2858.0	3254.7	3459.3	3776.5	4148.9	4232.0
in households	312.6	319.1	337.2	335.7	339.0	334.3	338.0
in peasant (farm) enterprises	18.5	27.1	32.9	35.9	45.9	52.3	50.9
5. Imports of meat and meat products	2855	2707	2710	2480	1952	1360	1246
6. Export of meat and meat products	97	76	128	117	135	143	236

Source: Production of main livestock products by categories of farms. Resources and the use of meat and meat products. Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/enterprise/economy/#

In the structure of production, the leaders are agricultural organizations, whose share in the total volume is constantly growing, reaching 75.9% in 2016. The share of agricultural organizations in the main branches of animal husbandry varies significantly. If in the "early-ripe" production of poultry and pig in 2016, it reached 91.6% and 80.6%, respectively, then in cattle breeding, which begins to attract large corporate investors only in the last two years, the share of agricultural organizations is only 33.1%. The decrease in the share of private farms in raising pigs for slaughter is due to the spread of African swine fever (ASF) and also due to the fact that private subsidiary plots are being ousted from the market by large agricultural holdings that increase their production *(Tab. 3)*.

The production of major import substituting products in the meat products sub-complex is presented in *Table 4*.

In 2016, the share of domestic meat and meat products in the total volume of resources amounted to 89.7%, which is by 2.5 percentage points higher than in 2015 and by 4.7 p.p. higher than the threshold value stipulated by the Food Security Doctrine of the Russian Federation (85%).

The increase in production in the sector was provided by increasing the resource base and increasing the efficiency of its use. During the analyzed period, pig population increased from

Table 3. Structure of production of basic livestock products in 2010–2016, %

Наименование	2010	2011	2012	2013	2014	2015	2016
1. Cattle and poultry for slaughter in slaughter weight:							
in agricultural organizations	60.6	63.3	66.9	70.3	72.4	74.6	75.9
in households	36.5	33.7	30.2	26.9	24.7	22.5	21.2
in peasant (farm) enterprises	2.9	3.0	2.9	2.8	2.9	2.9	2.9
2. Cattle for slaughter in slaughter weight:							
in agricultural organizations	32.7	31.6	32.5	32.4	32.0	31.9	33.1
in households	62.6	63.1	61.9	61.3	60.8	60.2	58.6
in peasant (farm) enterprises	4.7	5.3	5.6	6.3	7.2	7.9	8.3
3. Pigs for slaughter in slaughter weight:							
in agricultural organizations	52.7	55.8	62.3	70.6	75.0	78.2	80.6
in households	44.3	41.3	35.3	27.5	23.5	20.4	18.0
in peasant (farm) enterprises	3.0	2.9	2.4	1.9	1.5	1.4	1.4
4. Poultry for slaughter in slaughter weight:							
in agricultural organizations	88.4	89.2	89.8	90.3	90.8	91.5	91.6
in households	11.0	10.0	9.3	8.8	8.1	7.4	7.3
in peasant (farm) enterprises	0.6	0.8	0.9	0.9	1.1	1.1	1.1
Source: Production of main livestock products by categories of farms. Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/enterprise/economy/#							

Table 4. Production of main types of import substituting products in the meat products sub-sector in 2010–2016, thousand tons

Product	2010	2011	2012	2013	2014	2015	2016
Slaughterwarm, fresh, chilled cattle meat	220	190	178	199	183	203	213
Slightly frozen, frozen, deep frozen and defrosted cattle meat	43.0	38.6	36.0	41.6	41.1	51.7	50.3
Slaughterwarm, fresh, chilled pork	755	815	942	1232	1438	1655	1875
Slightly frozen, frozen, deep frozen and defrosted pork	57.6	61.6	58.5	67.5	87.7	108	118
Poultry meat and by-products	2774	3028	3405	3610	3979	4340	4457
Slaughterwarm, fresh, chilled poultry and its by-products	1669	1777	2097	2230	2458	2715	2857
Slightly frozen, frozen, deep frozen and defrosted poultry and its by-products	1061	1240	1293	1368	1507	1604	1575
Sausages	2439	2486	2533	2502	2476	2445	2411
Source: Production of main types of import-substituting foodstuffs. Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/importexchange/#							

17,217.9 thousand head to 22,027.7 thousand head, poultry stock increased from 449.3 million head to 553 million head (as of the end of the year). However, cattle population decreased from 19,967.9 thousand head to 18,752.5 thousand head[3].

In 2010–2016, 217 new complexes and farms were commissioned and 81 facilities were upgraded in pig farming; 90 new poultry farms were built and 143 were upgraded in poultry farming[4]. Mixed fodder production in Russia increased from 16.9 million tons in 2010 to 25.8 million tons in 2016, and about 75% of mixed fodder production is provided by agricultural holdings [6].

[3] Population of farm animals by types of farms. Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/enterprise/economy/# (accessed 09.11.2017)

[4] On the approval of the national report on the progress and results of implementation of the state program for development of agriculture and regulation of markets of agricultural products, raw materials and food for 2013–2020 in 2015: Resolution of the Government of the Russian Federation dated May 10, 2016 No. 864-r; On the approval of the national report on the progress and results of implementation of the state program for development of agriculture and regulation of markets of agricultural products, raw materials and food for 2013–2020 in 2016: Resolution of the Government of the Russian Federation dated May 3, 2017 No. 850-r.

The current task of the industry is to develop pedigree work, since domestic producers use mainly foreign breeding material that is often not adapted to the natural and climatic conditions of Russia. There is a significant dependence on the imports of premixes, amino acids, probiotics, vaccines, food acids, dyes, etc., so it is necessary to build and modernize domestic plants for their production.

The Ministry of Agriculture of the Russian Federation notes an important role the integrated units play in the growth of production within the sector because they implement large investment projects, create the necessary infrastructure, and upgrade the entire technological chain[5].

In many developed countries, such as the United States and a number of Western European countries, vertical integration in the meat industry is a common practice and it tends to expand. Agro-industrial integration is on the rise in developing countries, as well. However, foreign integrated structures have mainly a contractual and "incomplete" integration, under which cattle breeding is an independent business process implemented on the farms [7-10].

The activities of large integrated units in the domestic meat products sub-complex were developed most vigorously in the 2010s, although the first attempts to implement integrated growth strategies by enterprises of the sector were made in the 1990s, when in the course of economic reforms they had to deal with competition in the markets of meat and meat products and faced the need to survive under new economic conditions.

At the initial stage, during the transition period of the Russian economy, vertical integration processes became the most widespread in the meat products sub-complex. This strategic choice was stimulated by the following factors: breakdown of inter-sectoral production linkages formed in the command and administrative economy; lack of a raw material base of the required quality and guaranteed sales of products in the meat processing sector; lack of market information; underdeveloped agricultural markets; lack of financial resources. The desire to overcome the challenges that the new environment presented to the economy in transition has led to the restoration of previous or the formation of new associations, but this time on the basis of private property and the market-driven organizational and economic mechanism.

During the 1998 financial crisis Russia experienced a sharp devaluation of the ruble, which increased the competitiveness of domestic food and raised investment attractiveness of agriculture, especially livestock, so integration processes in the meat products sub-complex received a significant development impetus during this period. To a certain extent, the development of large enterprises was facilitated by the federal target program for the stabilization and development of agro-industrial production in the Russian Federation for 1996–2000. In the late 1990s – early 2000s, in a number of subjects of the Russian Federation, regional authorities started to provide support to agricultural holdings, and new investors were involved in agro-industrial integration.

Having analyzed the integration mechanisms, we see that the regressive option, which was implemented by processing enterprises, prevailed in the framework of vertical integration. The main factor that determined

[5] On the approval of the national report on the progress and results of implementation of the state program for development of agriculture and regulation of markets of agricultural products, raw materials and food for 2013–2020 in 2016: Resolution of the Government of the Russian Federation dated May 3, 2017 No. 850-r.

this way of development was the shortage of quality raw materials that was observed after privatization and reduction of production at livestock enterprises, and that then increased after the 1998 financial crisis. Cessation of imports and the insufficient volume and quality of meat produced by domestic livestock producers led processing enterprises to decide to form their own raw material base through integration with suppliers, which in most cases were unprofitable farms. Later on, regressive vertical integration spread to fodder production.

Vertical progressive integration was less common. The weak financial position of agricultural producers did not allow them to act as a full-fledged integrator. But there were examples of progressive integration of processing enterprises with regard to marketing and trade, as well as fodder producers with respect to livestock enterprises.

Opportunities for further development of integrated structures, for the increase in the diversity of integration types, and for significant growth in production volumes emerged in the 2000s due to the adoption of Federal Law "On agriculture development" in 2007, implementation of the priority national project "Development of the agro-industrial complex" in 2006–2007 that was continued in the state program for development of agriculture and regulation of the markets of agricultural products, raw materials and food for 2008–2012, and in target programs for development of the agricultural sector, adopted in many constituent entities of the Russian Federation. Protectionist measures, in particular the quotas for the import of raw meat introduced in 2003 to protect the domestic market, also contributed to the growth of production.

During this period, integrated units started to implement an active investment phase, and the companies operating in other agricultural sectors showed interest in diversifying activities in livestock breeding (for example, Rusagro agricultural holding that specializes in sugar and fat-and-oil production launched the construction of a pig-breeding complex). The process of consolidation began in the poultry market.

In 2008–2010, due to the financial and economic crisis, many integrated structures experienced serious financial difficulties and postponed the implementation of several planned investment projects. A number of agricultural holdings went bankrupt. However, state support in the form of subsidies for poultry and livestock grown and sold for one kilogram of live weight made it possible to maintain the dynamics of development of many enterprises in the industry.

In the 2010s, the meat products sub-complex in Russia is influenced by different economic factors. The pool of factors that create new challenges for enterprises in the industry included the growth of imports after the country's accession to the WTO; problems with the receipt of federal subsidies to pay interest rates on investment loans in 2013–2014; the financial and economic crisis of 2014–2015, which was manifested in the devaluation of the ruble, increasing rates on investment loans, reducing solvency and redistribution of consumer preferences; sharp fluctuations in meat prices; complicated epizootic situation concerning ASF; amendments to Federal Law "On trade" in 2016, etc.

On the other hand, there emerged a unique opportunity for a breakthrough development of the domestic meat products sub-complex when the Decree of the President of the Russian Federation "On the application of certain special economic measures to ensure security of the Russian Federation" was adopted in August 2014 and banned the import of meat from the

EU, the U.S., Australia, Canada and Norway. Pork producers got such a chance earlier, at the beginning of the year, after the ban on the imports of pork products from the U.S. and EU countries for veterinary reasons. The growing state support provided by state programs for development of agriculture and regulation of markets of agricultural products, raw materials and food for 2008–2012 and 2013–2020 was used by many integrated structures of meat products sub-complex for the purposes of implementation of new investment projects and expansion of their activity.

During this period, the integrated units of the sub-complex were deepening vertical integration by engaging production links in the process throughout the technological chain. The largest agricultural holdings continued to expand into the regions and extended their land area. Unlike the initial stage, the process of acquisitions involved financially stable enterprises. There was a diversification of activities, expansion of production interests on other agricultural sectors, including other areas of the agro-industrial complex; i.e., conglomerate integration was implemented (for example, the group of companies "Agro-Belogorye" launched the construction of a plant for producing agricultural equipment). As a result of gradual development and combination of different forms of integration, the nature of relations between the participants of integration associations has become more complicated.

In conditions of tough intra-industry and inter-industry competition, emergence of retailers on the market of products of processing industries, decline and stagnation of demand for meat and meat products, agricultural holdings in the meat industry entered new market segments of turkey and duck meat, beef, etc., developed sales and trade divisions, strengthened the policy of branding and intensified cooperation with other logistics intermediaries and distribution networks. The leading strategy for the development of large integrated structures was the system of production and sale of products "from the field to the counter".

As a result, large-scale producers have been able to strengthen their positions, while small companies in the face of declining real incomes and rising production costs have either occupied narrow niches or lost financial stability. The fact that a large number of meat producers went bankrupt in the crisis of 2014–2015 has led to the intensification of the processes of mergers and acquisitions of assets with low liquidity. More than 60% of the enterprises on the verge of bankruptcy have been acquired by large agro-industrial holdings. Market consolidation became the main trend in 2016 [11].

Having studied the organizational forms of integration of enterprises within the sub-complex, we conclude that agro-industrial holding is the most common form. As we already mentioned, there are no legal provisions on holding activities in Russia, and the "Temporary regulation on the holding companies established as a result of the transformation of state-owned enterprises into joint-stock companies" defines a holding company as an enterprise whose assets include controlling stakes of other enterprises[6]. In practice, the holding is a group of companies consisting of a parent company and subsidiary companies managed by the parent company through a controlling or blocking stake (share in the authorized capital). Legal support of holdings' activities, protection of interests of their participants, shareholders, and creditors

[6] On the measures to implement industrial policy during the privatization of state-owned enterprises: Decree of the President of the Russian Federation No. 1392 dated November 16, 1992.

lags far behind the requirements of the present.

The largest agro-industrial groups of the sector are the enterprises that are well-known in many regions of Russia: Agro-Belogorye, Agrokom, Agrokompleks, Agroeko, BEZRK-Belgrankorm, Velikolukskiy agro-industrial holding, Damate, Eurodon, Miratorg, Ostankino, Prioskolie, Prodo, Rusagro, Siberian agrarian group, Cherkizovo, etc. Distribution of agro-holdings of the meat product sub-complex by subjects of the Russian Federation is quite uneven due to the influence of a range of factors (climatic conditions, economic and geographical position, density and social and cultural features of the population, administrative competence of heads of enterprises and regional authorities, etc.). The volume of production is the largest in the Belgorod (with a significant margin), Kursk, Chelyabinsk, and Bryansk oblasts and in Stavropol Krai[7].

It should be noted that leading positions in the meat products sub-complex are occupied by domestic producers, while many other sectors of the agro-industrial complex are dominated by foreign capital. Thus, in general, the share of foreign capital in the agro-food market and in milk processing reaches 60%, in the juice market – 70%, in the market of frozen and canned vegetables and fruits – 80 and 90%, respectively [12].

The concentration of production in the meat products sub-complex is at an average level *(Tab. 5)*. In the domestic agro-food market, sugar and vegetable oil production companies are characterized by the highest consolidation, while, for example, egg, milk and flour production companies are fragmented.

More than half of poultry meat production is concentrated in ten major companies. The largest producer of poultry meat is Prioskolie; as of 2016, its share in the national production volume is 11%. Cherkizovo ranks second with a share of 10%, and Resurs ranks third, with 6%.

The share of the top 10 producers in pork production did not exceed 50%. Since 2010, Miratorg is the leader in pork production: in 2016, its share was 11%. Rusagro ranks second, and Cherkizovo – third (more than 5% of the market in each of the companies).

The concentration on the market of meat products is significantly lower: five major producers account for about 22%. The leader in the Russian market of meat processing is Cherkizovo: its share is 7% [6, 13, 14].

In the future, there is a possibility of increasing the concentration of production in large integrated units of industrial type with the strengthening of the role of agricultural holdings at the national level in all three of the above industries [11].

The lowest concentration of production is observed in beef cattle breeding. Quite a few small enterprises engage in beef production, and most part of them use dairy cattle that is outside lactation period. The top five producers

Table 5. Concentration of production in the meat products sub-complex, %

Indicators	Five major producers			Ten major producers		
	2012	2014	2016	2012	2014	2016
Total share of major producers of poultry meat	42	36	45	55	52	52
Total share of major producers of pork meat	28	34	30	39	47	44
Source: analysis of the work of agricultural holdings in Russia. Available at: http://www.agricons.ru/components/com_jshopping/files/demo_products/						

[7] Production of cattle and poultry for slaughter in slaughter weight. Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/enterprise/economy/# (accessed 09.11.2017).

account for about 3% of total production. In the future, it is possible to increase the degree of concentration of beef production; but due to the technological features, its level will remain the lowest among the sectors within the meat products sub-complex [15].

The economies in transition have a similar level of production concentration. For instance, in Ukraine, 14 largest producers of meat processing industry provided 35% of sales volume; the share of 30 largest producers was 46%. In developed countries, the level of production concentration is also high. For example, four major producers in the U.S. owned 35% of meat and meat products production, and eight major producers controlled 50% of the market [16, 17].

Differences in the levels of concentration and development of the vertical integration in sectors within Russia's meat products sub-complex are identical to those observed in the world practice: their greatest degree is found in poultry farming, the one close to it – in pork production and the low degree – in beef cattle breeding [18, 19].

Success in the implementation of integrated growth strategies of major companies in the meat products sub-complex of Russia is evidenced by the fact that out of the 18 agro-industrial producers included in the Forbes 2016 rating of 200 biggest Russian non-state companies six companies specialize in the production of meat products, and four companies have some of their production facilities in the meat industry. All of them are integrated formations [20].

The activities of major national producers make a significant contribution to Russia's agro-industrial production and participate in addressing food security issues. At the same time, we should note the importance of integrated regional formations for socio-economic development of Russia's constituent entities and federal districts.

In 2015–2016, amid the decline in imports of meat and meat products and the decline in consumer demand due to the fall in people's real incomes, domestic markets for pork and chicken meat became saturated, which intensified the competition there. The growth of production began to outstrip consumption, and producers started to talk about the sector achieving a "bottom of profitability". Currently, import substitution in the meat industry is almost complete, and the forecasts for consumption growth in the domestic market are very cautious (in pig and poultry sectors there already exists the risk of domestic overproduction), while amid declining growth in world trade in general, the volume of international trade in food continues to increase [21].

Thus, the possibilities of further stable operation and growth of the industry are connected with entering new foreign markets. Indonesia, Singapore, Saudi Arabia, China, Iran, Japan and Brazil have promising markets for pork and beef supplies. It is possible to export poultry meat and by-products to China, the Middle East and North Africa.

According to the priority state project "Export of agricultural products", the volume of Russian exports of meat and meat by-products in 2017 should be 0.2 billion US dollars. It should increase to 0.32 billion US dollars in 2018, and reach 1.75 billion US dollars by 2025[8]. At the same time, the government counts mainly on major agricultural holdings to provide the necessary volume of export supplies.

[8] Passport of the priority project "Export of products of the agro-industrial complex". Available at: http://static.government.ru/media/files/cMQSd7VmfBXrGXLv6ncG3ZNq8QtzOvAH.pdf (accessed 09.11.2017)

The main task in the development of meat and meat products exports is to obtain permits from the regulatory authorities of importer countries for Russian producers' access to relevant markets. Some progress has already been made in this direction. As a result of the work carried out by Rosselkhoznadzor (Federal Service for Veterinary and Phytosanitary Surveillance), the right to export various types of meat and meat products to Egypt, Iran, Jordan and Iraq was obtained in 2016[9]. Cherkizovo Group has received a permit for the export of poultry meat to the UAE. By 2019 the Group plans to raise the share of exports in the total sales of chicken meat up to 15–20%, primarily at the expense of supplies to Egypt, Iran, Iraq and China. As for Miratorg, it delivered meat products to Iran, Hong Kong and the UAE in 2016. The company is planning to increase the share of exports from 5 to 25% in three years mainly with the help of deliveries to the Chinese market.

Turkey meat is one of the promising types of products in terms of export development. The main markets for it are African and Asian countries – Sierra Leone, Gabon, Hong Kong, and Vietnam. Damate Group is planning to develop exports of turkey meat to Serbia, other European countries, the UAE, and Saudi Arabia and to increase the share of its exports in the total production to 25%. Evrodon – the largest Russian producer of duck and turkey meat – signed a contract for the supply of duck meat products to China [21].

Further development of a globally competitive meat products sub-complex is connected with the introduction of innovative methods of production and packaging of products, including biotechnologies, for the production of high-quality, safe and environmentally friendly food products, the demand for which is growing both abroad and domestically. If in the second half of the 20th century the main contribution to the growth of agricultural productivity was associated with the introduction of highly specialized technologies, special equipment, etc., then today breakthroughs in the agricultural sector are associated with the implementation of platform technology packages[10]. It is the large integrated formations that can now act as drivers of technological development in the meat products sub-complex.

Discussion of the results

Modern Russia implements a model of meat production sub-complex development on the basis of vertically integrated industrial complexes with a full production cycle from mixed fodder plants to deep meat processing. Vertical integration is typical of poultry and pig breeding and processing enterprises, because these sectors have a high level of concentration and mechanization, which helps achieve efficiency through the scale of production in a large business.

The development of integration processes in the sector has skipped the stage of the contractual form of relations used in the world practice and immediately began with the most "rigid" option of integration based on the transfer of ownership and centralization of management in the hands of an integrating company.

Many countries, for example, in Europe, seldom use vertical integration through the

[9] On the approval of the national report on the progress and results of implementation of the state program for development of agriculture and regulation of markets of agricultural products, raw materials and food for 2013–2020 in 2016: Resolution of the Government of the Russian Federation dated May 3, 2017 No. 850-r.

[10] About the approval of the Forecast of scientific and technological development of the agro-industrial complex of the Russian Federation for the period till 2030: Order of the Ministry of Agriculture dated January 12, 2017 No. 3.

share in ownership; instead they implement a different path based on independently operating mixed fodder plants, meat processing plants and animal husbandry farms; this path provides meat processing with the necessary raw materials. The integration of farming into large-scale business takes place through the conclusion of long-term contracts for the supply of products [7, 22]. In Russia, small businesses are not incorporated into vertical production chains, but occupy narrow niches in the food market.

Performance results of agro-holdings of the Russian meat products sub-complex fully show how large production implements its advantages such as financial opportunities for acquisition of modern technologies and equipment; increase of productivity of agricultural production; obtaining more favorable conditions for loans; ability to influence the competitive situation due to a considerable share of the market; possibility of deliveries to large distribution networks; higher activity in the implementation of an innovative way of production development; opportunities to attract highly qualified specialists; availability of funds to improve working and living conditions, professional and cultural development of employees, etc.

In addition, the vertical integration of production makes it possible to provide the raw material base of meat processing in the required amount and of guaranteed quality; to reduce transaction costs through the transfer of transactions of market structures in the domestic division of the company; to minimize logistics costs through cluster development of the full production cycle in a certain area; to optimize the tax burden by eliminating taxes on intermediate products and moving the production to areas with more favorable tax conditions; to reduce business risks through their distribution to different market segments and control over the entire supply chain; to expand the range, respond to changing consumer demands, improve product competitiveness and reduce costs by ensuring full control of the quality of raw materials and their complex processing; to improve information security activities; to solve environmental problems through the use of waste-free technologies.

When these advantages are combined, they produce a synergetic effect mentioned earlier – an integrated formation obtains new system properties that ensure the growth of the overall effect to a value greater than the sum of the effects of its participants acting separately. The advantages of large-scale production and its greater resistance to adverse or unexpected changes in the external environment of business functioning were particularly evident in the crisis years for the country's economy.

But at the same time, integration processes in the Russian meat products sub-complex had negative economic and social consequences. These include the monopolization of the market and decline in competition, narrowed opportunities for development and the ousting of small and medium business from the industry, emergence of barriers impeding the entrance to the market. Besides, small producers and owners of personal subsidiary farms do not have access to the fertile lands that passed at the disposal of integrated structures that in some cases formed the latifundia. Among the negative consequences we can point out political and economic lobbying, when receiving state support as well; the emergence of contradictions in the economic interests of the members of integrated formations; growth of unproductive costs for the management of extensive organizational structures of agricultural holdings; sharp polarization of the rural population on employment opportunities and income levels, violation of the foundations of the traditional rural way of life, deterioration of the environmental situation in the areas where large livestock complexes are situated, which causes protest moods among the local population and increases social tension, etc.

In order to prevent and reduce negative impacts of these phenomena, it is necessary to regulate the development of integration processes at all levels of government. Currently, the state has increased its attention to beef cattle breeding, the most problematic and specific branch of the meat products sub-complex. It is necessary to apply a balanced approach to the development of integrated structures in this branch. Due to the extended production cycle, the expediency of vertically integrated units in it raises questions. On the other hand, if here is no effect of the scale of production, then the beef cattle breeding industry will find it difficult to pay off investment costs and reduce unit costs that are the highest in the meat industry. Vertical integration is not common in beef cattle breeding in other countries, but in our producers face the same problem of lack of agricultural outsourcing, which arose in the 1990s in pig breeding and led to the establishment of integrated structures in the industry. Perhaps it would be expedient to establish regional cooperative centers of beef cattle, integrate small and medium business, and specialize in the cultivation and processing of standardized production of red beef [23].

In our opinion, it is necessary to recognize that the sub-complex should combine large agro-industrial formations, medium-sized agricultural organizations, farms and personal subsidiary plots, since such a combination will help implement the advantages of each of the forms of management, promote economic growth in the industry and sustainable development in rural areas.

The results of the study provide grounds to determine the ways for effective development of integration processes and integrated structures in the meat products sub-complex; thus, we suggest that the government, business, industry associations and the scientific community should focus their efforts on the following:

– help integrated structures enter the world agricultural market;

– implement full-scale anti-epizootic measures to combat animal diseases, primarily ASF that represents a major threat to the development of pig production;

– create a legal framework for property and distribution relations between the participants of integrated structures and adopt a federal law on holdings;

– develop scientific and methodological support in the field of organizational and economic mechanism of integrated units, taking into account the interests of all participants;

– organize state statistical monitoring of the functioning of integrated structures in order to form a system of statistical indicators that comprehensively characterize their activities;

– concentrate investment activity of the integrated formations on modernization of production and sale, development of selection and genetic and fodder base;

– carry out vertical integration of producers with research institutions, which will result in the creation of research and production associations in order to form an innovative direction of development of the industry;

– create and expand contractual forms of integration, inter-organizational interactions and institutional formations;

– develop the diversification of activity of integrated formations (toward deep processing, coverage of new regions, meat cattle breeding projects), increase production volumes for developing segments of the market (turkey, duck, rabbit meat, etc.), improve the safety and quality of products;

– provide modern scientific and methodological support to corporate strategic management, management of business processes and quality, and marketing;

– provide governmental regulation of the activity of integrated structures by improving the land legislation, for the purpose of leveling the negative impact on the competitive environment, ecological and socio-economic situation in rural settlements;

– regionalize governmental policy aimed to support the integrated structures taking into account specific features of constituent entities of the Russian Federation and the current development level of vertically integrated productions in the corresponding territories;

– increase the attention to corporate social responsibility of integrated agro-industrial formations and to how they address social problems;

– develop public-private partnership mechanisms when creating integrated structures in the "growth points"; develop the mechanisms for implementation of large investment projects by integrated formations.

The results of the study that systematizes and elaborated the content and genesis of agricultural integration taking into account Russian and industry-related specifics expand the scientific understanding about integration processes in the meat products sub-complex, contribute to overcoming the fragmentation of scientific knowledge in this subject area, contribute to the formation of an information base for further theoretical and applied research and can be used to design programs for development of the meat products sub-complex and rural areas, mechanisms of state support of meat production, and preparation of proposals to improve the regulatory framework of integrated structures.

References

1. Karelina M.G. Comprehensive assessment of integration activity of business structures in Russian regions. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz=Economic and Social Changes: Facts, Trends, Forecast,* 2016, no. 5, pp. 103-121. DOI: 10.15838/esc.2016.5.47.6. (In Russian).
2. Skodtaeva K.K. Comparative analysis of theoretical approaches research subjects of economic integration. *Ekonomicheskie i gumanitarnye nauki=Economic Science and Humanities,* 2016, no. 5 (292), pp. 102-109. (In Russian).
3. Il'in I.A. The processes of cooperation and integration of business structures in the agrarian sector of economy. *Sotsial'no-ekonomicheskie yavleniya i protsessy= Social and Economic Phenomena and Processes,* 2012, no. 1, pp. 72-77. (In Russian).
4. Kozhevnikov S. A. Management of vertically integrated systems formation and development in the Russian economy. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz=Economic and Social Changes: Facts, Trends, Forecast*, 2016, no. 6 (48), pp. 53-69. DOI: 10.15838/esc.2016.6.48.3. (In Russian).
5. Chekmarev O.P. Integration processes in the agro-industrial complex: significance, economy, potential. *Izvestiya Sankt-Peterburgskogo gosudarstvennogo agrarnogo universiteta=Bulletin of Saint-Petersburg State Agrarian University*, 2012, no. 26, pp. 205-211. (In Russian).
6. Analysis of agricultural holdings in Russia. Available at: http://www.agricons.ru/components/com_jshopping/files/demo_products/ (accessed 09.11.2017). (In Russian).
7. Hayenga M.L., et al. *Meat Packer Vertical Integration and Contract Linkages in the Beef and Pork Industries: An Economic Perspective*, May 22, 2000. American Meat Institute, Arlington, VA. 99 p.

8. *Livestock Development, the Environment, Poverty and Global Food Security: A Strategy Paper for the World Bank*. Washington DC: World Bank, 2001. 96 p.
9. Reimer J.J. Vertical integration in the pork industry. *American Journal of Agricultural Economics*, 2006, vol. 88, no. 1, pp. 234-248.
10. *Some issues associated with the livestock industries of the Asia-Pacific region. RAP publication* no. 2002/06. 97 p.
11. Zagorovskaya V. The year 2016 in the eyes of the business and analysts. *Myasnaya sfera=Meat Sphere*, 2016, no.6, pp. 12-21. (In Russian).
12. Osokina N.V., Kazantseva E.G. Strengthening of the economic power of the dominating entities in the food industry. *Foods and Raw Materials*, 2016, vol. 4, no. 2, pp. 190-200.
13. *Cherkizovo Group. Annual report 2016*. Available at: http://cherkizovo.com/upload/files/Cherkizovo_AR2016_web.pdf (accessed 09.11.2017). (In Russian).
14. Zagorovskaya V. Investment in pig breeding. *Myasnaya sfera=Meat Sphere,* 2016, no. 2, pp. 12-17. (In Russian).
15. Malyshev P.V., Golokhvastov A.M. *Meat production in Russia – problems and prospects*. Available at: http://www.agricons.ru/ru/publikatsii/nashi-publikatsii/120-proizvodstvo-myasa-v-rossii-problemy-i-perspektivy (accessed 09.11.2017). (In Russian).
16. Giamalva J. *Pork. Industry and Trade Summary.* Publication ITS-011. Washington, DC: U.S. International Trade Commission, September 2014. 82 p.
17. Matyukha A., Perekhozhuk O. Competition or market power in the Ukrainian meat supply chain? In: Schaft Fr., Balmann A. (Eds.) *Studies on the Agricultural and Food Sector in Central and Eastern Europe*, 2009, vol. 52, pp. 127-137.
18. Alyson J. *Vertical Integration in the Beef Industry*. Available at: http://smallbusiness.chron.com/vertical-integration-beef-industry-14614.html
19. Ward C.E. Vertical integration comparison: beef, pork, and poultry. *Current Farm Economics*, 1997, vol. 70, pp. 16-29.
20. Rodionova E.V. Strategies of integrated growth in the development of enterprises of the meat products sub-complex of the agro-industrial complex. *Konkurentosposobnost' v global'nom mire: ekonomika, nauka, tekhnologii=Competitiveness in the Global World: Economics, Science, Technology,* 2016, no. 8, part 2, pp. 148-153. (In Russian).
21. Avdokushin E.F., Kudryashova I.A. Some trends in russian food product export in the meaning of the international trade development. *Foods and Raw Materials*, 2016, vol. 4, no. 2, pp. 148-156.
22. *Solutions for Sustainable Agriculture and Food Systems. Technical Report for the Post-2015 Development Agenda*. New York: Thematic Group on Sustainable Agriculture and Food Systems of the Sustainable Development Solutions Network, Sept. 13. 108 p.
23. Carrot and stick: how to help beef cattle breeding in Russia? *Myasnaya promyshlennost'=Meat Industry*, 2017, no. 2, pp. 62-64. (In Russian).

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