

MILK AND DAIRY PRODUCTS MARKET IN AKMOLA REGION OF KAZAKHSTAN

ҚАЗАҚСТАННЫҢ АҚМОЛА ОБЛЫСЫНДАҒЫ СҮТ ЖӘНЕ СҮТ ӨНІМДЕРІ НАРЫҒЫ

РЫНОК МОЛОКА И МОЛОЧНОЙ ПРОДУКЦИИ В АҚМОЛИНСКОЙ ОБЛАСТИ КАЗАХСТАНА

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Abstract. Recommendations for solving the problems of sustainable development of milk and dairy products market in the region are based on the study of its current state and promising directions. The dynamics of production of milk and its processing products, export and import, livestock and productivity of cows is analyzed. The contribution of various categories of farms to the receipt of raw milk has been studied, while the lag in milk yield in farms and households from agricultural enterprises has been revealed. The analysis of expenses in agricultural enterprises is presented, as well as the structure of material costs. The main problems of effective development of the industry of dairy cattle breeding include tendency to reduce the area under fodder crops; a weak feed base and increase in feed prices, which leads to the increase in the cost of milk; reduction in the number of dairy cows; small commodity farms, that is, the concentration of main volumes of milk production in households where the introduction of intensive innovative technologies is difficult; seasonality of the process; non-observance of veterinary and sanitary standards. The regional features of location of dairy processing enterprises have been investigated, confirming the close relationship between the development of the dairy industry and the raw material base. Those of them have been identified, which account for the largest share in production of the range of dairy products. The organizational structure of the milk processing enterprise "Gormolzavod" LLP was studied, the calculation of butter was made using its own raw materials. The competitive advantages of the processing enterprises of the region are revealed.

Аңдатпа. Облыстағы сүт және сүт өнімдері рыногының тұрақты даму проблемаларын шешу жөніндегі ұсынымдар оның қазіргі жай-күйі мен перспективалық бағыттарын зерттеуге негізделген. Сүт және оны қайта өңдеу өнімдері өндірісінің, экспорт пен импорттың, сиыр басының және өнімділігінің динамикасы талданған. Шикі сүт алу кезінде әртүрлі санаттағы шаруашылықтардың үлесі зерттелген, бұл ретте фермерлік шаруашылықтар мен жұртшылық шаруашылықтарындағы сауу бойынша ауыл шаруашылығы кәсіпорындарынан артта қалушылық анықталған. Ауылшаруашылық кәсіпорындарындағы шығындарға

Аннотация. Рекомендации по решению проблем устойчивого развития рынка молока и молочной продукции в области основаны на исследовании его современного состояния и перспективных направлений. Проанализирована динамика объемов производства молока и продуктов его переработки, экспорта и импорта, поголовья и продуктивности коров. Изучен вклад различных категорий хозяйств при получении сырого молока, при этом выявлено отставание по надоям в фермерских хозяйствах и хозяйствах населения от сельскохозяйственных предприятий. Представлен анализ расходов в сельскохозяйственных предприятиях, а также проанализирована структура материальных затрат. К основным проблемам эффективного развития отрасли молочного скотоводства можно отнести тенденцию сокращения посевных площадей под кормовыми культурами; слабую кормовую базу и рост цен на корма, что приводит к увеличению себестоимости молока; сокращение поголовья коров маточного направления; мелкотоварность хозяйств, то есть концентрация основных объемов получения молока в хозяйствах населения, в которых затруднено внедрение интенсивных инновационных технологий; сезонность процесса; несоблюдение ветеринарных и санитарных норм. Исследованы региональные особенности размещения молокоперерабатывающих предприятий, подтверждающие тесную взаимосвязь развития молочной промышленности с сырьевой базой. Определены те из них, на долю которых приходится наибольший удельный вес в выработке ассортимента молочной продукции. Изучена организационная структура предприятия по переработке молока ТОО «Гормол-завод», составлена калькуляция сливочного масла при использовании собственного сырья. Выявлены конкурентные преимущества перерабатывающих предприятий области.

Түйінді сөздер: сүт және сүт өнімдерінің жергілікті нарығы, шикізат, өндіріс, қайта өңдеу, өндірістік қуаттар, жемшөп базасы, шығындар, тиімділік.

Ключевые слова: локальный рынок молока и молочной продукции, сырье, производство, переработка, производственные мощности, кормовая база, затраты, эффективность.

Dairy industry is the leading branch of food industry in the Republic of Kazakhstan [2]. Due to the fact that this industrial production is one of the most costly areas of cattle breeding not only in country, but also in region, its development is hampered by low economic efficiency of raw materials production.

In order to solve the problem of domestic market saturation with dairy products of sufficient quantity and of the appropriate quality, sustainable development of dairy farming is required. This requires a stable supply of feed for the industry, introduction of advanced

technologies, decrease in labor intensity and increase in livestock productivity, further subsidizing of dairy production and subsidizing costs of processing enterprises for purchasing agricultural products for the production of products of deep processing. It is necessary to further improve legislative and regulatory framework to support the market of milk and dairy products. The practical relevance of solving these problems testifies to the relevance of study.

Materials and methods of research.

Study and analysis of current condition and development opportunities of dairy cattle breeding and milk processing industries using the example of Akmola region made it possible to identify a number of problems that hinder its further development.

In accordance with the tasks set, following methods of economic research were used: economic-statistical and balance-sheet - in evaluation the current condition of local milk and dairy products market in the region; abstract-logical - when identifying the existing problems of the industry of milk production and processing, as well as the reasons hindering its development.

The use of monographic research method made it possible to substantiate and summarize regional features of location of milk processing enterprises, confirming close connection between development of dairy industry and raw material base, as well as to identify competitive advantages of processing enterprises in the region.

Calculations are based on the materials of the Committee on Statistics of MNE of the Republic of Kazakhstan, SA "Agriculture administration of Akmola region", "Gormolzavod" LLP enterprise. Theoretical and methodological basis of the study was the works of leading domestic and foreign scientists on the issue under study, materials of scientific conferences, normative and reference regulations.

Results and their discussion. Dairy production resources in the country are formed at the expense of its own production, while there is a steady increase in this indicator from 82.5% in 2015 to 87.3% in 2019, that is, a stable increase in production volumes is observed in dynamics. The share of imported products, including imports, accounted for from 9.1% in 2015 to 8.1% in 2019 [3].

The main part of milk and dairy products (64.1% in 2019) goes to personal consumption of the population, and only 28.3% goes to industrial consumption. At the same time, it can be noted that proportion of milk used for production consumption tends to increase from 25.4% in 2015 to 28.3% in 2019.

Condition analysis of dairy industry in Kazakhstan shows that the main problem is still underdevelopment of raw material base [4].

One of the main factors affecting the change in dairy production is number of cows for dairy purpose. In 2019 the proportion of cows in the country was 50.7% of total cattle population, or 3769.8 thousand units. 430.2 thousand units of cattle are concentrated in Akmola region, 219.9 thousand of them, or 51.1% are cows (table 1).

Table 1 - Cattle units and dairy production by household category in Akmola region in 2017-2019

Household category	Cattle, thousand units	Cows		Milk produced		Average milk yield, kg
		thousand units	proportion, %	Tons	proportion, %	
2017						
Agricultural enterprises	119 522	55 822	46.7	71290.8	18.5	3 914
Peasants	63 722	37 901	59.5	18 858.2	5.0	2 991
Housekeeping	220 940	110 410	50.0	293 621.1	76.5	2 913
All household categories	404 184	204 133	50.5	383 770.1	100.0	3 063
2018						
Agricultural enterprises	130 661	57 822	44.2	70 472.3	18.3	3 905
Peasants	73 079	42 046	57.5	19 277.1	5.0	2 792
Housekeeping	218 845	111 368	50.9	296 028.8	76.7	2 898
All household categories	422 585	211 236	50.0	385 778.2	100	3 035
2019						
Agricultural enterprises	136 934	54 265	39.6	77 029.2	19.5	4 739
Peasants	75 888	45 917	60.5	19 899.2	5.0	3 014
Housekeeping	217 399	119 766	55.1	299 190.1	75.5	2 937
All household categories	430 221	219 948	51.1	396 118.5	100.0	3 173
Notice: calculated by Committee of Statistics of MNE of Republic of Kazakhstan						

There is a decreasing trend in proportion of cows in total cattle livestock in agricultural enterprises of the region from 46.7% in 2017 to 39.6% in 2019. At the same time, there was an increase in proportion of cows in peasant farms from 59.5% (37 901 units) in 2017 up to 60.5% (45 917 units) in 2019 and in house-keeping holdings from 50.0% (110 420 units) in 2017 up to 55.1% (119 766 units) in 2019.

For the further development of dairy raw materials production, it is necessary to increase proportion of dairy cows in total number of cattle and increase average milk yield per unit.

Milk production in the region in 2019 amounted to 396.1 thousand tons in all categories of farms, with the share of households in total volume of milk production - 75.5%, agricultural enterprises - 19.5%, peasant farms - 5%.

Average milk yield per unit in the region in 2019 amounted to 3 173 tons. In agricultural enterprises, there is a steady upward trend in this indicator from 3 914 tons in 2017 up to 4 739 tons in 2019. In peasant farms and housekeeping the average milk yield during the entire analyzed period is below the average for the region, that is, they lag behind agricultural enterprises in milk yield.

Large-scale commercial production has significant advantages in that it is able to offer products manufactured at lower costs, better quality and a wider range. It was determined that with an increase in concentration of cows per 100 units their average productivity increases by 5.2%. Direct labor costs and cost of a ton of milk are reduced by 12.6% and 5.5% respectively [5].

In modern conditions, a promising direction for agro-industrial complex of the country development is agricultural products processing. But despite the positive trends and measures of state support, the share of agricultural products processing in total production volume in the country remains low.

Today in Akmola region there are 15 enterprises for dairy products with a production capacity of 146.8 thousand tons per year. The workload of milk processing enterprises in the region in 2019 amounted to 64%, that is, 93.92 thousand tons were processed. Standby capacities amounted to 52.83 thousand tons.

The main reasons for the existence of such a problem lie in seasonality of milk production, and it is impossible to ensure sustainable development of processing production without a stable raw material base.

Since most dairy processing enterprises don't have their own raw material base, they

purchase milk from agricultural formations, farms and households. At the same time, despite the shortage of milk, its processors do not provide an adequate increase in purchase prices for milk. This leads to existence of a shortage of milk required to load production capacity of processing factories. This led to attempts by milk producers to organize their own processing [6].

In order for local producers to be able to fully utilize their existing production capacities and provide consumers with final dairy products, the volume of raw milk market in Akmola region intended for processing should be about 146.8 thousand tons per year.

There are two options for solving this problem: increasing the number of uterine cows and increasing their productivity, that is, an intensification of dairy cattle breeding based on a more complete use of genetic potential of cattle.

Also, in order to create their own raw material base, regional processing enterprises are opening stationary milk collection points, which allow them to increase the volume of purchases of high-quality milk in private farmsteads. At the same time, raw milk is handed over to milk collection points both by limited liability partnerships, farms, individual entrepreneurs, and rural population.

Agreements for the supply of milk are concluded with legal entities, where volumes, quality of milk, terms and frequency of calculations are specified. Milk collection points keep records of delivered milk. Milk producers, having received a document confirming amount of milk delivered to milk collection point and an extract from database on identification of farm cattle, apply for subsidies. The announcement of beginning accept applications for subsidies is posted on the regional department of agriculture website upon receipt of funding. The application is considered and, if all terms match, agricultural producer is paid subsidies depending on the amount of milk delivered.

Milk that is handed over to milk collection points by civil population is not subsidized by the state, the volume of this milk is not recorded by official statistics authorities, but at the same time it enters market and serves as raw material for processing enterprises.

Milk quality in households, as a rule, has a poor quality, which is associated with the lack of necessary sanitary conditions for keeping livestock, veterinary measures, etc. At the same time, presence of demand and an adequate purchase price, along with control of

milk, should stimulate private households to improve its quality [7].

Table 2 shows dairy processing enterprises of the region, which account for the largest share in production of main types of dairy products.

According to the data given in the table, it can be seen that the production of dairy prod-

ucts is concentrated mainly in Tselinograd, Zerendi, Shortandy districts and in Kokshetau. At the same time, these regional milk processing enterprises account for 60.8% of processed milk production, 86.1% of cheese and cottage cheese production, 77.8% of butter production.

Table 2 - Main producers of dairy products in Akmola region, 2019

District	Name of the enterprise	Proportion of enterprise in dairy production, %		
		processed milk	cheese and cottage cheese	butter
Tselinograd	AF «Rodina» LLP	38.7	21.2	-
	«Maximov milk factory» LLP			-
	«Astana Onim» JSC			-
Zerendi	«Milk Project» LLP	22.1	-	25.2
Kokshetau	«Gormolzavod» LLP	-	56.5	52.6
Shortandy	«Molochniy 2» APC	-	8.4	-
Total		60.8	86.1	77.8
Notice: calculated by the author basing on data of “Agriculture department of Akmola region” SI				

The main producer of butter in Akmola region is one of the oldest and most popular milk processing enterprises in Kokshetau, “Gormolzavod” LLP. The range of products manufactured exceeds 40 types of products, including national dairy products - kurt and kospa. The main competitive advantage of “Gormolzavod” LLP is that company’s products are made from natural raw materials.

For stable supply of dairy products production with its own raw materials, “Zhaksylyk Agro” LLP, which is a subsidiary of

“Gormolzavod” LLP founded a dairy farm in Prirechnoye village of Zerendinsky district, Akmola region.

In addition, for selling production of the enterprise, "Trade House Gormolzavod" LLP was founded, which coordinates the actions of all plant single stores and sales in the districts. The interest of buyers in products of Ak-mola region producers has been growing lately. As a rule, butter and ice cream are especially popular. Table 3 shows calculation of 1 kilogram of butter production.

Table 3 - Calculation of 1 kg of peasant oil using its own raw materials

Name	Amount, kg	Price, tg	Amount, tg
Milk, 3,5 % fat	21 362.0	120.0	2 563 440.0
Defatted milk (minus)	20 362.0	37.5	763 575.0
Electricity costs	Volume, kW	Price, tg	Amount, tg
	217.0	22.1	4 800.0
Labor costs	Monthly wage fund, tg	Number of working days	Amount, tg
4 employees' wage amount	320 000.0	21.0	15 238.1
Amount of tax liabilities	4 employees	377 tg	1 508.0
Total production costs	1 821 411.1		
	Price, tg	pieces / day	Amount, tenge
Indirect costs	132 141.2	1	132 141.2
Corrugated box	102	125	12 750
Bundle	5	500	2 500
VAT			157 504.2
Net cost per 1 ton			2 126 306.5
Net cost per 1 kg			2 126.3
Notice: calculated by the author basing on enterprise data			

When using its own raw materials, the cost of 1 ton of oil is 2 126 306.5 tenge. When using purchased raw materials, the cost of 1

ton of oil increases by 574 005.5 tenge and amounts to 2 700 312 tenge. In order to achieve the value of actual indicator of profit-

ability of production in 16.4%, with the cost of 1 kg of raw materials - 2700 tenge, it is necessary to set the selling price of 1 kg of oil at the level of 3 142 tenge. Cattle breeding development directly depends on the condition of fodder base, which is the key to high productivity of cattle and poultry, and receipt of the necessary volumes of livestock products. According to scientists, creation of highly productive cattle breeding today is strongly constrained by food low quality [8].

In Akmola region, there is a decrease in the sown area for fodder crops from 334.6

thousand hectares in 2010 to 274.6 thousand hectares in 2019. This means, there was a decrease in proportion under fodder crops from 6.8% in 2010 to 5.4% in 2019. The sown area under fodder crops in the region average annually decreased by 7.64% in average in 2010-2015, and in 2015-2019 there is annual increase in crops by 5.12%.

The growth of milk production depends on costs, the largest share in structure of which is occupied by material costs (figure).

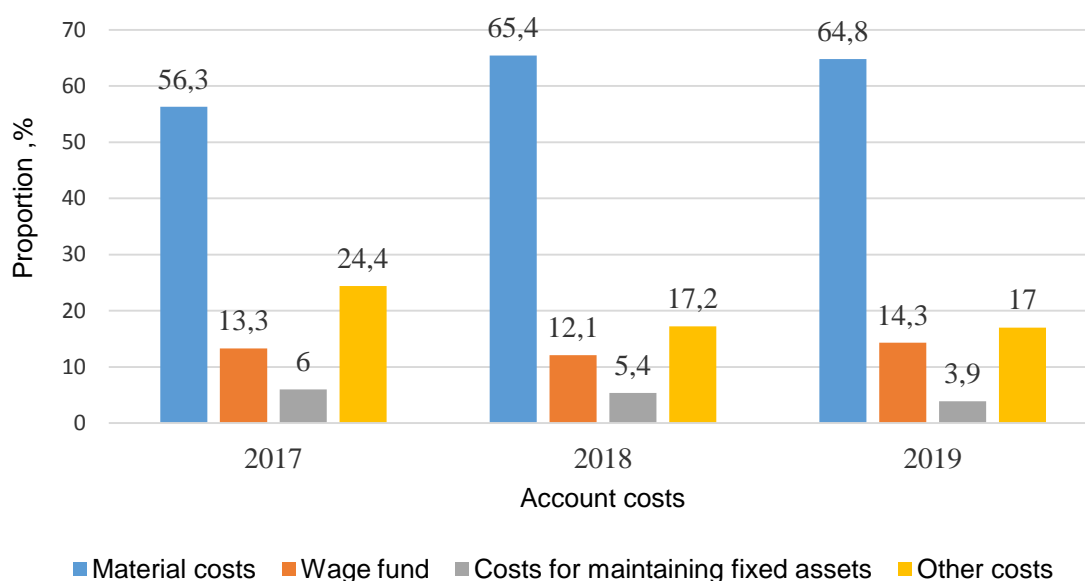


Figure - Cost structure for milk production in agricultural enterprises of the region, 2017-2019 [9]

In the cost structure of milk production, there is an increase in the share of material costs from 56.3% in 2017 up to 64.8% in 2019. Material costs include costs for feed, fuel, electricity, water costs, store-bought semi-finished products and components, works and services of production nature performed by

third parties. One of the main factors for effective functioning of cattle farming is development of fodder base, since a significant share of the costs falls on fodder, and profitability of production depends on this indicator [10]. Table 4 demonstrates structure of material costs for milk production.

Table 4 - Structure of material costs for milk production in Akmola region, %

Year	Material costs, total	Including					
		food	fuel	energy	water costs	store-bought semi-finished products and components	works and services of production nature performed by third parties
2017	100	65.2	5.0	3.7	1.28	4.5	20.3
2018	100	68.1	5.2	3.6	1.03	3.7	18.4
2019	100	72.7	5.1	3.1	1.09	3.0	15.0

Notice: calculated by Committee on Statistics of MNE of Republic of Kazakhstan

In the structure of material costs for milk production, the largest share is taken by feed, the share of which has a steady upward trend from 65.2% in 2017 to 72.7% in 2019.

Conclusion.

1. The main volume of milk produced in the region is concentrated in households - 75.5%, 19.5% falls on agricultural enterprises,

5% comes from peasant farms. Small-scale production still remains in the region, that is, there is a concentration of milk production in households where it is difficult to introduce intensive production and innovative technologies, as well as non-compliance with veterinary and sanitary standards.

2. Contribution of various categories of farms to production of raw milk was determined, while the lag in milk yields of farms and households from agricultural enterprises was revealed. Condition analysis of dairy cattle industry showed that cattle population in the region in 2019 amounted to 430.2 thousand units, among them there are 219.9 thousand cows, while the average annual milk yield from 1 unit was 3 173 kg per g.

3. Dairy processing enterprises of the region, which account for the largest share in production of the main types of dairy products, have been identified.

Dairy production in the region is concentrated mainly in Tselinograd, Zerendi, Shortandy districts and in Kokshetau. At the same time, these dairy processing enterprises account for 60.8% of overall processed milk production, 86.1% of cheese and cottage cheese production, 77.8% of butter production. The competitive advantages of processing enterprises of the region are revealed.

4. In structure of material costs for milk production, the largest share is occupied by feed, the share of which has a steady upward trend from 65.2% in 2017 to 72.7% in 2019.

5. The following problems of sustainable development of dairy cattle breeding industry were identified, the main ones of which are:

- * tendency to reduce the area under fodder crops;
- * weak feed base and increase in feed prices, leading to increase in milk cost;
- * reduction in number of uterine cows;
- * small-scale production;
- * production seasonality;
- * non-compliance of veterinary and sanitary standards.

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