

## WAYS TO IMPROVE THE PRODUCTION AND PROCESSING OF DAIRY PRODUCTS IN THE AKMOLA REGION

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**Abstract:** Dairy production is one of the main branches of agricultural production in the world economy. The article considers the current state of dairy cattle-breeding and dairy-processing industry in Kazakhstan. Production, consumption, and processing of dairy products are analyzed as well as the key reasons for the crisis in this industry; a mechanism for further development and overcoming the current situation is offered.

**Keywords:** Dairy products, Innovative environment, Dairy products processing.

### 1 Introduction

The dynamics of development and efficiency of production of milk and dairy products, competitiveness is the subject of numerous publications by both domestic and foreign authors. If we consider the structure of all marketable agricultural products, then about a third of it is milk and dairy products, and most countries in the world produce it. Milk is one of the most valuable and high-calorie foods. The dairy industry with the advent of market relations in the post-Soviet space was in the deepest crisis. In Kazakhstan, there was a reduction in domestic production of whole milk, and, as a result, exports; conversely, imports of dairy products rapidly increased.

Most of the milk produced in the subsidiary household parts is consumed for their own needs, in particular, for feeding animals. And only a tiny part of it goes for processing into dairy plants. All this led to a sharp reduction in the production of milk and dairy products in the country. Today, Kazakhstan can satisfy its needs with its own products by 34%. The formation of market relations in this industry, as expected, did not lead to an increase in the efficiency of the industry, but on the contrary, it only destroyed the mechanism that existed at that time. As practice shows, the most effective form of production and storage of milk are medium and large enterprises. This form is beneficial compared to personal development with its more competent labor organization (production, maintenance, collection, storage, delivery of feed), and, most importantly, the quality of milk, which is very important for the processing plant.

Today, due to the difficult situation in the economy and changes in the international situation, new approaches are being considered that can ensure qualitative growth in the agro-industrial sectors, including the dairy industry. Dairy farming and the dairy industry are one of the most important subsystems of the agro-industrial complex of the Republic of Kazakhstan. The dairy industry is a set of enterprises engaged in the procurement and complex processing of milk in whole milk, dairy products, butter and clarified butter, natural cheeses, processed cheeses, brined cheeses, bryndza, dried whole milk, etc.

Milk and cheese market is one of the most popular food markets in Kazakhstan. According to experts in this industry, the capacity of the Kazakhstan market today is over 40 thousand tons per year.

To date, Kazakhstan-made cheeses account for about 35% in total sales of this category. Cheese of Kazakhstani production is quite competitive, including due to the price.

A review of the data of the Customs Control Committee of the Republic of Kazakhstan shows the growth in imports for the

following groups of dairy products: processed milk and cream, butter, cheese and curd, and condensed milk.

The main exporter of processed liquid milk and cream, as well as powdered milk, in Kazakhstan, is Russia. For dry milk, the main suppliers are Russia and Belarus, which import 18% and 16%, respectively, of the total volume of imported milk powder. In addition, France is one of the largest importers of milk powder in Kazakhstan - 1,042.1 tons. In terms of cheese and cottage cheese, the main share of supplies falls to Russia - 87.7%

An analysis of the situation on the milk and dairy products market of the Customs Union, conducted in February 2014 by the Eurasian Economic Commission (EEC), revealed a general shortage in the milk market.

In their conclusion, the experts of the EEC noted that this situation poses the risk of the producers of the CU countries losing part of the total dairy market. This, in turn, can negatively affect the prices of milk and dairy products. In this situation, EEC experts recommended stimulating the specialization of countries in the production of certain types of dairy products through collective funding and coordination of state subsidies.

The share of domestic production in domestic consumption is 65%, while the remaining 35% is imported. Thus, in milk processing, there are significant prospects for increasing production and forcing out imports.

To address the problems of low-quality milk in the subsidiary household parts, as well as the collection of milk in connection with the remote location of subsidiary household parts, milk receiving points will be created. The low quality of milk in subsidiary household parts is usually due to the lack of necessary sanitary conditions for keeping livestock, not carrying out the necessary veterinary measures, etc. At the same time, the organization of milk receiving stations that have milk analyzers will make it possible to identify low-quality milk at the collection stage. At the same time, the presence of demand for milk and an adequate purchase price along with milk control should motivate the subsidiary household parts to improve the quality of milk. (1, 2)

### 2 Materials and Methods

The dairy industry is one of the fundamental sectors of the economy, which accounts for 16% of the volume of food produced in the country.

The main dairy regions are Almaty, East Kazakhstan Region, and South Kazakhstan Region, their total share is 43% of the total milk production in the country. At the same time, the leaders in the production of milk in agricultural enterprises and farm enterprises are the East Kazakhstan Region, Karaganda Region, and Almaty Region.

The share of processing of the total volume of marketable milk produced is 48% or 1 680 thousand tons. The export volume of dairy products is 22 thousand tons, and the volume of imports is 903 thousand tons, domestic consumption of dairy products is 2,560 thousand tons.

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However, the development of the industry is hampered by a number of problems. (3):

- 1) low quality of milk in the subsidiary household plots and their territorial distance;

- 2) lack of uneven flow of raw milk to processing plants and the high cost of raw milk due to the high proportion of production in private farms and subsidiary household plots;
- 3) a high proportion of morally and physically worn-out equipment, in addition, quite expensive in energy and maintenance, low level of mechanization and automation;
- 4) lack of working capital at processing enterprises;

- 5) marketing problems of finished dairy products.

As a result, our products become less competitive compared to imported ones.

The diagram below presents the market capacity forecast for the coming years, which has a positive trend in the growth of the dairy products market.

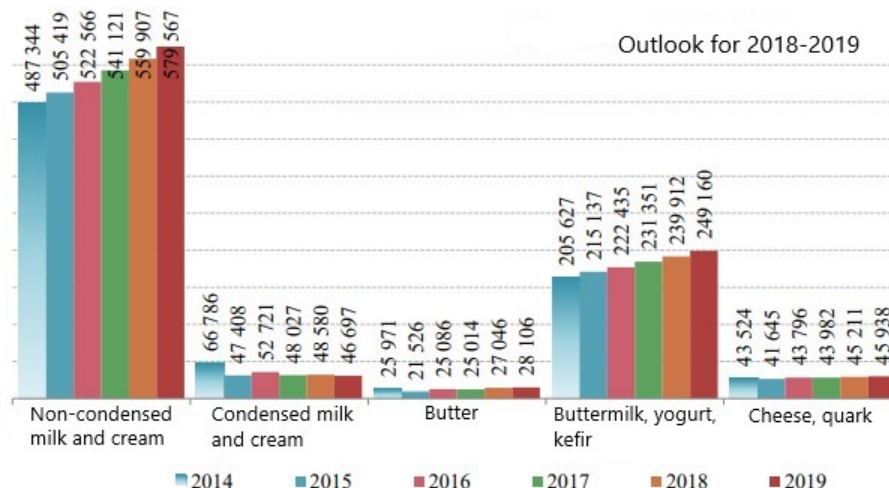


Figure 1. Market Capacity of Dairy Products of the Republic of Kazakhstan, tons

Source: Data from the Committee on Statistics of the Republic of Kazakhstan and the Customs Control Committee of the Republic of Kazakhstan.

### 3 Solutions to industry problems

Creation of milk receiving points. To address the problems of low quality of milk in the subsidiary household plots, as well as the collection of milk in connection with the remote location of the subsidiary household plots, milk receiving points will be created.

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At the same time, the organization of milk receiving stations that have milk analyzers will make it possible to identify low-quality milk at the collection stage. At the same time, the presence of demand for milk and an adequate purchase price, along with milk control, should motivate the subsidiary household plots to improve milk quality. (4)

According to preliminary data, the creation of milk receiving points is planned in the regions where the largest volumes of milk are produced: East Kazakhstan Region (15.3%), Almaty (14%), South Kazakhstan Region (13.5%), North Kazakhstan Region (9%) Kostanay Region (6.8%) and Akmola Region (6.3%).

### 4 Modernization and reconstruction of existing milk processing enterprises, provision of working capital

According to statistics, about 30% of existing equipment and technology of milk processing enterprises requires modernization. Considering that the total capacity of milk processing enterprises is about 3,000 thousand tons of dairy products, therefore, the equipment, which produces products for 900 thousand tons, requires modernization.

Modernization implies investments in the production technology (processing, treatment, packaging) of milk in order to increase the productivity of human labor, the profitability of enterprises and the competitiveness of products.

Options for the modernization of enterprises. Modernization through the use of Russian equipment. This method is the most common today because of its cheapness: Russian equipment is acquired mainly because of the price unavailability of Western equipment and unwillingness to carry out expensive modernization. The use of Russian machines involves their mandatory "fine-tuning" for 3-4 months on the ground, for which the enterprise creates a whole infrastructure of additional specialists and repairmen. As a result, the company receives equipment that can perform the same functions about 5 times cheaper. (5, 6)

Modernization through the use of licensed equipment. To date, a number of Russian enterprises (equipment manufacturers) have mastered the production of technologies under licenses from leading world manufacturers. So far, licensed technologies, although they have a lower price than Western ones, and higher production characteristics than traditional domestic technologies, are less popular due to the lack of an optimal price-quality ratio.

Modernization through the use of foreign equipment. As a rule, foreign production and packaging equipment of reputable companies is the most preferable choice for an enterprise, if there are financial opportunities. Western companies also compare favorably with the level of warranty and service. (7)

The use of more advanced equipment places higher demands on the quality of the workforce, which forces the management of enterprises to train workers and specialists. The training is organized with the help of specialists from equipment suppliers. As a rule, enterprises go for it, despite the costs, after all, having more trained workers, the enterprise thereby increases its "technical" and "social" capital, i.e., it accumulates advantages for its leadership in the future.

### 5 Subsidizing the costs of milk processing enterprises for the purchase of raw materials for the production of powdered milk, butter, and cheese

To solve the problem of the high cost of raw milk for the production of deep processed milk products: butter, dried milk, and cheese, it is planned to subsidize the costs of milk

processing enterprises for the purchase of raw materials for the production of these processed products.

Production of cheese, butter, and powdered milk is the most expensive of all dairy products. Thus, for the production of 1 kg of cheese, 10.8 liters of raw milk must be purchased, 20.3 liters for the production of butter, and 7.3 liters for the production of milk powder. Thus, the share of raw materials in the cost of these types of dairy products is significant. As a result, domestic processors of the price of finished products (cheese, butter, and milk powder) is higher than that of foreign suppliers. (8)

In order to produce competitive products, processors must purchase raw materials at a cheaper price. However, the cost of raw milk from manufacturers, given the high cost of feed is much higher. As a result, there is a vicious circle: raw milk producers cannot sell their products at a reasonable price, and milk processors cannot buy raw milk at a price that suits them.

At the same time, many enterprises that were focused on the production of butter, cheese, and powdered milk due to the high cost of production and the lack of a sales market are forced to reduce their production, if not even to completely stop the production of these types of dairy products, repurposing production into quickly paying back and more profitable types. (9)

At the same time, since butter and cheeses are in great demand among the population and should be present in the daily diet, consumers buy imported cheaper products, which adversely affects not only the work of the dairy industry but also the whole economy of the country. So, only in 2012, the import of dairy products amounted to about 400 million US dollars. These are the financial resources that could be directed to the development of domestic milk processing enterprises.

To solve this problem, a mechanism for guaranteeing the purchase price is envisaged, which involves subsidizing the difference between the price at which agricultural producers can profitably sell the produced dairy raw materials and the price at which processors can profitably buy it. (10)

Among the most important factors that caused the growth of imports of dairy products from foreign countries is the shortage of raw milk resources on the countries market, which is associated with insufficient investment in dairy farming, lack of low quality of feed, deterioration of dairy herds. In addition, a reduction in the rates of the Common Customs Tariff leads to a decrease in prices for imported products. (11, 12)

For Kazakhstan's exports of dairy products, the Russian market would be attractive due to its capacity, sanctions and a decrease in domestic production in the country, but within the EurAsEC framework, Belarusian products were the strongest competitors. Common borders, low prices, stable dynamics of price growth, the identity of consumer preferences in these countries leaves little hope for an increase in Kazakhstan's exports in this direction.

The main problems are price fluctuations, shortage of raw milk, lack of funds from producers for modernization, low number of cows and productivity, a significant proportion of low-income households in the production of raw milk, reduced profitability of producers and processors of milk due to increased cost of production and processing against the devaluation of the national currency, a relatively high import dependence, low investment activity, a decrease in consumer demand for milk and dairy products while reducing the purchasing power of the population. (13)

To solve these problems, systemic measures are needed to develop the dairy market. Within the Commonwealth countries, it is necessary to stimulate the specialization of countries in the production of certain types of dairy products with collective financial support tools and to coordinate the policy in the field of state subsidies for dairy production, apply joint project financing in the agro-industrial sector and, above all, in the dairy sector

and pursue a common policy in breeding livestock. It is recommended to deepen production cooperation in the form of joint ventures.

It is expedient for manufacturers to reduce the share of raw materials and low value-added goods in the export structure due to the development of the production of butter and cheese. The production of dairy products should be carried out in such areas as the production of natural environmentally friendly products; production with biologically and physiologically active substances; with a reduced calorie, with therapeutic and prophylactic properties; application of the latest developments in the field of packaging and packaging of dairy products, especially kumis and shubat. The development of camel and mare's milk production should be a priority within the framework of export-oriented production for sales in the markets of foreign countries. (14)

An increase in the share of production of these types of dairy products could increase the share of exports to European countries. Given that the main consumers of dairy products in Kazakhstan are the countries of Central Asia (Uzbekistan, Tajikistan, etc.), which account for 70% of all domestic exports, it is advisable to increase exports to these countries. And these factors are common borders, the identity of consumer preferences that can be a catalyst for increasing exports in this direction.

As noted above, the demand for dry milk is increasing, while activities related to the restoration of existing dry milk plants are not planned. Government support is needed in the form of compensation for the direct costs incurred for the creation of new dairy cattle breeding facilities and their reconstruction, subsidizing the production of commercial milk. (15) The key tasks should be reimbursement of part of the capital expenditures for the creation and modernization of processing enterprises, the promotion of the consumption of milk and dairy products to the level of scientifically based consumption standards through the program of domestic food aid and the development of infrastructure systems of social nutrition.

## 6 Results and Discussion

To implement the tasks of ensuring food security and ensuring the domestic milk of the Kazakhstan market, it is necessary not only to increase the production of raw milk suitable for processing but also to increase the volume of collection and sale of raw milk for industrial processing.

The main raw material for production is freshly whole milk, which, according to the Statistics Agency, feeds about 4 million liters per year in Kazakhstan, but according to expert estimates, only about 30% of the produced milk goes into industrial processing. This volume is not enough for the production of dairy products in volumes that ensure the food security of the country. But it is precisely this volume that underlies the production of dairy products and the provision of a diverse assortment for consumption by the population of the republic through commercial networks. (16)

One of the reasons for the shortage of raw materials for the dairy industry in Kazakhstan, experts call the difficulty of collecting milk, which in 85% of cases is located in private farms. Due to the geographical remoteness of settlements from each other, the collection of milk from households is costly. For frequent remote farms, milk production becomes unprofitable due to costly transportation. For comparison, if in Europe the distance from the supplier (or milk handler) is no more than 50 km, in the conditions of Kazakhstan the distance to the milk processing enterprise may be more than 600 km.

The tasks to increase the volume of collected raw materials dictate the need for measures to create a network of milk receiving points in rural areas. This is important both in terms of reducing the shortage of raw materials and in terms of the need to improve the quality of raw materials and the development of dairy farming. It is very important that milk be suitable for

processing, as soon as raw materials of a certain quality can be taken to produce safe and nutritionally valuable food.

Milk reception points are designed for receiving, cleaning and cooling milk, which preserves the quality of raw materials before handing it to the milk processing company. The presence of a milk collection point also reduces the cost of collecting milk, and, consequently, reduces the cost of production in the future. (1, 17)

Any reduction in milk collection is a loss in processing volumes and in the dairy market as a whole. As a result, the reduction of taxes and budget revenues, the reduction of jobs, as in milk processors, and in allied industries, employed as contractors. While reducing purchases from local farmers, losses are up to 40% of the rural population of the republic, which is an important social factor.

According to the estimates of the Dairy Union of Kazakhstan to ensure food security of Kazakhstan, local production should occupy at least 80% of the domestic market, which was indicated

by the President of the country among the tasks to ensure food security of the country. MSCs are confident that the achievement of this result and maintaining a stable state of production is possible with the implementation of a whole range of measures, including the development of a network of milk receiving stations with state support. (18)

The Kazakhstan Dairy Union unites the largest enterprises that traditionally produce dairy products and process more than 60% of the commercial milk produced in Kazakhstan. (19)

The supply of milk and dairy products is formed in the republic by several sources of income, but, first of all, by its own production. According to the Statistics Agency of the Republic of Kazakhstan, the first place in milk production occupies the East Kazakhstan Region, the share of participation is 13.83%. In turn, Almaty and South Kazakhstan Region produce 12.81% and 12.65%. As for Astana and Almaty, the share of their participation in the market is the most minimal, and the reason for this is the inconvenience of conditions for production (Figure 2).

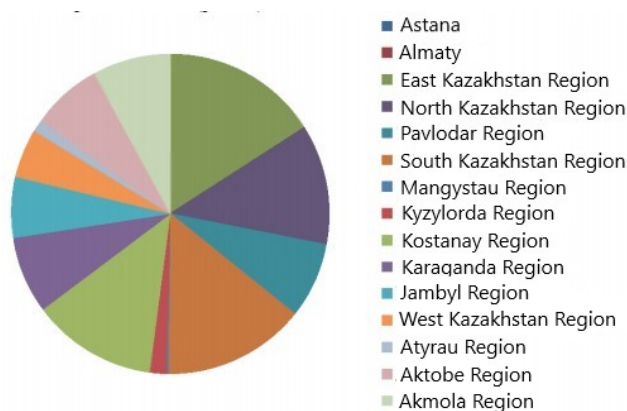


Figure 2. Data of the Agency of the Republic of Kazakhstan for the Production of Milk.

Milk is produced continuously throughout the year, in all climatic zones of the republic. At the same time, milk production is seasonal in nature, increasing in spring and summer and falling in autumn and winter (in June, the production volume is 3.5 times higher than the January figure). To expand the range used imports. At the same time, the volume of milk processing does not depend on the seasonal production of raw materials, which indicates the use of powdered milk, mainly imported. (20, 21)

The development of dairy cattle and the dairy industry in Kazakhstan is constrained by the following factors:

- dilapidated state, technical backwardness of livestock farms;
- high costs and labor intensity of production;
- low herd productivity, which is one of the reasons for the low profitability of dairy cattle breeding;
- an unfavorable climate, insufficiently effective measures to protect domestic producers - this is due to taxation and the availability of cheap dried milk from foreign countries, as well as dairy products, which are inferior in price to domestic producers;
- low level of the material-technical base of most processing enterprises. The lack of advanced equipment equipped plants for deeply integrated processing of raw milk;
- lack of qualified specialists of the highest and medium level, which is a big problem for the dairy industry;
- a sharp reduction in cattle as the main source of production of raw materials - milk;
- a sharp reduction in the acreage of forage crops, which led to the destruction of the food supply. This trend has been observed in Kazakhstan for the past 15 years.

Innovation should be introduced not only in the dairy industry; innovation should be interested and heads of agricultural enterprises specializing in the production of whole milk. The number of dairy herds, which grew in the first half of the 1990s, has declined sharply over the last decade. The villagers do not provide their own needs for milk and dairy products, and entrepreneurs who have retail outlets, because of the perishable nature of dairy products, do not buy it at milk plants, therefore, with all their desire, villagers cannot buy the product at retail. In addition, milk and dairy products are specific products, without heat treatment in some cases they can be hazardous to health, especially children. In this regard, the organization of workshops for the primary and secondary processing of milk and packaging of dairy products in rural areas is relevant. (22, 23)

Of particular relevance at present, both in the country as a whole and in a particular region, the purchase of natural dairy products is acquiring among the urban and rural population. Analytical studies confirm that the main feature of the current situation in the Kazakh market for milk and dairy products is a significant increase in demand. However, the demand for milk and dairy products for individual market segments (the low-income segment, the children's segment) is characterized as unsatisfied.

Functional drinks are distinguished into a special group, the demand for which is characterized by positive dynamics. Competitive advantages, in terms of product quality, of agricultural producers are the use of natural milk. Manufacturers can cooperate with mutually beneficial conditions with research institutes engaged in the development of new technologies and new generations of products. (24) It is necessary to unite the interests of manufacturers, technological scientists, and consumers of innovative products offered through advertising, dissemination of information through business incubators,

information and consulting centers. (25) The implementation of innovative projects of organizing mini-workshops for the production of dairy products enriched with useful substances can become a promising business for domestic producers.

Kazakh producers of milk and dairy products have all the opportunities to supply high-quality innovative dairy products to the market. To do this, scientists, technologists, economists constantly create innovative technologies, develop innovative products, and offer innovative solutions for organizing production in the dairy industry. It is necessary to establish a link between science and business in order to the mutually beneficial and successful implementation of innovative projects in practice. This will certainly contribute to the strengthening and further growth of the competitiveness of domestic producers in the domestic market of milk and dairy products.

## 7 Conclusion

Considering the current state of the dairy industry in Kazakhstan, as well as analyzing domestic products on the market, we can conclude that dairy cattle breeding and the processing industry as a whole are in a depressed state and require urgent resuscitation. It is necessary:

1. The government should focus on the development of animal husbandry on agricultural formations (both large and medium), increasing the number of main livestock in them from 3-5% to 60-65%.
2. Develop a state program for the development of animal husbandry (both dairy and meat), which would first of all solve the issue of financial support in the form of long-term lending with an interest rate from 0 to 3% per annum (with a deferred payment of up to two years) for the purchase livestock, construction of milking halls and premises for animals.
3. To improve the selection and breeding work, to transfer livestock to intensive technology of maintenance, to mechanize labor-intensive processes as much as possible.
4. Introduce guaranteed subsidies for each liter of milk sold to producers.
5. Save the preferential tax regime of 70–80% when paying the following types of taxes: social, property, VAT, corporate income tax for producers and processors working on domestic raw materials.
6. In order to provide the industry with personnel, the state must introduce an obligation for graduates of specialized higher education institutions: after graduation, work at the village or milk processing enterprises for at least 3 years, and only after that consider the diploma confirmed.

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