

# Prospects for the Development of the Dairy Industry in the Republic of Belarus and in the Russian Federation

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**Abstract:** In recent years, the Russian Federation and the Republic of Belarus have implemented a set of organizational, managerial and economic-financial instruments, mechanisms and measures, the result of which is to increase production and export potential, strengthen the competitive position of producers in the domestic and foreign markets, as well as ensure national food security. Directly dairy cattle breeding in the countries is one of the most important livestock sectors with an increase in economic efficiency in agriculture. At the same time, a number of problems must be solved, including: modernization of the material and technical base on the basis of the introduction of modern technologies; development of the feed base due to feeds of high energy value and elimination of the deficit of white resources in the feed balance, etc. Based on this, the aim of the study is to substantiate the main trends in the development of the dairy cattle industry in the Russian Federation and the Republic of Belarus related to the new management conditions. Materials and research methods. In the process of work, we used statistical, analytical, and abstract-logical research methods. The information base was compiled by the data of the Federal State Statistics Service of the Russian Federation and the data of the National Statistics Committee of the Republic of Belarus.

**Keywords:** cattle; cows; livestock; milk; export; import

**JEL:** Q13; Q15; Q17

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## 1. Introduction

The relevance of the research topic is due to the fact that for agriculture of the Republic of Belarus and the Russian Federation, milk production is one of the main sources of regular cash flow and, unlike others, occupies the largest percentage in gross agricultural output. According to the official data of the National Statistical Committee of the Republic of Belarus, animal husbandry has a special place in the agricultural economy, since it owns 55% of gross output, 23% of which is meat, and the remaining 32% is milk. Of the total livestock production, 95% is produced in large commodity agricultural organizations. The proportion of the rural population of the Republic of Belarus is about 22%. 775 kg of milk and 129 kg of meat are produced in Belarus per capita, which is 2.3 and 1.7 times higher than the standard values. According to official data from the Federal State Statistics Service of the Russian Federation, livestock breeding owns 46% of gross output. Of the total livestock production, 53% is produced in large agricultural organizations. Only 74% of meat and 50% of milk is produced in agricultural organizations. The proportion of the rural population of the Russian Federation is about 26%. According to our estimates, 212 kg of milk and 99 kg of meat are produced per capita in Russia. For milk, self-sufficiency is 64%, for meat is 32% higher than the standard. The Russian Federation has significant potential for the development of the meat and dairy industries.

The study of best practices is very important for the development of constructive management decisions for the development of the industry. Our long-term analysis of the situation allows us to conclude that the level of development of the dairy industry is higher in large commodity forms of management. That is why, for the development of the dairy industry, the main strategic priorities should include two main blocks of measures: 1) organizational and administrative (administrative) and 2) organizational and economic, aimed primarily at resource conservation. The first block of organizational and administrative (administrative) measures should consist of: 1) regular monitoring

of the main economic indicators of intensification of milk production; 2) analysis of the resource potential and determination of the pace and sequence of intensification of production; 3) the formation and implementation of comparative competitive advantages, taking into account the climatic conditions, the level of competition, the biological potential of animals; 4) the development of technological, transport, financial and market infrastructure; 5) general control over the level of prices purchased by dairy plants and the creation of purchasing centers of milk from the population; 6) increase the level of utilization of production capacities of dairy plants up to 90-95%; 7) development of marketing logistics infrastructure, export of milk and dairy products, and others. The second block of resource-saving measures should include: 1) improvement of the applied equipment and technologies; cost reduction, improving the quality of products (increasing fat content, grading), increasing its competitiveness (environmental friendliness), accelerating the return on investment; 2) targeted budget subsidies for various activities for the development of dairy farming; 3) increasing the availability of credit resources for enterprises of various forms of management; 4) the restoration and operation of long-term cultural pastures; 5) regular zootechnical and veterinary activities; 6) the introduction of modern information technology in the production process; 7) improving the system of motivation of workers in the dairy cattle industry to work, and a number of others.

## 2. Methodology

The subject of the study is the organizational and economic relations that arise during the functioning of agricultural enterprises for the production of milk, and the scientific development of priority areas for development milk production. The work used monographic, statistical, tabular and graphical methods for researching the analysis of the current situation in the dairy industry.

Modern scientists differently describe the state of development of the dairy industry in the countries of the European Union, the Russian Federation and the Republic of Belarus. According to French researchers think, that “increased price volatility, negative environmental effects of intensification, growing competition from neighboring countries (including Germany) put the French dairy sector in conditions of choice and the need for new management decisions” (Chatellier et al. 2013). In recent years, the dairy industry is in a difficult situation (Rozhkova and Olentsova 2020). The authors argue that “the French dairy sector has many assets that will help it recover: a high level of per capita consumption of dairy products per year (due to the exceptional variety of processed products); a wide range of technologies and models of agricultural production with historical adaptation of the economy to natural conditions (climate, agronomic potential); high potential for production development due to low population density in many rural areas, abundance of forage land; improvement of scientific knowledge and technological innovations at enterprises, abolition of milk quotas” (Chatellier et al. 2018). We absolutely agree with the authors that a regular analysis of the current economic situation in the dairy sector (identifying strengths and weaknesses), as well as studying the conditions for the implementation of the contracting system is necessary). The contracting system, in our opinion, is an important protective tool for agricultural producers, allowing them to be confident in the stability of demand for manufactured products.

According to French researcher, “a real threat for European dairy producers is a decrease in demand for dairy products and a rapid increase in milk production in several EU member states after the abolition of milk quotas in 2015”, in his opinion, “New Zealand was far ahead of the USA and EU countries” (Chatellier 2016). Moreover, as noted by other scientist, “markets with a higher dependence on imports under the influence of the embargo and sanctions lose more in welfare than markets with less dependence” (Borodin 2018). External factors such as sanctions certainly weigh on Russia's economy (Russell 2018)

In the work of Russian scientists, the authors state that “the Russian response in the form of an embargo negatively affected the export of food products from the countries of the European Union” (Kastakova et al. 2018). Producers of milk and dairy products began to “look for new markets to enhance territorial diversification, including increasing sales of products to the Republic of Belarus.” This conclusion is confirmed by French scientists. According to some researchers, “Due to increased

imports in several Asian countries, especially China, some European livestock industries have nevertheless succeeded and increased their exports»”(Chatellier et al. 2018).

Within one or two years after the introduction of the food embargo, milk producers in the European Union experienced some financial stress and this contributed to a decrease in the number of dairy cows in the EU in 2015 compared to 2014 by 2.6%. As a result of sanctions in 2014-2015, raw milk prices declined in all European countries. Union in the range of 0.4-29%. The marketability of milk decreased to 68-70%. According to Russian scientists, “for those countries that fell under the Russian response, the export of food products was offset by an increase in supplies to other countries” (Uzun and Loginova 2016).

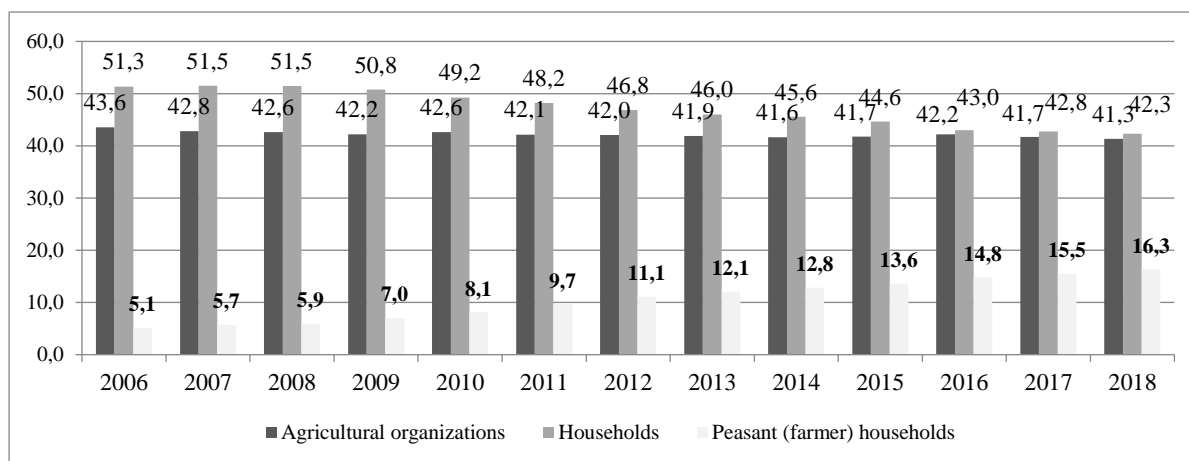
But after entering new markets, the situation improved. According to official Eurostat data, the total number of dairy cows in the European Union (EU) countries increased by 2.2% from 2006 to 2018. More than 80% of the European Union dairy cow population in 2018 is concentrated in ten in the countries of the European Union: in Germany (17.9%), France (15.5%), Poland (9.7%), Italy (8.5%), United Kingdom (8.3%), Netherlands (6.8%), Ireland (6%), Romania (5.1%), Spain (3.6%), Denmark (2.5%), Ten countries account for 85% of the total milk production in the European Union: Germany - 20.6%, France - 15.9%, Great Britain - 9.8%, Netherlands - 9.2%, Poland - 7.5%, Italy - 6, 9%, Ireland - 4.8%, Spain - 4.5%, Denmark - 3.6%, Belgium - 2.6%. Since for most countries of the European Union, livestock farming is also one of the main regular incomes for agricultural producers, therefore, part of the dairy products began to be delivered through the Republic of Belarus. Thus, there are problems of motivating workers to work in agriculture (Kuznetsova et al. 2018), because of which the problems of the formation of skilled labor resources in agricultural production are aggravated (Kuznetsova et al. 2019b) and the general trends in the development of the milk industry are changing (Kuznetsova et al. 2019a), its comparison with development trends in other countries and features is of very important scientific and practical value.

### **3. Analysis of Official Statistics**

In the Russian Federation, a state program for the development of agriculture and the regulation of agricultural products, raw materials and food markets for 2013–2020 has been adopted and is being implemented, a national report on the progress and results of the implementation of this program is published annually, practically in all regions where dairy cattle breeding is developed, dairy industry development programs have been developed and are being implemented (National report 2019; Government of the Russian Federation 2012).

The analysis showed that in the Russian Federation in 2006 there were over 21.6 thousand heads of cattle, to 2018 this indicator decreased by 16%. The total number of cows decreased from 9.4 to 7.9 thousand heads (by 15.1%). In agricultural organizations, the number of cattle decreased from 10.6 thousand heads to 8.1 thousand heads, i.e. 23.3%; and the number of cows decreased by 4.1 to 3.3 thousand heads, i.e. by 19.5%. The number of cattle in households decreased from 9.8 to 7.4 thousand heads, i.e. 25%; the number of cows was reduced from 4.8 to 3.4 thousand heads, i.e. by 30.1%. The number of cattle in peasant (farmer) farms increased from 1.1 to 2.6 thousand heads, i.e. 2.3 times; cows from 0.5 to 1.3 thousand heads, i.e. 2.7 times.

Visually, changes in the structure of the number of cows can be seen in Figure 1.



**Figure 1.** The structure of the livestock of cows in various forms of management of the Russian Federation for the period from 2006 to 2018 (in %). Source: (Federal State Statistic Service 2019).

From the data presented in the figure, it is clearly seen that the proportion of the number of cows in the country's agricultural organizations decreased from 43.6% to 41.3%, i.e. 2.3 pp. The proportion of the number of cows in households decreased from 51.3% to 42.3%, i.e. by 9 pp. And the number of cows in peasant (farmer) farms has a steady upward trend from 5.1% to 16.3%, i.e. by 11.2 percentage points. The active development of farming in the Russian Federation is due to the adoption and implementation in recent years of support programs for beginning farmers and family livestock farms. As a rule, households are those in which rural residents traditionally live in rural areas and keep animals in their personal plots and independently grow agricultural products for their own consumption. They do not have state registration of their activities. Practice shows that the level of marketability of agricultural products produced in households does not exceed 20%. Peasant (farm) enterprises are usually state registered. The level of marketability of products in them is 70-80%. The average peasant (farm) economy usually consists of three or more people. Consider the level of cow productivity in the farms of the entire category in the Russian Federation in table 1.

**Table 1.** Cow productivity in various forms of management Russian Federation for the period from 2006 to 2018 (in kilograms).

Indicators	2006 y	2010 y	2015 y	2016 y	2017 y	2018 y	2018 y. in% to 2006 y
Farms of all categories	3356	3776	4134	4218	4368	4492	133.8
Agricultural organizations	3564	4189	5140	5370	5660	5945	166.8
Households	3249	3510	3500	3484	3518	3463	106.6
Peasant (farmer) households	2642	3291	3465	3499	3628	3689	139.6

From the data of table 1 it follows that the productivity of cows in agricultural organizations in Russia for the analyzed period increased at a faster pace - by 66.8%, in peasant (farmer) households - by 39.6%, in households - by 6, 6%. On average, in all forms of managing the country, productivity increased from 3356 kg per cow to 4492 kg, i.e. by 33.8%. It is obvious that large-scale form of management is more competitive than small-scale production.

The resources and use of milk and milk products in the Russian Federation will be considered in table 2.

**Table 2.** Resources and use of milk and dairy products in the Russian Federation (thousand tons).

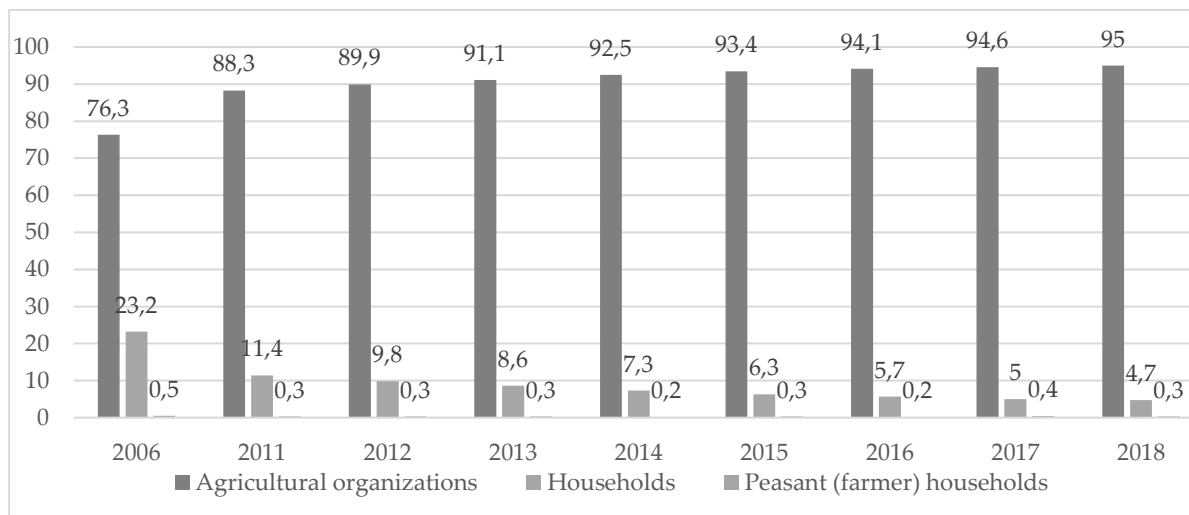
Indicators	2006 y	2010 y	2015 y	2016 y	2017 y	2018 y	2018 y. in% to 2006 y
Resources							
Stocks at the beginning of the year	1777.0	1856.6	2120.4	1947.7	1746.0	1638.9	92.2
Production	31097.0	31507.3	29887.5	29787.3	30185.0	30639.9	98.5
Import	7293.0	8159.4	7951.3	7578.6	6996.9	5687.9	78.0
Total resources	40167.0	41523.3	39959.2	39313.6	38927.9	37966.7	94.5
Using							
Production consumption	4067.0	4219.6	3223.6	3059.6	2915.1	2746.8	67.5
Export	532.0	459.8	606.0	644.8	607.6	574.5	108.0
Personal consumption	33687.0	34949.2	34148.2	33832.9	33736.9	33072.0	98.2
Reserves at the end of the reporting period	1860.0	1865.8	1947.7	1746.0	1638.9	1550.0	83.3

From 2006 to 2018 total milk production decreased by 1.5%, while exports increased by 8%, while imports decreased by 22%. Import volumes in 2006 exceeded the export volume by 13.7 times, in 2018 - by 9.9 times. Stocks of milk at the end of the year decreased by 7.8%, at the beginning of the year - by 16.7%. The volume of industrial consumption decreased by 32.5%, the volume of personal consumption decreased by 1.8%.

Consider the state of development of the dairy industry in the Republic of Belarus. Promising directions for the development of dairy cattle breeding in the Republic of Belarus are defined in the State Program for the Development of Agricultural Business of the Republic of Belarus for 2016–2020 (Council of Ministers Rep. Belarus 2016); the Doctrine of National Food Security of the Republic of Belarus until 2030 (Decree of the Council of Ministers 2017). And Presidential Directive No. 6 «About the development of the village and increasing the efficiency of the agricultural sector» (Belarus today 2019).

For many years, livestock specialization of farms of all categories of the republic has been based on dairy and beef cattle breeding, pig breeding and poultry farming. The proportion of other industries is negligible. So, for the period from 2006 to 2018, the number of cattle in the Republic of Belarus increased from 3,980 to 4,341 thousand heads (8.8%, or 361 thousand heads). At the same time, the number of cows was slightly reduced from 1,506 to 1,498 thousand heads (by 0.5%, or 8.0 thousand heads). Direct changes in the number of cows were also observed (Figure 2).

Over the reporting period, the total milk production in the Republic of Belarus increased by 24.6%: from 5,896 thousand tons in 2006 to 7,345 thousand tons in 2018. In agricultural organizations, milk production increased by 55.5 %: from 4,520 thousand tons in 2006 to 7,029 thousand tons in 2018. If in 2006 the country's agricultural organizations produced 77% of milk, then by 2018 this figure increased to 96%.



**Figure 2.** The structure of the livestock of cows in various forms of management of the Republic of Belarus for the period from 2006 to 2018 (in %).

Our analysis according to Figure 2 shows that the proportion of the number of cows in agricultural organizations increased from 76.3% to 95.4%, in households it decreased from 23.2% to 4.2%, and in peasant (farmer) farms, the decrease was insignificant - from 0.5% to 0.4%. Thus, in Belarus there is a steady reference to large-scale commercial production of milk and dairy products, which ensures the production of dairy products of uniform quality, the possibility of targeted and comprehensive regulation, as well as the timely implementation of the necessary veterinary and zootechnical measures, cost savings for management expenses, etc.

The productivity of cows in various forms of management of the Republic of Belarus for the period from 2006 to 2018 is presented in table 3.

**Table 3.** Cow productivity in various forms of management for the Republic of Belarus for the period from 2006 to 2018 (in kilograms).

Indicators	2006 y	2010 y	2015 y	2016 y	2017 y	2018 y	2018 y. in% to 2006 y
Farms of all categories	3884	4665	4722	4813	4942	4962	127.8
Agricultural organizations	4030	4760	4764	4853	4988	5001	124.1
Households	3468	4118	4229	4456	4782	5125	147.8
Peasant (farmer) households	3110	3845	3916	3942	4022	4046	130.1

From the data presented in table 3 it follows that the level of cow productivity in the Republic of Belarus in 2018 is the highest in households (5 125 kg), then in agricultural organizations (5 001 kg), and the most low - in peasant (farmer) farms - 4,046 kg. The resources and use of milk and milk products in the Republic of Belarus are presented in table 4.

**Table 4.** Resources and use of milk and dairy products in the Republic of Belarus for the period from 2006 to 2018 (thousand tons).

Indicators	2006 y	2010 y	2015 y	2016 y	2017 y	2018 y	2018 y. in% to 2006 y
Resources							
Stocks at the beginning of the year	151.6	225.8	317.4	226.4	226.6	333.2	in 2.2 times
Production	5895.4	6624.6	7046.8	7140.0	7320.8	7345.4	124.6

Import	85.9	49.2	142.7	171.5	66.1	61.4	71.5
Total resources	6132.9	6899.6	7506.9	7537.9	7613.5	7740.0	126.2
Using							
Production consumption	3277.4	3322.3	3066.8	3063.4	3169.2	3124.1	95.3
Export	2471.4	2348.1	2373.5	2342.6	2407.7	2338.5	94.6
Personal consumption	2676.6	3307.5	4213.7	4247.9	4111.1	4385.9	163.9
Reserves at the end of the reporting period	178.9	269.8	226.4	226.6	333.2	230.0	128.6

From the data presented in table 4 it follows that stocks of milk and milk products in the Republic of Belarus for the analyzed period increased 2.2 times, at the end of the year - by 28.6%. Production volumes increased by 24.6%, industrial consumption decreased by 4.7%, personal consumption - by 5.4%. Export volumes increased by 63.9%, import volumes decreased by 28.5%.

It is important to note that in 2006 the Republic of Belarus exported 45.4% of milk and dairy products of the total volume produced in the country, and in 2018 - already 59.7%. Over the past 12 years, the country's export potential has increased by almost 64%, and the share of exports in production has increased by 14.3 pp. The main direction of export deliveries of Belarusian products is the Russian Federation.

Table 5 presents the actual commodity structure of exports of milk and dairy products.

**Table 5.** Export of milk and dairy products from the Republic of Belarus for the period from 2006 to 2018.

Indicators	2006 y.		2010 y.		2015 y.		2018 y.		2018 y. in% to 2006 y.	
Condensed milk and cream	no data	no data	165,4	98,2	324,9	98,6	245,5	95,6	-	-
Condensed and dried milk and cream	153,0	89,6	195,3	81,4	234,3	92,3	215,1	52,8	140,6	-36,8
Buttermilk, yogurt, kefir	N/A	N/A	26,0	96,6	84,2	97,7	116,4	97,7	-	-
Milk serum	N/A	N/A	26,2	99,3	131,1	97,5	102,5	42,7	-	-
Butter	53,6	99,7	62,7	89,2	87,9	97,7	89,4	58,4	166,7	-41,3
Cheeses and cottage cheese	82,6	99,9	127,7	98,9	182,5	98,8	211,2	94,1	255,7	-5,8

From the data presented in table 5, it follows that export volumes for the main types of dairy products in physical terms increased. So, growth is observed for milk and cream condensed and dried amounted to 40.6%, butter - 66.7%, cheese and cottage cheese - 155.7%. The expansion of channels for the sale of milk and dairy products is evidenced by a decrease in the share of products exported to the Russian Federation: for milk and cream, condensed and dried - by 36.8 pp, butter - by 41.3, cheese and cottage cheese - by 5.8 pp

Thus, in the dairy cattle breeding of the Russian Federation and the Republic of Belarus, significant changes are taking place, associated with the new conditions and the development of new economic relations, which together have allowed to increase the volume of agricultural production, increase the competitiveness of the agricultural sector and ensure national food security.

## Conclusions

Sustainable functioning of the dairy cattle breeding industry in the Russian Federation and the Republic of Belarus was achieved thanks to the painstaking and purposeful work of state authorities, the scientific community and labor resources. The efficient functioning of the dairy cattle breeding industry is favored by the possibility of obtaining regular, almost daily income and the availability of stable consumer demand, as well as the availability of labor resources, technological and technical infrastructure, fodder lands, favorable climatic conditions and other factors. Over the analyzed period, in both countries there was an increase in cow productivity, as one of the main factors of intensification and increase of economic efficiency of production. However, we have identified and differentiation in the methods of doing agricultural business.

Firstly, in the Russian Federation, all forms of management in agricultural production are developed approximately identically (especially agricultural enterprises and households), and in the Republic of Belarus such a legal form as a joint-stock company prevails. The positive experience of the latter in the active participation of the state as a subject of the agricultural market shows the importance and specificity of the role of agriculture as the basis of people's livelihoods and the reproduction of labor, production of raw materials for many types of non-productive consumer goods and industrial products.

Secondly, since 2015, the practice of paying price premiums has been resumed in the Republic of Belarus. Decree of the Council of Ministers of the Republic of Belarus dated January 13, 2017 No. 295 provides for the possibility of direct payments from local budgets to a unit of sold agricultural products (Decree of the Council of Ministers 2017). In practice, the largest share is paid for milk. For Russian agricultural producers, this type of state support would be an important effective tool.

Thirdly, in our opinion, it is necessary to develop a system of pedigree cattle breeding, breeding, genetics and increase the longevity of cows, reduce barrels to increase the productivity and economic efficiency of dairy agribusiness. At the same time, questions of maintenance, feeding, milking and care should be carried out on a science-based approach with a focus on reducing the complexity of production and increasing labor productivity. Only an integrated approach in the implementation of strategic measures for the development of the dairy cattle breeding industry is able to give the expected economic effect.

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