Milk consumption trends

E Semenova* and N Shumeiko

1 Federal Research Center of Agrarian Economy and Social Development of Rural Areas - All Russian Research Institute of Agricultural Economics, 35, building 2 Khoroshevskoe highway, Moscow 123007 Russia
2 Smolenskoye JSC, 1 Prigorodnaya str., Smolensk region, Bogoroditskoye village 214510 Russia

E-mail: esemenova@bk.ru

Abstract. The article describes the main trends in the consumption of milk in Russia. The state of the milk market is characterized by a mismatch between production and consumption. The consumption of milk and dairy products is characterized by an increase in the production of healthy dairy products, fortified, dairy, organic products, the impact of the share of imports on the demand for domestic milk and dairy products, the effect of solvency on the demand for dairy products.

1. Introduction
Milk and dairy products play an important role in the nutrition of the population. However, despite the measures taken by the state support, the growth of milk production is insignificant and does not correspond to the goals set. This is due to the limited consumer demand for dairy products, the seasonality of raw milk production, and the difficulty in obtaining long-term loans on favorable terms.

2. Methods
On the basis of statistical indicators on the state of milk production, an analysis of milk production and consumption has been performed. In the process of analysis, we used economic statistical methods.

3. Results
The offer of milk on the market is characterized by:

- The lag of production from the needs of the population: the level of self-sufficiency in milk and dairy products amounted to 82.4% in 2017, which is below the threshold values of the Food Security Doctrine by 7.6 points [1];
- The reduction in the number of livestock with an increase in its productivity, the number of cows in 2017 amounted to 8,202.8 thousand heads, 94.7% of which is compared to 2013; milk yield per cow in agricultural organizations in 2017 amounted to 5838 kg, or 129.2% if compared to 2013;
The reduction of efficiency and return on investment in the industry: the annual additional production volume on the newly introduced and modernized facilities does not exceed 0.7% of the production volume in agricultural organizations;

Changes in the state support measures for the industry; allocation of subsidies for increasing productivity in dairy cattle breeding in the amount of 8,073.2 million rubles; for the subjects of the Russian Federation, in which the average milk productivity of cows in agricultural enterprises for the reporting year is 5,000 kg and higher, an additional coefficient has been established;

The increased competition with foreign manufacturers engaged in production, including and in Russia, and their dairy products. This is proven in the research by V. N. Surovtsev, “Russian milk producers and agro-industrial complex governing bodies need to take into account that in the near future they will have to compete not only with dairy products manufacturers abroad, but also with foreign companies that have organized a large, high-tech, and efficient milk production in Russia, which received additional preferences due to the weakening ruble exchange rate” [2].

In dairy cattle breeding, the subject of labor is the dairy herd of cows. The main direction of improving the subject of labor is improving the productive and breeding qualities of livestock, improving the quality of milk through the use of the best world and domestic breeding resources.

Milk and dairy products are included in the set of consumer goods and services. However, the purchasing power of cash income decreases, including for dairy products: for drinking milk, it is from 602 liters in 2012 to 539 liters in 2016. A decrease in the purchasing power is observed in all dairy products, especially in milk-intensive ones – butter and cheese. Consumption of dairy products varies by households in urban and rural areas (Figure 1) and by decile groups by income of the population (Table 1).

![Fig. 1. Consumption of milk and dairy products in households, on average per household member, kg per year.](image)

The consumption of milk and dairy products in households in urban areas is higher due to both higher incomes and the availability of dairy products in the range. Per capita consumption of milk decreased to 33 kg by 2017, with a recommended rate of 325 kg, which is associated both with a decrease in the level of general resources of milk and dairy products, and with an increase in the cost of dairy products in the face of declining real disposable incomes of the population [1].

Decrease in the purchasing power of per capita cash income by 6% led to an increase in milk consumption by 3.8%. Milk belongs to the “anti-crisis” goods. Its consumption largely depends on the national and cultural characteristics of consumption. It is possible to expand the demand for domestic dairy products due to the growth of income relative to lower-income groups.

Consider the impact of import growth on the consumption of domestic dairy products (Table 3). Considering the consumption of milk by decile groups, we note that with an increase in income, the consumption of dairy products and milk increases: 2 times in 2015 and 1.9 times in 2016.

Table 1. Consumption of milk and dairy products by 10% population groups, on average per household member, kg/year.
Table 2. Impact of purchasing power on the consumption of milk and dairy products in the Russian Federation.

| Years | First | Second | Third | Fourth | Fifth | Sixth | Seventh | Eighth | Ninth | Tenth |
|-------|-------|--------|-------|--------|-------|-------|---------|--------|-------|-------|
| 2015  | 168   | 208    | 233   | 251    | 269   | 276   | 287     | 290    | 320   | 336   |
| 2016  | 176   | 213    | 242   | 259    | 270   | 282   | 299     | 318    | 322   | 335   |

Table 3. Impact of the share of imports on the consumption of milk and dairy products of domestic production.

| Indicators | 2010 | 2015 | 2016 | 2016 to 2010, % |
|------------|------|------|------|-----------------|
| The purchasing power of average per capita cash income (the number of sets of the subsistence minimum) | 3,33 | 3,14 | 3,13 | 94 |
| Consumption of milk and dairy products, kg per household member | 263 | 266 | 273 | 103,8 |

In 2016, the growth in milk consumption due to imports was 3.6% compared to 2012.

Figure 2. Import and export of milk and dairy products, thousand tons.

The change in imports and exports of milk and dairy products was influenced both by the introduction of sanctions and the formation in 2012 of the EAEU, which led to an increase in imports of milk and dairy products from the participating countries, especially from Belarus. Milk exports also increased, albeit at lower rates.

The main imported resource in dairy cattle breeding is the purchase abroad of highly productive livestock of various breeds. Importation of imported livestock caused a number of problems associated
with the stress state of animals during transportation, adaptation problems, increased content requirements, the non-observance of which led to a high percentage of waste and forced culling of imported stock, insufficiently high productivity of purchased animals.

It is advisable to purchase livestock from domestic breeding reproducers. Domestic livestock with good care is often more productive than imported livestock without proper care.

The main directions of development of innovation processes in dairy cattle breeding are: increasing the genetic potential of animals by improving the selection and breeding work; organization of intensive fodder production; introduction of efficient resource-saving production technologies; veterinary and sanitary prevention and appropriate control.

The expansion of the range of dairy products in response to consumer preferences goes in the following directions:
- Drinking milk and healthy dairy products with low content of fat, salt, sugar, lactose-free milk, etc.; enriched dairy products to improve digestion, lower blood cholesterol, etc.;
- Ecologically safe dairy products, farm milk;
- Dairy products;
- Terminated dairy products with an extended shelf life;
- Dairy products with fillers.

As milk substitutes for consumers, it is possible: for the youth – carbonated drinks, accompanied by sales promotion (bright creative packaging, prizes, games, coupons); for adults – juice, tea, and coffee.

4. Conclusions
Analysis of milk production and consumption showed that milk production does not correspond to consumption, the deficit is covered by the import of dairy products. A further increase in demand for milk and dairy products is possible due to an increase in the purchasing power of the low-income strata of the population and an expansion of the range of dairy products in favor of healthy dairy products.

References
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