

**ANALYSIS OF THE MAIN TRENDS OF DAIRY MARKET  
DEVELOPMENT IN THE CONTEXT OF THE  
COUNTRY'S ECONOMIC SECURITY**

The development of agriculture is an integral element of the stability of the Ukraine's economic security level, along with its components – production, food, and foreign economic security. In its case, agriculture is also a complex system that combines the production processes of plant and animal products, and their condition are factors that positively or negatively affect the economic security of the state. One of these factors is the production of milk and dairy products, which in 2021, according to the State Statistics Service, is characterized by the level of meeting the needs of the population at the level of 95.21%, considering that 9.37% of the preservation is ensured at the expense of imports [1]. Thus, with the unsatisfactory value of the share of imports in consumption in the context of economic security and unsecured needs of the population at 4.79%, it is advisable to analyze the production of dairy products in more detail to apply the causes that negatively affect the food security of the population.

In recent years, Ukraine has developed a glaring tendency to reduce the number of cattle: in particular, as of January 1, 2022, compared to January 1, 2017, the number of cows decreased by 26.25% from 2108.9 thousand to 1555.3 thousand heads. Approximately 72.70% of cows were kept by households mainly in rural areas, which provide 68.30% of gross milk yield as of January 1, 2022. At the same time, 27.30% of the cow population is in agricultural enterprises, providing 31.70% of milk yield. It indicates that the production of milk by the residents is dominant in the production structure but not as efficient as in the corresponding enterprises. Thus, the reduction in the number of cows in Ukraine illuminates the reluctance of the population to take care of keeping cows. It was calculated that the population gets rid of 6.46% of cows annually, based on the geometric mean of the growth rate.

In figure 1, you will see the dynamics of the number of cows and milk yields in Ukraine. These changes can be classified as negative transformations, except for the volume of milk produced by agricultural enterprises because they have a slight increase.

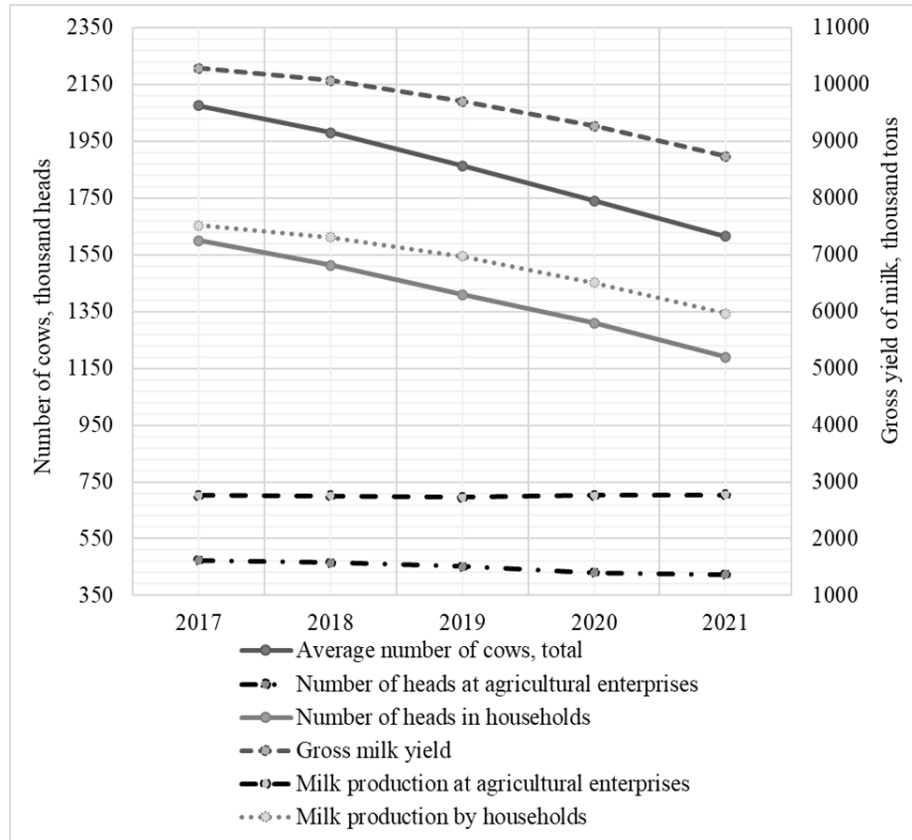
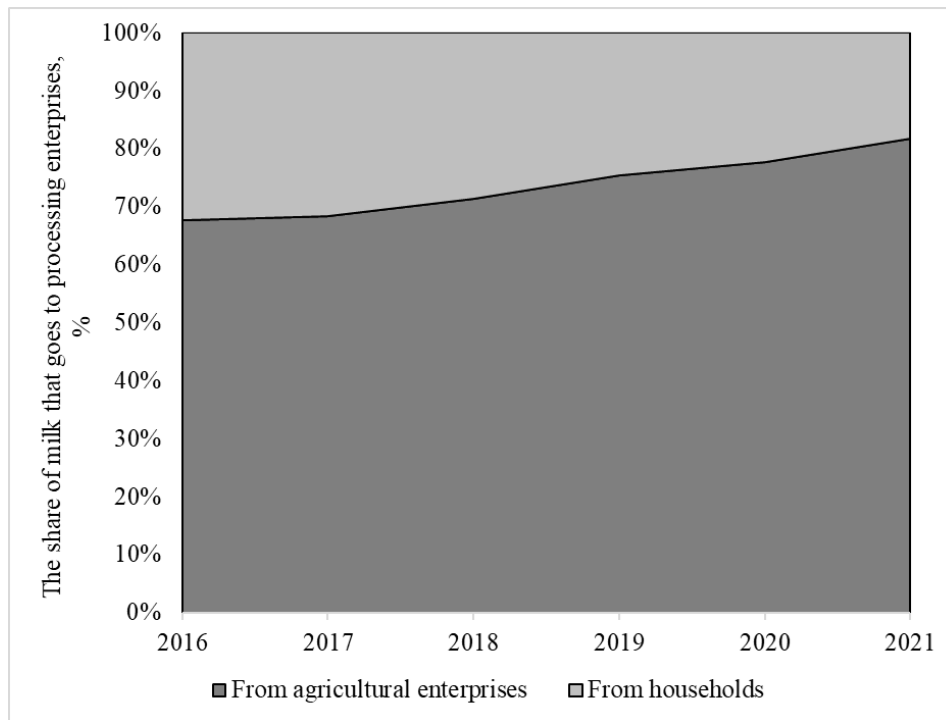


Fig. 1 – Dynamics of the average number of cows and gross milk yield at agricultural enterprises and households in 2017-2021

Source: built by the authors based on data [2]

It is worth noting that the average number of cows is determined using the chronological average because the initial information is instantaneous dynamic series. Considering the overhead dynamics, the dependence between these two values can be determined using the simplest regression model. Thus, the coefficient of determination is 98.96%, i.e., the variation of gross milk yields directly depends on the number of cows. According to Fisher's test, the model is statistically significant in the light the corresponding coefficient equals 0.005. After all, it is less than 0.05. Thus, with an increase in the number of cows by 1 thousand, the volume of milk will increase by 3.38 thousand tons per year, which will lead to growth in the economic security level of the population.

Obviously, this behavior of households regarding the cessation of production of milk and dairy products has its reasons. One of the reasons is the decrease in the share of milk from housekeeping that goes to processing enterprises from 32.29% in 2016 to 18.27% in 2021 (fig. 2).



*Fig. 2 – Sources of milk supply to processing enterprises in 2016-2021*

Source: built by the authors based on data [2]

On the one hand, processing enterprises are gradually reducing the purchase of milk from households. Those who buy do so at much lower prices: the average purchase price of milk in 2021 was UAH 9.39 per liter. Processing companies agree to pay enterprises UAH 9.94 per liter and for the population only UAH 6.20 for the same volume. On average, in 2016-2021, the milk price from households was almost twice as low (by 48.69%). The decrease in the probability of selling milk of own production and the lack of income make the activity less profitable or, in general, unprofitable. Bearing in mind these factors, the population decides to stop keeping cows.

On the other hand, the behavior of enterprises with such decisions can be justified because new requirements for the safety and quality of dairy products entered into force in 2019 with a transition period until 2022. It is a part of

the obligations that arose after the signing of association agreements with the European Union (EU). The fact is that only dairy raw materials with a minimum level of bacterial contamination that corresponds to the Ukrainian milk extra grade are allowed for processing in EU member states [3]. The new standard defines three permissible types of milk: extra milk, higher and first grade. Households produce mainly second-grade kinds of milk because they do not have enough technical equipment, sometimes without necessary certification, and trade in local spontaneous markets.

In fig. 3 is shown the dynamics of the structure of cow's milk of the established basic fat content purchased by processing enterprises, depending on its quality.

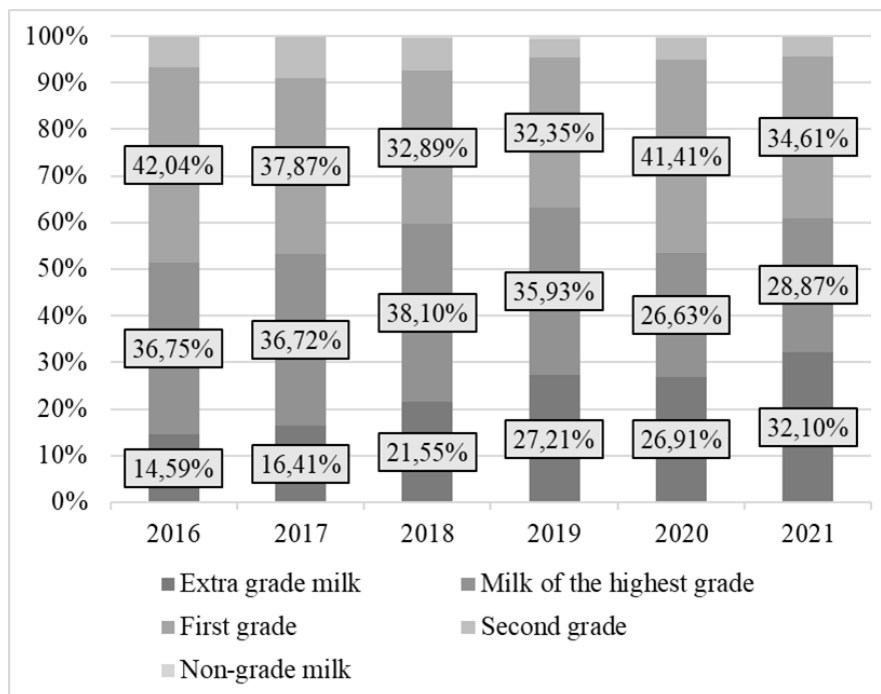


Fig. 3 – The structure of milk purchased by processing enterprises, according to its quality in 2016-2021

Source: built by the authors based on data [2]

In general, the share of extra, higher, and first-grade milk is growing and equals more than 90%, while the share of extra type milk in the structure is increasing from 14.59% to 32.10% in the light of the possibility of being exported to the EU member states. In 2019, the share of second-grade milk, produced mainly by households, sharply decreased due to the establishment of new requirements.

Thus, the decrease in economic security level is caused by a drop in the production of milk and dairy products, which do not meet consumer demand in the domestic market. It occurs due to the reduction in the number of cows in households. They do not receive part of the income due to a lower price for their products or cannot sell their products to processing enterprises due to the non-compliance of the quality of the milk produced with the established requirements. At Ukrainian processing enterprises, the share of extra-grade milk is growing (32.10% in 2021), aimed at consumers in EU member states.

Therefore, a gap in this production chain can be overlapped by government programs of multi-year support for peasant households that do not have milking machines, the necessary sanitary conditions on the premises, or even a sanitary book for animals. Unfortunately, overcoming this gap by own funding sources is impossible due to the difficult economic situation. If the state relies more on milk production by agricultural enterprises with higher labor productivity, it is necessary to create special conditions to stimulate these producers. That is, a state strategy must be formed. It must highlight on whom the state relies and which financial or tax mechanisms will encourage one or another manufacturer of dairy products. The lack of state stimulation of producers will lead to a shortage of milk, an increase in import dependence, and an increase in product prices.

Government measures like a driving force will help to stop the reduction of the number of cows by households and, in the future, will move to an increase in their number, which in turn, according to the regression dependence, will lead to an increase in the production of milk and dairy products, which in the long run will increase the level of food security and improve the state of economic security of the country.

#### REFERENCES

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