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# Ukraine Dairy Market: State and Prospects of Development

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## Abstract

The article discusses topical issues regarding the prospects for the development of the milk and dairy market. It is investigated that the largest breakthrough has been achieved by the dairy industry with milk, since DSTU 3662: 2018 "Cow's milk" came into force on January 1, 2019, the inflow of milk processing plants is not lower than the first grade, and it is known that private households provide largely only milk of the second grade. As a result, the quality and safety of milk purchased from industrial farms has increased significantly. The authors emphasize that an important factor in the development of production activity for producers is the selling price of milk, which in 2018 in Ukraine amounted to 7602,4 UAH /t, which is 368,4 UAH /t more than in 2014. It is substantiated that there are a number of problems in the dairy industry of Ukraine that hinder its further development, the main ones being: increased competition from illegally operating enterprises, the shadow market, counterfeit products, lack of confidence and lack of cooperation between producers and processors of products, etc. The author has proved that these problems can be solved by combining milk producers and processors in cooperatives and providing them with effective state support.

*Keywords: milk, dairy industry, quality, livestock, dairy cattle, selling price, market.*

## 1. Introduction

The dairy industry is a leader in the food and processing industries. It includes enterprises for the production of animal oil, whole milk products, canned milk, dried milk, cheese, ice cream, casein, etc. (Hayduts'kyy: 2013). Milk and dairy products are nowadays one of the main valuable foods that are rich in protein, essential amino acids, trace elements, vitamins and other nutrients.

The production of milk and dairy products has its specific economic and organizational features: short shelf life of products in raw form, availability of a wide range of processing products, the need for cooperation and integration, due to the peculiarities of milk processing (Vasylychak: 2013).

In the formation of a complete cycle from the production of raw milk to the receipt of finished products to consumers, agriculture is in a difficult situation, primarily because of the large fragmentation of production (Hayduts'kyy, 2016). In most cases, the demand for final processing products is more flexible as to the demand for dairy raw materials.

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**Formulating the goals.** The purpose of the study is to substantiate the state of the dairy market in Ukraine and to determine its development prospects.

## 2. Research

Overall milk production statistics have deteriorated over the past five years: the national production shaft has decreased by 9.2%, or about 1 million tons (Holovnyy sayt dlya ahrobiznesu Latifundist Media: 2017). In 2018, all categories of farms produced 10.064 million tons of milk, which is 216.5 thousand tons (2.1%) less than last year. Households produced 7308.3 thousand tons, agricultural enterprises - 2755.7 thousand tons, which is respectively 206.5 and 10.0 thousand tons less than in 2017. In 2014, the share of milk produced by households was 76.2%, and that of agricultural enterprises was only 23.8%. In 2018, the share of milk production by enterprises increased by 3.5% and reached 27.3%, respectively, the volume of production in households decreased and equaled - 72.7% (Figure 1). Thus, the main producer of milk is still a private farm.

Analyzing the dynamics of milk production, we note that the volume of its production dependence on the period (month) and seasonality - in the summer, milk increases by 30-50% (Holovnyy sayt dlya ahrobiznesu Latifundist Media, 2017...). The largest production of milk occurs in May-June, which is characterized by a period of growth of green mass, which in this period has a higher nutrition and useful qualities, which affects the productivity of livestock, and since July there is a decline in milk.

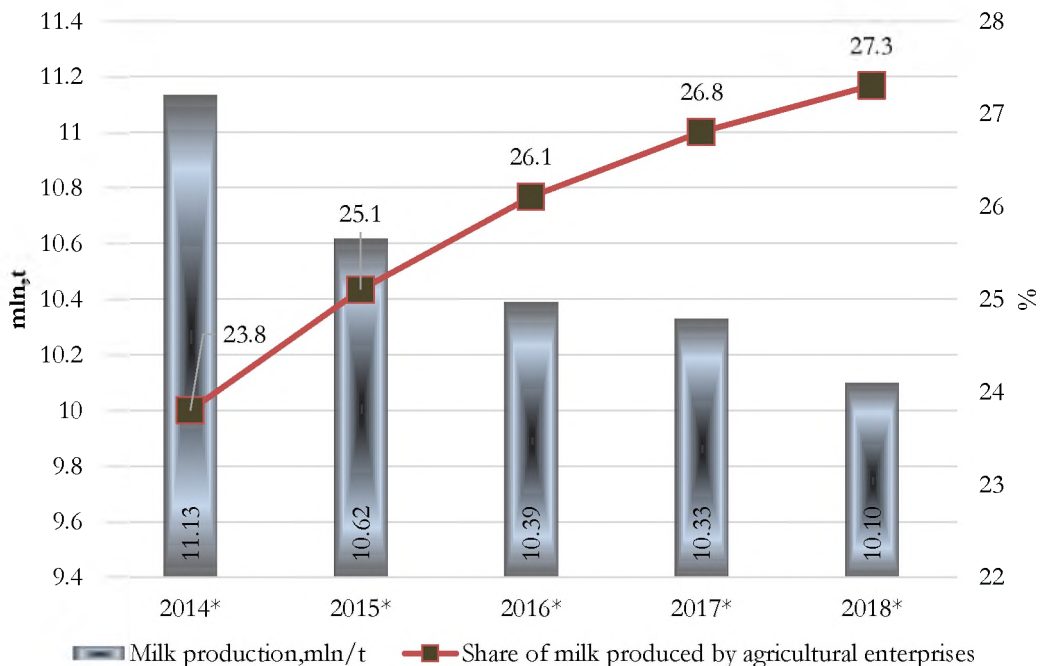


Fig. 1. Dynamics of milk production

The volume of milk production depends on the livestock population and its productivity. Unfortunately, the total number of cows is decreasing every year, but their productivity is increasing due to the balance of the forage base, the development of breeding dairy cattle and the conditions of keeping.

As of January 1, 2019, in all categories of farms the number of cows was 1926.3 thousand heads, which is 91.5 thousand heads (4.2%) less than in the corresponding period of the previous year. The share of cows in the households reached 75.7% (Fig. 2). During the analyzed period, the number of cattle in agricultural enterprises decreased by 1.14 million, in households - by 2.23 million. Thus, the number of cows in farms equaled 1.5 million heads, which is 3.3% less, than in 2017, and at enterprises - 467.9 thousand heads, which is 0.3% more than in 2017.

This change is primarily due to the new milk quality requirements. Whereas, as of January 1, 2019, DSTU 3662: 2018 «Cow's milk» came into force, which stipulates that the milk processing establishments will receive not less than the first grade and, as we know, the farms provide largely the second-grade milk (Molochna surovuna korov'yache, 2018...)



Fig. 2. Cows stock dynamics in 2014-2018, million heads.

Source: SSSU

As a result, dairies began to reduce the volume of milk intake from the private farms, because to bring it to high-quality condition, it is necessary to bear the additional costs of pasteurization, which, accordingly, will increase the cost.

The main factor in stabilizing the situation in the dairy cattle industry is increasing the number of livestock and improving its productivity (Fig. 3).

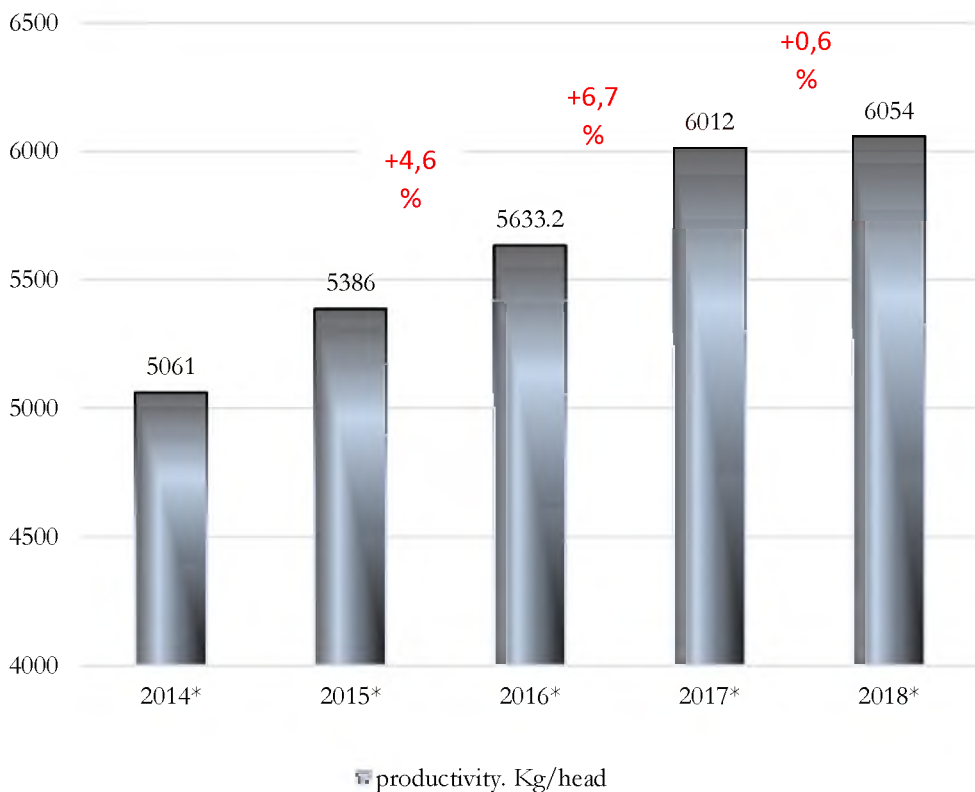


Figure 3. Dynamics of cow productivity in agricultural enterprises, kg/cow/ year

The productivity of cows is increasing every year. During the analyzed period, cow productivity increased by 19.6% and equaled 6054 kg. The highest rate of productivity growth is seen in 2017 - 6.7% compared to 2016, 5.6% reaching productivity growth in 2015, 4.6% in 2016, 0.6% in the reporting year. These positive changes are due to the intensification of production.

It should be noted that the negative dynamics of the decline in milk production was significantly influenced by the situation in households, since a larger share of livestock and poultry population is concentrated in households (reduced 92.8 thousand cows in households).

The biggest breakthrough domestic dairy industry has reached with milk. It is known that by 2019, there were five varieties of milk in Ukraine: extra, higher, first, second and non-varietal (Moloko-surovuna korov`yache, 2018. DSTU 3662:2018 ...). The last two are characteristic of households. The most common in agricultural enterprises are the first, higher and extra. At the same time, all over the world, only milk is allowed to be processed in the world, which, according to the parameters of quality and safety,

corresponds to the national extra-grade, the rest - not suitable for processing. The share of extra and higher-grade milk has increased significantly over the last five years. The share of extra-variety in the structure of receipts for processing from agricultural enterprises increased from 9.2% to 21.6%, and higher - from 33.8% to 38.1%. The share of first-grade milk revenue decreased to 32.9% (Figure 4).

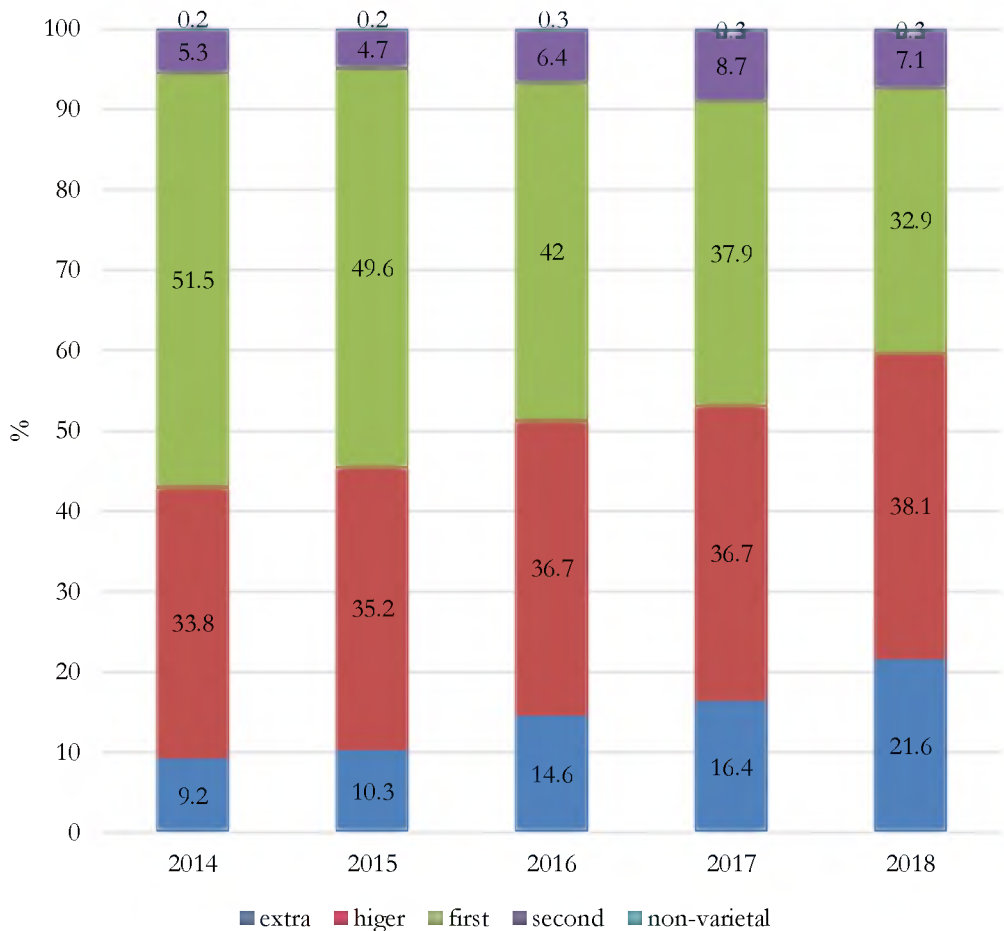


Fig. 4. Dynamics of milk quality, %

Overall, according to the results of 2018, 4.18 million tons of basic fat milk was received by Ukrainian dairy enterprises, which is 3.9% less than in the corresponding period last year and 10% less than in 2014. Of the total raw material purchased from processing enterprises, 2.72 million tons of milk came from agricultural enterprises, which is 12.4% more than in 2014 and 1.09 million tons - households, which is 37% less than the base year.

The quality and safety of milk purchased from farms is improving. Thus, the share of extra-grade in the overall structure increased to 21.6% and amounted to 586.2 thousand

tons, higher grade - to 38.1% or 1.04 million tons, respectively, the share of volumes of milk of the first grade decreased by 42%. It is worth to mention that 50% of all extra-grade milk that goes into processing is provided by the dairy farmers' associations.

An important factor in the development of production activity for producers is the selling price of milk (Mostenska et. al., 2013) (Fig. 5).

Milk purchase prices in 2018 had a traditional seasonal fluctuation and were influenced by global trends. As a consequence, the average price for milk did not exceed \$ 30/100 kg ECM (fat - 4%, protein - 3.3%). At the same time, the average indicative price for milk calculated by the German experimental network IFCN was \$ 34.1 / 100 kg.

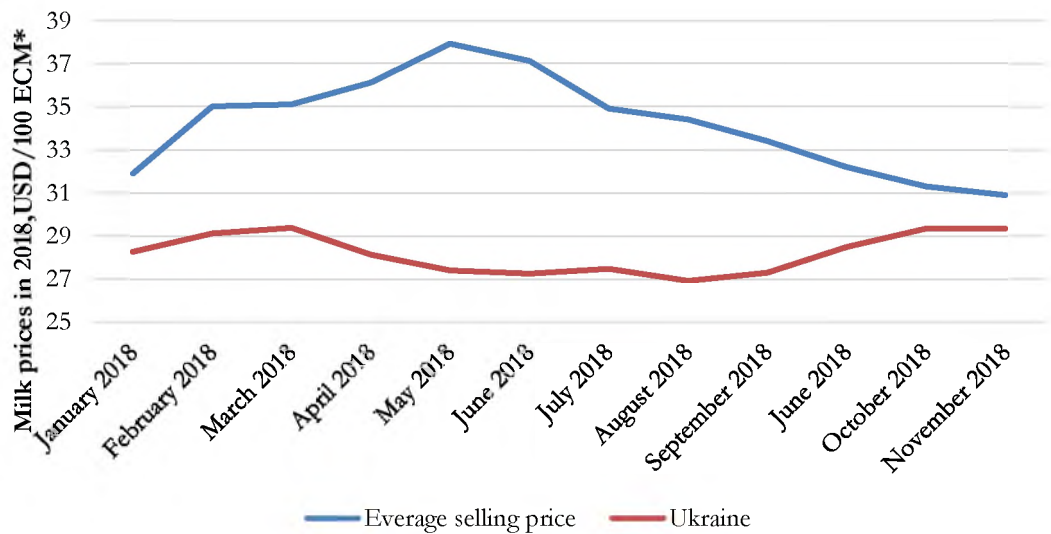


Fig. 5. Milk prices in 2018, USD / 100 kg ECM \*

\* Energy-adjusted ECM milk (fat-4%, protein-3.3%)

Source: AVM calculations

The average selling price of milk in Ukraine in 2018 was 7602,4 UAH / t, which is 368,4 UAH / t more than in 2014. According to the data of the regions, as of 04.01.2019 the purchase prices of milk of I grade without VAT increased by 2% and amounted to 8.71 UAH / kg, the wholesale and selling price of milk of 2.5% fat content in the film increased by 8% and equaled 6.08 UAH / kg, butter - 9% - 129.76 UAH / kg.

However, purchase prices for milk of II grade without VAT decreased and equaled 6.93 UAH / kg, for milk of II grade from households - 5.06 UAH / kg.

According to the Ministry of Finance of Ukraine, the consumer price index for milk in January 2019 was 100.20%.

For any industry or market, trade remains the key driver of development. In January-December 2018, according to DFS data, milk and milk imports in terms of milk reached 181.4 thousand tons, which is 38.1% more than in the corresponding period of 2017, exports amounted to 789.7 thousand tons, up 1.3% from 2017 (Table 1).

In the process of reaching projected figures, there are options that best meet the

potential for increased production.

**Table 1:** Exports and imports of dairy products in January-December 2018 (in terms of milk)

Product	Export		Import	
	tons	Changes as to previous year	tons	Changes as to previous year
Milk and cream not condensed	20815	+48,0 %	1326	+58,4 %
Milk condensed and dry	44320	-24,1 %	6103	+38,6 %
Yoghurts	7658	+47,4 %	6800	+34,5 %
Serum	3194	On the previous year average	210	+51,6 %
Butter	607660	-0,2 %	21980	+46,3 %
Cheese	87602	-7,8 %	144081	+37,1 %
Ice cream	18444	+21,3 %	888	+12,5 %

Considering these conditions, the factors that determine export potential are the volume of domestic production and its quality, purchasing power of the population, the ratio of prices in the domestic and foreign markets, quotas or other restrictive factors, including veterinary and sanitary restrictions. Tariff quotas for agrarian products provided to Ukraine within the framework free trade zone with the EU in 2018 for milk, cream and yogurt - 8000 tons /years, cheeses of all kinds – 2000 tons /years (Tetiana Kolesnyk, Oksana Samborska et. al., 2018).

At the same time, it should be noted that farmers, not only in Ukraine but also in the whole world, had problems with prices [9]. Excessive milk on the global market and high prices for feed and oil have led to the loss of many farmers in Europe, Oceania and the United States. Thus, the average purchase price in Europe dropped by 2.4% per year, in New Zealand - by 8.5%, and in the US - by 12%.

According to the FAO forecast, milk production is expected to grow by 2.1% in 2018, mainly due to the growth of its production in Asia, including India, which is one of the largest producers in the world and the Philippines.

Asia accounts for the largest share in world milk production (40%), Europe ranks second in overall structure - 27%, followed by North America (13%), South America (8%), Africa (6%) and Oceania (4%). Asia is also the largest importer of dairy products, accounting for almost 60% of world dairy imports, and the largest exporters are Europe (36%) and Oceania (30%).

**Table 2:** Some indicators of the functioning of the global dairy market according to the FAO 2018 report, (thousand tons, in terms of milk)

	Production			Import			Export		
	2014-2016 p	2017 p	2018 p	2014-2016 p	2017 p	2018 p	2014-2016 p	2017 p	2018 p
Asia	314197	323470	333153	40650	42327	43938	6528	6203	6029



Africa	45759	45080	45516	10380	9836	10407	1275	1190	1189
Central America	17189	17556	17710	5349	6111	6368	763	1440	1450
South America	63459	63473	64824	3202	3199	3026	4262	3259	3332
North America	103581	107182	109193	2629	2604	2543	10511	11779	12462
Europe	220514	224400	227089	6849	6320	5694	24478	26251	26842
Oceania	31516	30710	31040	1230	1521	1570	22541	21622	22244
Total	796215	811870	828524	70289	71918	73546	70359	71744	73549

Source: FAO data (Holovnyy sayt dlya ahrobyznesu Latifundist Media: TOP-10 proizvodyteley molochnoy y molokosoderzhashchey produktsiyi 2017. URL: <https://latifundist.com/rating/top-10-proizvodyteley-molochnoj-i-molokosoderzhash-chejproduktzii-2017/>)

Looking at the manufacturers of finished goods, the largest exporters of CCS are New Zealand (56%), EU (16%), Argentina (3%) and Uruguay (4%), SCM - EU (33%), USA (27%), New Zealand (16%) and Australia (7%), butter - New Zealand (50%), EU (21%), Belarus (9%), USA (4%) and Ukraine (4%), cheese - EU (33%), the United States (14%), New Zealand (14%), Belarus (7%), Australia (7%) and Egypt (4%).

Studying the experience of leading foreign countries, we can identify specific areas of state regulation of the market of milk and dairy products [10; 5]:

regulation of prices for milk and raw materials control of consumer prices, direct payments to producers, regulation of milk sales by agricultural producers, regulation of economic mechanism in the agricultural sector, support for innovative developments.

Production volumes are regulated by setting quotas for the production of certain types of products, changing specialization, withdrawal of agricultural land. In most countries, the regulation of farmers' incomes and prices for agricultural products is monitored by changes in some economic indicators. These can be costs by type of production (USA) or by groups of specialized farms (EU), price parity for agricultural products and means of production for agriculture, profitability of certain sectors of the economy.

In the advanced market economies, dairy companies have been consolidating in recent decades through mergers of small and large international companies, which has led to the consolidation and specialization of dairy farms. The economic basis of these processes is cooperation and integration. State control aims at large integrated formations that provide less costs and greater production efficiency when interacting with farmers (Pyankova, 2014).

The market of milk and dairy products in most foreign countries is one of the most regulated (Stepanchuk et al., 2017). Specific areas of government influence are milk price support programs, milk marketing regulations, cooperative price regulation, import regulation, government commodity and purchasing interventions, milk quotas, direct payments to producers, support for innovative developments, etc.

## Conclusions

Taking into consideration the mentioned above, we can say that in the dairy industry of Ukraine there are a number of problems that hinder its further development, namely:

- Constant misunderstandings and mistrust between milk producers and processors, almost no cooperation - both parties are trying to increase their own profits at the expense of the other. Instead of cooperating and developing together, manufacturers and processors cannot agree on each other. Milk producers demand a rise in prices for dairy raw materials during their seasonal decline (November-February). In turn, dairies are trying to get the highest possible price during the "big milk" period. However, milk producers have been more successful in this. Last but not least, by joining national and regional associations that lobby their interests and synchronize their work.
- Concentration of milk production in private farms is the main reason for the low quality of milk and, consequently, the products of its processing. In modern conditions, households are unable to provide high quality milk for a variety of reasons: non-compliance with requirements for keeping cows, violations of sanitary and hygiene standards and, as a consequence, high bacterial contamination of milk, breach of milking technology, no conditions for cooling milk, violations of requirements for milk storage, there is no possibility of immediate transportation of milk to dairies - the absence of «cold logistics» - significantly complicates the state's control over the quality of milk.
- Insufficient control by the quality control authorities of the dairy products produced - The quality of dairy products depends directly on the quality of the raw materials from which they are produced. The quality of raw materials, in turn, depends on the manufacturers adherence to established norms and standards during production. Dairy processors have no mechanisms to influence producers, as most of the year there is a shortage of milk on the market. This leads to violations of many production standards, especially in the private farms of the population.
- Increased competition from illegally operating businesses, the shadow market, counterfeit products - Recently, small dairies have appeared in almost every district, operating without mandatory permits and even state registration. They collect milk for cash at higher prices, produce dairy products (mostly soft and sour milk cheeses) and sell it for cash. They do not pay taxes and do not meet any production standards. This, in turn, also contributes to the poor quality of the raw material, because manufacturers know that if the plant does not accept poor quality raw materials, it will be taken over by illegally operating enterprises. As a result, legally operating dairy companies suffer from unfair competition, local budgets from under-revenues, and consumers who are at risk of consuming poor-quality products.
- Low technological level in production facilities, lack of modern equipment - recently in almost every district there have been small dairies operating without mandatory permits and even state registration. They collect milk for cash at higher prices, produce dairy products (mostly soft and sour milk cheeses) and sell it for cash. They do not pay taxes and do not meet any production standards. This, in turn, also contributes to the poor quality of the raw material, because manufacturers know that if the plant does not accept poor quality raw materials, it will be taken over by illegally operating enterprises. As a

result, legally operating dairy companies suffer from unfair competition, local budgets from under-revenues, and consumers who are at risk of consuming poor-quality products.

- Lack of qualified management and inconsistency of future specialists with the requirements of the industry - for the last 20 years universities have not updated the material and technical base. In addition, outdated technology is taught to students now. But dairy science and production have gone a long way! So now there are not enough high-quality dairy technologists. In addition, it is very important to qualify the so-called average production line - the head of the workshop, technologists, craftsmen, who ensure the stability and reliability of production. The high qualifications of these people make it easier for the top executives of companies and more.

As a result of the identified problems, we suggest:

- unite milk producers and processors in cooperatives;
- introduce identification and registration of cattle that would meet the requirements of the European market;
- to ensure systematic and effective state financial support for milk producers;
- to modernize milk production on the basis of new technologies.

So, as the global food crisis and agricultural commodities are becoming more and more valuable in the world, Ukraine with its favorable climatic conditions and investment

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