UDC 637.1.003.13(477): 519.6
JEL Q13, Q18, C02

MARKET ANALYSIS AND ENTREPRENEURIAL DEVELOPMENT OF DAIRY FARMS IN THE AGRICULTURAL SECTOR

Volodymyr Mosiiuk*
National University of Life and Environmental Sciences of Ukraine, Kyiv, Ukraine
ORCID iD: 0009-0005-9509-5616

Mykola Misiuk
Higher Education Institution "Podillia State University", Kamianets-Podilskyi, Ukraine
ORCID iD: 0000-0003-2903-7715

Maryna Zakhodym
Higher Education Institution "Podillia State University", Kamianets-Podilskyi, Ukraine
ORCID iD: 0000-0003-0010-8006

Yaroslav Susharnyk
Educational and Rehabilitation Institution of Higher Education "Kam'yanets-Podil State Institute", Kamianets-Podilskyi, Ukraine
ORCID iD: 0000-0002-6104-343X

*Corresponding author:
E-mail: v.mosiuk@nubip.edu.ua

Received: 29/04/2025
Revised: 28/08/2025
Accepted: 17/09/2025

DOI: 10.61954/2616-7107/2025.9.3-4

Introduction. The development of entrepreneurship in the dairy industry can ensure food security, increase budget revenues by increasing the volume of dairy product exports, and create jobs in post-war Ukraine. Since the dairy business involves production, processing, storage, logistics, and sales of dairy products, this opens up vast opportunities for developing diverse entrepreneurial activities involving workers with different qualification levels.

Aim and tasks. This study aims to analyse market conditions and substantiate the directions of entrepreneurial development of dairy production entities in Ukraine in the post-war period. It further seeks to forecast the dairy market indicators of Ukraine using the ARMA approach, assess the significance of changes in dairy market indicators in the first post-war years, and substantiate the barriers to entrepreneurial activity of dairy business entities.

Results. The adaptive method of step-by-step refinement of the forecast indicator specified a reduction in imports in 2027 compared to 2024 by 10.7%, provided that domestic demand grew by 7.76% and exports increased by 26.3%. The share of cattle in small farms in 2027 will be 3.5% less than that in 2021, and the share of cows will be 1.1% less. A gradual increase improves the prerequisites for entrepreneurial activity in livestock farming and milk production profitability. This is confirmed by forecast data on the growth of average milk yield from 0.85% to 4.2% by farm size for the first post-war years, since the growth of milk yield is one of the factors increasing the profitability of dairy enterprises.

Conclusions. With the growing volumes of supplies for processing from large enterprises, there is a tendency to reduce supplies from small farms, which increases the differentiation of dairy farms in terms of the volume of coverage of external and internal markets. When defining promising areas, obstacles to the entrepreneurial activity of dairy business entities were identified. This indicates that the specified activity should be aimed at the glocalisation of production and sales. This will provide an opportunity to use sales in external markets and operational manoeuvring in markets as a tool for regulating production volumes. This indicates that cooperation contributes to solving the problems of providing workers and intensifying the development of human capital in agricultural production, which is currently hindered by a small share (18%) of dairy farms in the cooperation process.

Keywords: Dairy Business, Entrepreneurial Activity, Cooperation, Added Value, Agricultural Sector.

e-ISSN 2786-8958
ISSN-L 2616-7107

1. Introduction.

The dairy business involves not only the production of dairy products but also their processing, storage, logistics, sales, and domestic and foreign economic activities of business entities (Bai et al., 2023; Bojovic and McGregor, 2023). All these areas are interconnected, and one requires the corresponding development of the others.

A feature of the dairy industry in Ukraine is that it is a component of the country's food security and has significant export prospects. It is also important that the expansion of entrepreneurial activity in this industry in Ukraine during the post-war period provides an opportunity to employ many demobilised military personnel. Given the wide range of related types of economic activity, this can provide jobs not only for the rural population of Ukraine but also for the highly qualified workforce of Ukrainian cities.

At the same time, there are negative expectations of the loss of external markets in the future and the narrowing of the domestic market, which reduces the prospects for entrepreneurial activity in the dairy industry. This is confirmed by the fact that the world's cattle population and, accordingly, the volume of dairy production are growing, while in Ukraine, the dairy herd has decreased fivefold since 1991 (Stavetska et al., 2022).

Therefore, institutional structures in the post-war period should contribute to strengthening entrepreneurial activity in the agricultural sector of Ukraine by eliminating the problem of shortages of fuel, mineral fertilisers, spare parts for modern equipment, reducing the tendency to marginalise family-type farms due to lack of finances, and narrowing domestic sales markets (Shlapak et al., 2023). The expansion of the domestic sales market during this period will be facilitated by the growth of the purchasing power of the Ukrainian population as a result of post-war macroeconomic stabilisation.

Reducing the pressure of military actions on the budget in the post-war period will expand the state's capabilities to finance the process of restoring the potential of the dairy industry of Ukraine (Dibrova et al., 2023).

It will also form the prerequisites for its restructuring, the transition to a model of technological development, and the achievement of greater added value of dairy products.

Family-type farms have proven their importance for food security during war and crises, and institutional structures should consider this when forming state support policies for agriculture.

2. Literature Review.

Multiple analyses have been devoted to the concerns of the dairy industry in Ukraine and its prospects. Thus, Dibrova et al. (2023) pointed out the need for state support for the development of the dairy industry and proposed an economic and mathematical model for distributing financial resources. Unfortunately, the generalised mathematical approach to financial support for livestock farming substantiated by Dibrova et al. (2023) does not sufficiently detail the results of such support, primarily in developing the processing of the industry's products.

However, if it is necessary to increase food security in the post-war period, it is worth strengthening the regulation of export activities in the dairy industry (Pronko et al., 2020b; Gereles and Szőllősi, 2019).

This may lead to a redistribution of commodity flows, particularly the oversaturation of the domestic market. The acuteness of the problem of reconciling the feasibility of state intervention in the production and business processes of the dairy industry with the need for state support was reflected in the study by Tulush et al. (2023). The balance of regulatory and support instruments will ensure the post-war development of the dairy component of the agro-industrial complex of Ukraine.

Stavetska et al. (2022) pointed out the shortcomings of the breeding work of Ukrainian breeders, which narrows the prospects for the post-war development of entrepreneurial activities in the industry. Simultaneously, Stavetska et al. (2022) noted the need to concentrate on dairy production. Unfortunately, the concentration process is not separated from the monopolisation of the dairy industry.

Researchers have used different approaches to forecast dairy production. Therefore, Bułkowska and Bazhenova (2023) compared the revealed comparative advantage (RCA) and trade coverage ratio (TC) coefficients to assess the competitiveness of the industry, based on which they indicated the level of its prospects. Bochko et al. (2023) used economic and mathematical modelling to determine the main factors influencing the dairy market in Ukraine. Shyian et al. (2021) use the ARIMA method to forecast dairy prices, taking into account the time lag of the influence of the main factors on price changes, which, unfortunately, increases the impact of expert intervention on the relevance of the results.

Bórawski et al. (2020) consider the volatility of dairy prices to be a significant problem in dairy production, even in countries with stable economies. Shubravska and Prokopenko (2022) indicate that the dynamics of prices in Ukraine are higher than those in EU countries, which is a factor inhibiting entrepreneurial activity in the industry. Kravchenko (2023) indicates that only increased attention to agroecological management will contribute to an increase in the quality of dairy products. This indicates that the dairy industry lacks resilience to challenges, which has led to the "marginalisation" of small farms.

Varchenko et al. (2019) indicate that institutional structures see the direction of development of the dairy industry mainly in the export of raw products. Moreover, the low added value of such products causes insufficient profitability of small farms, which does not contribute to the expansion of entrepreneurial activities.

The scientific community has different views on the concentration of dairy production. In particular, Ilchuk et al. (2023) insisted on the sectoral diversification of agricultural farms. Studies on the cooperation process (Kutsyk et al., 2023) rely on approaches to differentiate agricultural cooperatives by areas of activity: procurement and marketing, processing, and supply. This approach smooths the advantages of integrating adjacent areas of activity. Simultaneously, the total number of officially registered cooperatives includes many inactive farms (Gołębiewska et al., 2022).

An academic review indicated the need to introduce new approaches to forecasting the dairy market and, with the introduction of these approaches, a detailed consideration of the problematic aspects of entrepreneurial activity in the dairy business in the post-war period.

3. Methodology.

The ARMA time series method was used to forecast the milk market indicators in Ukraine, supplemented by the approach of extrapolating a linear trend, considering nonlinear deviations from it.

This is an adaptive method for the step-by-step refinement of the forecast indicator. In the proposed approach, in the first stage, we obtain a linear equation of the form using the ARMA method:

$$y = \alpha_1 + \alpha_2 x_\tau \quad (1)$$

where, τ is time, x_τ is a time-varying parameter, α_1, α_2 are the coefficients of the linear equation.

In the second stage, the coefficients of the linear equation are changed using Brown's method as follows:

$$\alpha_{1\tau} = 2S_\tau^{/} - S_\tau^{//} \quad (2)$$

$$\alpha_{2\tau} = \frac{\beta}{1-\beta}(S_\tau^{/} - S_\tau^{//}) \quad (3)$$

where, $\beta \in (0 \dots 1)$ is the time series smoothing factor; $S_\tau^{/}$, $S_\tau^{//}$ are auxiliary coefficients obtained by the step-by-step procedure of smoothing the data set for time τ.

$$S_\tau^{/} = \beta\, y_\tau + (1-\beta) y_{\tau-1} \quad (4)$$

$$S_\tau^{//} = \beta S_\tau^{/} + (1-\beta) S_{\tau-1}^{//} \quad (5)$$

where, $y_{\tau-1}$, $S_{\tau-1}^{//}$ - the values of the corresponding factors for time $(\tau+1)$.

At the third stage, nonlinear anharmonic deviations from the linear trend are considered.

To do this, the geometric mean of the areas ε between the nonlinear functional and the linear trend on the interval $\tau^{/} \dots \tau^{//}$ is calculated:

$$\varepsilon = f\{\int_{\tau^{/}}^{\tau^{//}} [y_{unlin}(x) - y(x)]dx\} \quad (6)$$

$$S_{\tau+1}^{//} = S_{\tau}^{//}(x_\tau + \varepsilon) \quad (7)$$

where, y_{unlin} is a nonlinear functional represented as a sixth-degree polynomial.

At the final stage, the adjusted equation was obtained in order to generate the forecast:

$$y_{\tau+1} = \alpha_{1\tau} + \alpha_{2\tau}(x_\tau + \varepsilon) \quad (8)$$

The proposed approach made it possible to forecast the factors of the milk market in Ukraine under the assumption that large-scale hostilities will end in 2026. The results of changes in the share of livestock on small and household farms from the total number of cattle and cows are given in Table 1.

Table 1. Dynamics of Cattle Population in Ukraine.

Year	Total cattle population (thousand heads)	Cow population (thousand heads)	Cattle in small farms & households (thousand heads)	Cows in small farms & households (thousand heads)	Share of total cattle in small farms & households (%)	Share of total cow population in small farms & households (%)
2020	3,092.0	1,788.5	2,042.5	1,349.9	66.1	75.5
2021	2,874.0	1,673.0	1,865.6	1,249.1	64.9	74.7
2022	2,644.0	1,544.0	1,640.6	1,119.4	62.0	72.5
2023	2,307.1	1,352.8	1,365.0	958.6	59.2	70.9
2024	2,156.2	1,262.9	1,347.8	926.1	62.5	73.3
2025	2,001.6	1,154.7	1,185.4	816.3	59.2	70.7
2027	2,150.0	1,250.0	1,320.0	920.0	61.4	73.6

Source: based on data from Agribusiness of Ukraine (2025), Infagro (2025) and the State Statistics Service of Ukraine (2025).

Calculations have shown that although entrepreneurial activity will contribute to the development of the dairy industry in the first post-war years, it will not be possible to achieve the results of the pre-war years in the short term.

The share of cattle in small farms in 2027 will be 3.5% lower than that in 2021, and the share of cows will be 1.1% lower. This will be negatively affected, in particular, by the increase in production costs due to the increase in the cost of resources and the limited possibilities for increasing the price of dairy products in the domestic market.

4. Aim and Tasks.

The study aims to determine the prerequisites and directions for the development of entrepreneurial activity of dairy business entities in Ukraine in the post-war period.

This study develops a mathematical approach to forecast milk market indicators in Ukraine, assess the significance of changes in dairy market indicators in the post-war years, and identify obstacles to the entrepreneurial activity of dairy business entities.

5. Results.

Currently, the state of the dairy industry is far from desirable, as evidenced by the level of milk exports. From 2000 to 2024, export volumes decreased by 2.9 times, although exports slightly increased by 2.1% in 2023-2024 (Table 2).

Simultaneously, imports of dairy products in 2024 increased by 7.6% compared to 2000 (Ministry of Agrarian Policy and Food of Ukraine, 2024). This has caused a negative trend in the formation of the Ukrainian market for net imports of these products.

e-ISSN 2786-8958
ISSN-L 2616-7107

Table 2. Dairy Market Indicators (thousand tons, in milk equivalent).

Indicator	2022	2023	2024	2027
Own production	7660	7339	7328	8000
Import	402	431	470	420
Export	519	372	380	480
Demand	8057	7774	7795	8400

Source: based on data from the Ministry of Agrarian Policy and Food of Ukraine (2024).

Imports are predicted to decrease by 10.7% in 2027 compared to 2024, provided domestic demand increases by 7.76% and exports increase by 26.3%. For such an increase in export volumes, the dairy industry must ensure more stable positions in foreign markets than it currently has.

The instability of these positions is indicated by the significant volatility of exports of various commodity items in the nomenclature of dairy product supplies, as evidenced by the data presented in Fig. 1.

This, in particular, requires increased entrepreneurial activity to reorient commodity quickly flows to the domestic market in the event of dynamic changes in demand in foreign markets. Fig. 1 also confirms the insufficient share of products with a higher level of added value in the export nomenclature. The data in Fig. 1 also indicate significant problems with logistics, as only a small share of products that are not subject to long-term storage are exported. This created additional business opportunities in the post-war period.

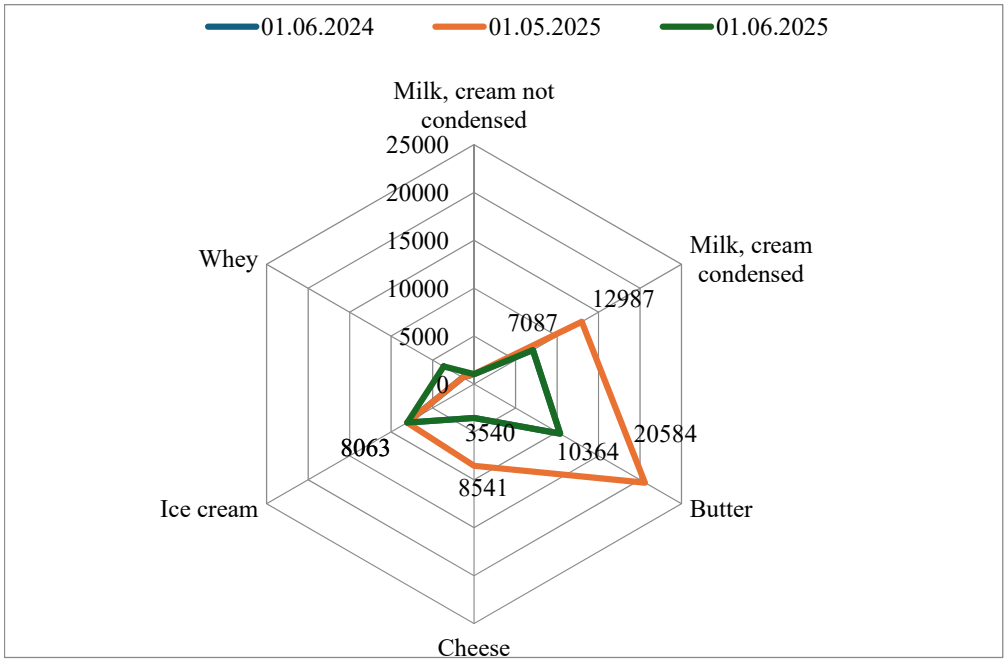

Fig. 1. Dynamics of Dairy Product Export Composition (thousand USD).

Source: based on the State Statistics Service of Ukraine (2025).

Some revival of the domestic market in 2024-2025 is indicated by the growth of annual consumption of dairy products by 4% compared to 2021, although the comparison with 1990 indicates a disappointing result (State Statistics Service of Ukraine, 2025). During this period, the specified indicator decreased by 78%.

At the same time, this forms the prospects for expanding production in the post-war period and provides the prerequisites for entrepreneurial activity in this area. However, given the industry's technological conditions and the country's economic situation, the growth rates will not be significant enough.

The reduction in subsidies for maintaining dairy herds, considering the devaluation of the hryvnia, does not contribute to the development of livestock farming. Thus, in 2021, farmers keeping five or more heads received a subsidy of $182.6, calculated at the National Bank of Ukraine (2025) exchange rate.

By 2025, this amount had decreased to $168.8 due to the depreciation of the national currency. Thus, state support is less than 1% of the farmer's gross income during this period. Although, for example, in Norway, it is more than 50% of the gross income of a dairy farm (Dibrova et al., 2023).

The effectiveness of state support for farmers is also reduced due to changes in the rules for its receipt, bureaucratic complications, etc. Therefore, almost a third of those who applied for assistance did not receive a subsidy (Pronko et al., 2020a).

A disadvantage of state financial assistance to dairy producers is the lack of differentiation of this assistance by the size of the livestock on farms. This disadvantages small farms, since even medium-sized farms are less limited in financial resources, particularly due to greater opportunities for attracting loans.

The significant deformation of the dairy market is caused by the fact that more than 80% of the market is controlled by 65 enterprises with a gross yield of more than 1,000 tons of cow's milk per cow. Most of these enterprises belong to extensive holdings (Gutsul, 2023). This will significantly limit the market entry of companies without a significant amount of authorised capital in the following periods. That is why in the post-war period, those regions where milk production is close to both significant concentrations of consumers (regional centres) and resource feed bases will be promising for small businesses. These are, for example, Odesa, Mykolaiv, Chernihiv, Rivne regions, and regions of Western Ukraine, where many small and medium-sized farms are still concentrated.

The involvement of third-party intermediary firms in supply chains increases the cost of products on one logistics arm by 15-20%.

When retail chains are involved in sales, the price increases to 60%. This leads to a decrease in purchase prices, which affects profitability. If a farm produces at least 15 tons of milk, the processor agrees to increase the product delivery distance to 300 km, but small producers must ensure their access to the market. This creates the prerequisites for the expansion of small producers' business activities in the logistics and sales of their products in the post-war period.

According to the experience of developed countries with a thriving dairy industry, this industry is represented mainly by small and medium-sized enterprises united in cooperatives (Borawski et al., 2020). Consolidation of producers into cooperatives opens up the opportunity for them to enter the global market and increase the profitability of their production.

Unfortunately, access to foreign markets for Ukrainian dairy producers is complicated by the inadequate quality of milk by grade and the level of contamination with bacteria and somatic cells (Bal-Prylypko et al., 2024). Ukrainian milk also does not meet EU requirements for fat content, as its fat content is mostly less than 4%, as required by EU standards, and its protein concentration is less than that specified in EU standards -3.4% (McGarr-O'Brien et al., 2023). This limits exports, as, for example, there are cases when Israel refuses to process even higher grades of milk from Ukraine.

Since first-grade milk accounts for 77% of the total production volume in Ukraine, and premium-quality milk accounts for only 4%, this leads to a significant level of lost profits for producers, since premium milk is 74% higher than first-grade milk (Bal-Prylypko et al., 2024). The entry into the market in the post-war period of a significant number of small producers, characterised by non-compliance with standards, may result in deterioration in quality and, accordingly, an increase in the volatility of dairy prices even on the domestic market.

The profitability of milk production has gradually increased, while meat production (beef and veal) remains chronically unprofitable (Fig. 2).

e-ISSN 2786-8958
ISSN-L 2616-7107

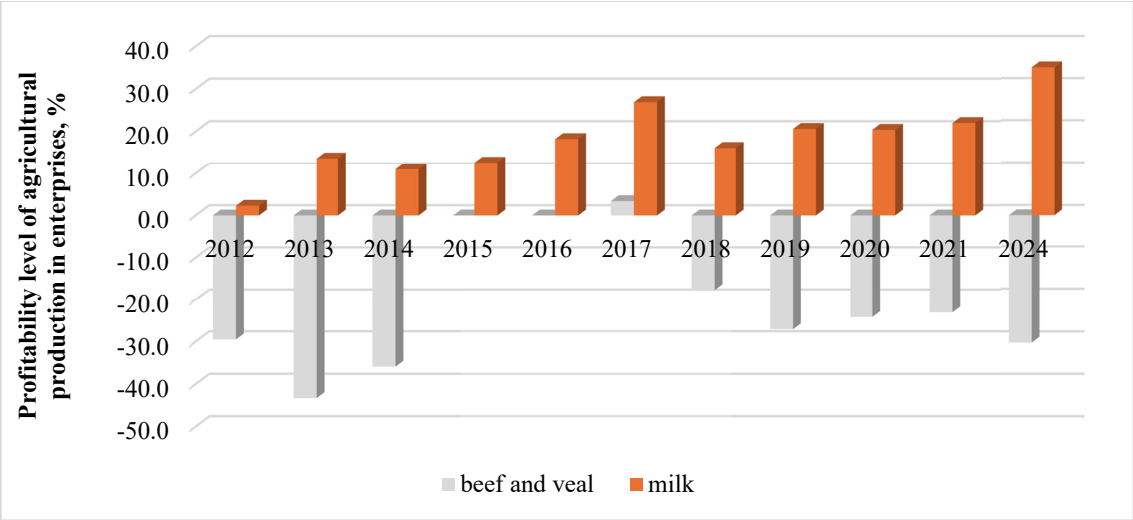

Fig. 2. Profitability of Dairy and Meat Production in Livestock Farming (% per year).
Source: based on the State Statistics Service of Ukraine (2025), Ministry of Agrarian Policy and Food of Ukraine (2024).

Simultaneously, despite the negative profitability of cattle meat production, it compensates for the increase in the cost of dairy products for small farms.

A profitability level of more than 20% creates the prerequisites for a significant expansion of business activities in this area in the following periods.

This is especially the case when the impact of military risks decreases (Varchenko et al., 2019).

At the same time, there is a significant differentiation of profitability by the size of the livestock owned by the enterprise due to the insufficient average milk yield per cow (Fig. 3).

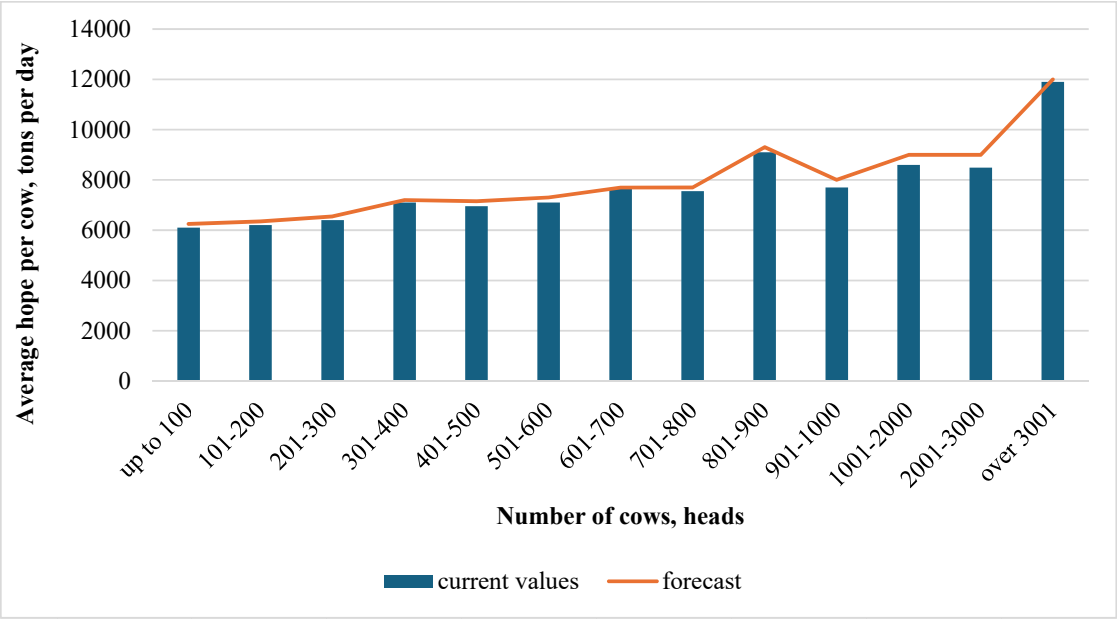

Figure 3. Average Yield per Cow on Farms with Breeding Animals in 2024 (Tonnes per Day).
Source: based on data from the Ministry of Agrarian Policy and Food of Ukraine (2024) and Gutsul et al. (2023).

e-ISSN 2786-8958
ISSN-L 2616-7107

The forecast for the first years of the post-war period indicated an increase in the average milk yield per cow, primarily on farms with a significant number of breeding cows. Unfortunately, this growth will not be significant and will range from 0.85% to 4.2%.

The indicators in Fig. 3 and Table 1 indicate the presence of two opposite vectors of dairy industry development, which determine the peculiarities of entrepreneurial activity in this area: a reduction in the number of breeding cows and an increase in milk yield per cow. This is due to the need to reduce the cost of dairy farming, as one of the main obstacles to entrepreneurial activity in the dairy industry is the high cost of dairy products. This also leads to a loss of competitiveness in external markets, as prices for dairy raw materials from Ukraine are higher (Mirzoieva et al., 2022) than in neighbouring European countries (van der Linden, 2020), for example, in Poland and Latvia, by 18-20% (Szajner et al., 2024). The increase in feed resource prices complicates the situation.

This also increases the differentiation of dairy farms in terms of the supply volume to the external and internal markets. As shown in Fig. 4, large livestock farms and agricultural holdings have mastered a market niche associated with acquiring higher added value by providing processing enterprises with raw dairy materials. With an increasing trend in the volume of supplies for processing from large enterprises, there is a tendency to reduce the supplies from small agricultural farms and households.

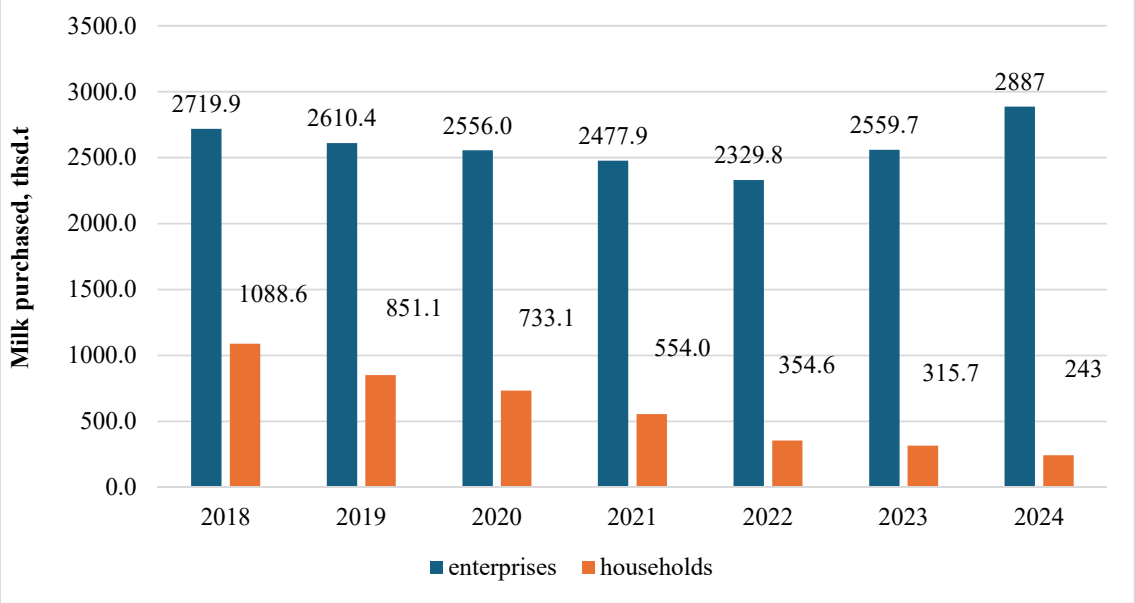

Fig. 4. Changes in the volume of milk purchases for processing, thousand tons.
Source: based on the State Statistics Service of Ukraine (2025).

This is particularly due to the difference in purchase prices for the specified groups of producers, up to 71.9% (Table 3). Comparing the 2024 indicator with the 2018 indicator, the price of raw dairy materials for enterprises increased by 36.8%, and for households, only by 23.5%. The rate of change in the prices of raw dairy materials increased in 2023-2024. Currently, the price of raw dairy materials for enterprises has increased by 20%, and for households, only 10%.

The differentiation of purchase prices does not stimulate the population to supply milk to processing enterprises and, accordingly, forms an orientation towards the domestic market. During the study period, there was a tendency to reduce the number of cattle and the volume of dairy production (Table 1). There is a shortage of dairy products in the domestic market, as evidenced by the increase in the volume of imports of specific product groups from European Union countries (Table 2).

Table 3. Dynamics of Purchase Prices for Dairy Raw Materials.

Year	Average Purchase Price, Enterprises (USD per t of Milk)	Average Purchase Price, Households (USD per t of Milk)	Price Ratio (%)
2018	280.5	180.7	155.2
2019	303.7	206.5	147.1
2020	320.0	297.3	107.6
2021	362.8	252.7	143.6
2022	365.1	246.7	148.0
2023	333.1	211.5	157.5
2024	383.6	223.2	171.9

Source: based on data from the State Statistics Service of Ukraine (2025).

Simultaneously, the obstacles to entrepreneurial activity for dairy business entities in Ukraine are as follows:

– Permanent increase in the cost of keeping cattle

– Insufficient levels and volumes of breeding work. Even the most successful dairy breed of Ukrainian selection, the red-motley, is inferior to breeds of European selection in terms of milk yield (7.174 tons), fat composition in raw milk (3.8%), and protein content (3.31%). The productivity of the brown dairy breed is even lower (State Register of Breeding Entities in Animal Husbandry, 2020).

– A systematic decrease in the calving rate. Even for specialised dairy enterprises, this indicator is only 64% (State Statistics Service of Ukraine, 2024).

– An increase in the culling rate of cows before the first fertilisation (14 %) (State Statistics Service of Ukraine, 2024).

– Lack of feed resources due to the constant trend of reducing the specialised feed base of livestock farming and replacing traditional feed crops with marginal varieties.

– Significant shortage of working capital.

– Low dairy livestock productivity

– Significant rates of reduction in the purchasing power of the population, which leads to a decrease in the domestic demand for dairy products.

– Significant fluctuations in demand and supply in the domestic market, loss of a significant part of export destinations, and significant volatility of macroeconomic indicators, which causes instability in the production process, even in small periods.

– Insufficient quality of raw dairy materials sent by households and small farms for processing.

– Predominant use of outdated technology.

– Loss of human resource potential in the dairy industry due to migration and mobilisation of workers.

Another obstacle to entrepreneurial activity for dairy business entities in Ukraine is that this activity requires start-up capital, as the formation of a breeding herd, arrangement of farms, hiring of qualified specialists, provision of feed, and establishment of sales require significant funding. Another deterrent factor for entrepreneurial activity in the dairy farming field is that, due to the lack of circulating financial resources, novice farmers face the problem of a significant settlement period when using retail chains to sell their products. On the one hand, this causes direct sales without the mediation of retail chains, and on the other hand, it promotes cooperation between small dairy farms.

Another problem is that the purchase prices for dairy raw materials for farmers are 35-50% lower than those for specialised enterprises. The trend of reducing the number of enterprises engaged in raw material processing also leads to a narrowing of opportunities for developing entrepreneurial activity in this industry. From 2014 to 2024, their number decreased by 9.1%, of which enterprises aimed at producing products with higher added value, such as butter, cheese, and ice cream, decreased by 8.8% (Ministry of Agrarian Policy and Food of Ukraine, 2025).

Therefore, for the development of entrepreneurial activity, it is worth considering the possibility of directing business activities in the post-war period to form a milk processing infrastructure close to central production locations.

Entrepreneurs should also monitor product quality for internal corporate needs and as a competitive tool. This may limit the use of vegetable fat substitutes as components in ice cream.

Diversification of the range of dairy products with higher added value and, accordingly, with expanded storage capabilities can also provide a certain damper for both geographical and seasonal imbalances in supply and demand.

At the same time, the dairy industry at all levels, from the procurement of raw materials and their deep processing to the counter, faces the need to ensure adequate competition with powerful transnational companies.

As a significant factor of competition today, the price of dairy products and the stability of relationships with consumers are key. Other areas of ensuring a competitive level, in particular, improving the quality of raw dairy materials and producing products with higher added value, such as cheeses, powdered milk, and ice cream, the consumer characteristics of which are determined precisely by the quality of raw materials, require not only significant financial resources but also changes in traditional approaches to work. In 2025, 59.2% of dairy cows were on household farms (Table 1), and traditional tethered animal husbandry and manual milking were mainly used in this segment of the dairy industry. For farms with a livestock of up to 300-400 heads, the number of cows served by one milkmaid is 25-30, and only 5-7 heads of cattle are per farm worker. These circumstances do not contribute to reducing the cost of dairy products, increasing their quality, or slowing down the achievement of an adequate competitive level with the dairy industry of leading countries.

With significant fluctuations in demand in foreign markets, the glocalisation of production and sales may be particularly important for developing entrepreneurial activities in the dairy industry.

Glocalisation allows entrepreneurs to use foreign market sales in the case of demand fluctuations and promptly direct surplus products to the domestic market, especially when it is not sufficiently saturated. This will make it possible to regulate not only production volumes, as in the case of significant fluctuations in domestic demand during the war, but also sales volumes.

Small agricultural enterprises, family farms, are not able to provide such specific economic efficiency as extensive agricultural holdings, but can ensure higher allocative efficiency of economic activity (Sakhno et al., 2023).

In addition, small agricultural enterprises are more flexible and adaptable to changing influencing factors, such as market and weather conditions and the economy of the country and region, than large enterprises.

The prospects of family-type farms also lie in the possibility of producing organic products in the future. This will increase their competitive advantage in both foreign and domestic markets.

Simultaneously, for a family farm that takes care of a small number of heads, even with a reduced logistical burden to the consumer and the coincidence of lactation periods of dairy cows, it is not easy to retain customers and organise a continuous supply of products. This is a significant incentive for cooperation among the farms.

In Ukraine, the dairy production process is concentrated. Small agricultural enterprises with heads up to 100 account for 42.5% of the total enterprises, and agro-holdings with heads over 1000 account for 5.1%. However, in large enterprises, 53.9% of the livestock is concentrated.

Such a focus on the concentration of dairy production does not fully meet the social goals of the development of Ukrainian villages or the solution to the problems of complete and sustainable food provision for the population of the country. Cooperation helps solve both the problem of providing jobs in rural areas and the problem of intensifying human capital development in agriculture. Simultaneously, the impact of cooperation on job provision is complex.

e-ISSN 2786-8958
ISSN-L 2616-7107

Cooperation, on the one hand, allows for reducing the cost of production by increasing the number of cows served by one milkmaid and one farm worker, formally contributing to the reduction in the number of workers. Moreover, on the other hand, the broad integration of related areas of activity, in particular, product storage and logistics, to reduce overhead costs, allows for the provision of work for a significant number of employees.

Cooperation also facilitates the attraction of financial resources, optimisation of working capital flows, and the formation of infrastructure, in particular, processing infrastructure, which not only increases the added value of products but also allows for manoeuvring the product range in the event of a dynamic change in demand for individual dairy products. Cooperation can improve the quality of dairy products of family farms, ensuring their technological renewal, which is a prerequisite for increasing purchase prices and expanding the sales market. Cooperation will contribute to expanding the range of family farms and allow the scaling effect to reduce the production costs.

Simultaneously, the share of dairy farms involved in the cooperative process is less than 18% (Association of Milk Producers of Ukraine, 2025). The cooperative process is significantly hampered by the traditional thinking of agricultural producers and the historically conditioned distrust of the advantages of collective farming practices.

6. Conclusions.

Entrepreneurial activity contributed to the development of the dairy industry in the first post-war years, it was impossible to achieve the results of the pre-war years in the short term. The share of cattle in small farms in 2027 will be 3.5% lower than in 2021, and the share of cows will be lower by 1.1%. This will be negatively affected by the increase in production costs due to the increase in the cost of resources and the limited possibilities for increasing the price of dairy products in the domestic market. Imports are predicted to decrease by 10.7% in 2027 to the level of 2024, provided that domestic demand increases by 7.76% and exports increase by 26.3%.

For such an increase in export volumes, the dairy industry must ensure more stable positions in foreign markets than it currently has. Simultaneously, the differentiation of state aid to livestock farming should promote entrepreneurial activity by harmonising it with the number of livestock on farms.

It is worth noting the significant level of market control by holdings; over 80% of the market is controlled by 65 enterprises with a gross yield of over 1,000 tons of cow's milk, complicating the entry of new entrepreneurs into the market. In addition, the emergence of new producers in the market is limited by the increase in the cost of products on one logistics leg by 15-20% when using intermediary firms. When retail chains are involved in the sale, the price increases by 60%. This created the prerequisites for the expansion of small producers' business activities in the logistics and sales of their products in the post-war period.

Entry into foreign markets for Ukrainian dairy producers is complicated due to the inadequate quality of milk in terms of variety and the level of contamination with bacteria and somatic cells, primarily on small farms. Ukrainian milk does not meet the EU requirements for fat content because it contains mostly less than 4% fat and less than 3.4% protein.

First-grade milk accounts for 77% of the total production in Ukraine, and premium-quality milk accounts for only 4%, which leads to significant lost profits for producers, as the price of premium milk is 74% higher than that of first-grade milk. This indicates that in the post-war period, the entry of a significant number of small producers characterised by non-compliance with standards may result in deterioration in quality and, accordingly, an increase in the volatility of dairy product prices.

Simultaneously, the prerequisites for entrepreneurial activity are improved by the fact that the profitability of milk production is gradually increasing. This is confirmed by forecast data on the growth of average milk yield from 0.85% to 4.2% by farm size for the first post-war period.

With increasing volumes of supplies for processing from large enterprises, there is a tendency to reduce supplies from small farms, which increases the differentiation of dairy farms in terms of the volumes of provisions to external and internal markets. This is also facilitated by the fact that the purchase prices for dairy raw materials for farmers are 35-50% lower than those for specialised enterprises. Therefore, with significant fluctuations in demand in external markets, the glocalisation of production and sales may be of particular importance for the development of entrepreneurial activity in the dairy industry.

It allows entrepreneurs not only to use sales volumes in external markets as a regulation tool in the event of demand fluctuations but also to promptly redirect surplus products to the domestic market.

Cooperation contributes to solving the problem of providing jobs in rural areas and the problem of intensifying human capital development in agricultural production. Simultaneously, the share of dairy farms involved in the cooperation process is less than 18%, which opens up wide opportunities for the development of entrepreneurial cooperation.

REFERENCES

Agribusiness of Ukraine. (2025). Agribusiness of Ukraine infographic report 2023/2024. https://agribusinessinukraine.com/the-infographics-report-ukrainian-agribusiness-2024-eng

Association of Milk Producers of Ukraine. (2025). Dairy Farms Increase Milk Production Volumes in the First Half of 2025. https://avm-ua.org/en/post/dairy-farms-increase-milk-production-volumes-in-the-first-half-of-2025

Bai, Z., Liu, C., Wang, H., & Li, C. (2023). Evolution Characteristics and Influencing Factors of Global Dairy Trade. Sustainability, 15(2), 931. https://doi.org/10.3390/su15020931

Bal-Prylypko, L., Berezina, L., Stepasyuk, L., Cherednichenko, O., & Lialyk, A. (2024). Developing dairy farming and improving product quality. Scientific Horizons, 27(1), 140-151. https://doi.org/10.48077/scihor1.2024.140

Bochko, O., Kosar, N., Kuzo, N., Zarichna, O., Hryniv, N., & Savchenko, Y. (2023). Determinants of the development of economic processes in the dairy market of Ukraine. Financial and credit activity problems of theory and practice, 5(52), 402-412. https://doi.org/10.55643/fcaptp.5.52.2023.4146

Bojovic, M., & McGregor, A. (2023). A review of megatrends in the global dairy sector: what are the socioecological implications? Agriculture and Human Values, 40(1), 373–394. https://doi.org/10.1007/s10460-022-10338-x

Borawski, P., Pawlewicz, A., Parzonko, A., Harper, J. K., & Holden, L. (2020). Factors shaping cow's milk production in the EU. Sustainability, 12(1), 420. https://doi.org/10.3390/su12010420

Bułkowska, M., & Bazhenova, H. (2023). Direct and Indirect Consequences of the War in Ukraine for Polish Trade in Agri-Food Products. Problems of Agricultural Economics, 376(3), 66–90. https://doi.org/10.30858/zer/170892

Dibrova, A., Ilchuk, M., Konoval, I., Androsovych, I., & Zanizdra, A. (2023). State support for agriculture in Ukraine in the post-war period. Agricultural and Resource Economics: International Scientific E-Journal, 9(3), 49-76. https://doi.org/10.51599/are.2023.09.03.03

Gereles, A., & Szőllősi, L. (2019). The current state and latest trends of the Ukrainian dairy sector. Roczniki (Annals), XXI(2), 69-78. DOI:10.5604/01.3001.0013.2180

Gołębiewska, B., Voronko, O., & Gębska, M. (2022). Comparison of the financial condition of milk processing enterprises in Poland and Ukraine. Roczniki (Annals), XXIV(4), 53-64. DOI: 10.5604/01.3001.0016.1382

Gutsul, T., Sulima, N., & Kuderskyi, B. (2023). Analysis of the state and prospects of milk production and dairy products in Ukraine in the post-war period. Animal Science and Food Technology, 14(3), 35-46. https://doi.org/10.31548/animal.3.2023.35

Ilchuk, M., Nikitchenko, S., Sytnyk, O., & Pavlenko, V. (2023). Diversification of entrepreneurial activities in the agricultural sector of Ukraine's economy in the post-war period. Ekonomika APK, 30(4), 25-35. https://doi.org/10.32317/2221-1055.202304025

Infagro. (2025). Analytics. Milk market. Retrieved from https://infagro.com.ua/ua/2016/04/20/bulletin-rynok-moloka/

Kravchenko, S. (2023). Prospects for economic development of agricultural business structures in the post-war period. Studies in Agricultural Economics, 126, 90-100. https://doi.org/10.7896/j.2863

Kutsyk, P., Semiv, S., Kutsyk, V., Poliakova, J., & Shevchyk, B. (2023). State, problems, and priorities of the development of agricultural cooperation in Ukraine in the context of modern challenges. Financial and Credit Activity Problems of Theory and Practice*,* 1(48), 282-297. https://doi.org/10.55643/fcaptp.1.48.2023.3956

McGarr-O'Brien, K., Herron, J., Shalloo, L., De Boer, I., & De Olde, E. (2023). Characterising sustainability certification standards in dairy production. Animal, 17(7), 100863. https://doi.org/10.1016/j.animal.2023.100863

Ministry of Agrarian Policy and Food of Ukraine. (2024). Ukraine: Impact of War on the Profitability of Agricultural Production. https://minagro.gov.ua/storage/app/sites/1/uploaded-files/viini-na-pributkovist-silskogospodarskogo-virobnitstvavipusk-3.pdf

Ministry of Agrarian Policy and Food of Ukraine. (2025). Monitoring the state of livestock industries. https://minagro.gov.ua/napryamki/tvarinnictvo/analiz-ta-monitoring-stanu-galuzej-tvarinnictva.

Mirzoieva, T., Tkach, N., Nitsenko, V., Gerasymchuk, N., Tomashevska, O., & Nechyporenko, O. (2022). Development of the Correlation Model between Biogas Yield and Types of Organic Mass and Analysis of Its Key Factors. *C*, 8, 73. https://doi.org/10.3390/c8040073

Mykytyuk, V. (2021). Regularities and trends of the of the livestock industry current state in the Zhytomyr region. Scientific Horizons, 24(1), 36-44. https://doi.org/10.48077/scihor.24(1).2021.36-44

National Bank of Ukraine. (2025). https://bank.gov.ua/en

Pochukalin, A. Y. (2022). State of livestock in Ukraine: monitoring for 2021. Animal Breeding and Genetics, 64, 69-83. https://doi.org/10.31073/abg.64.07

Pronko, L., Furman, I., Kucher, A., & Gontaruk, Y. (2020a). Formation of a state support program for agricultural producers in Ukraine considering world experience. European Journal of Sustainable Development, 9(1), 364–379. https://doi.org/10.14207/ejsd.2020.v9n1p364

Pronko, L., Kolesnik, T., & Samborska, O. (2020b). Ukraine dairy market: state and prospects of development. European Journal of Sustainable Development, 9(1), 243-243. https://doi.org/10.14207/ejsd.2020.v9n1p243

Sakhno, A., Salkova, I., Abuselidze, G., Yanchuk, T., & Buha, N. (2023). Evaluation of efficiency of small agricultural enterprises economic activity under sustainable development conditions. In Lecture Notes in Networks and Systems (pp. 2262–2271). Springer International Publishing. https://doi.org/10.1007/978-3-031-21219-2_254

Shlapak, A., Yatsenko, O., Tananaiko, T., & Lyskova, L. (2023). Institutional provision of tariff and non-tariff regulation of cross-border trade. Economics Ecology Socium, 7(2), 1–23. https://doi.org/10.31520/2616-7107/2023.7.2-1

Shubravska, O., & Prokopenko, K. (2022). The agricultural sector of Ukraine in the global food market: Pre-war state and post-war prospects. Research on World Agricultural Economy, 3(4), 1-11. http://dx.doi.org/10.36956/rwae.v3i4.693

Shyian, N., Moskalenko, V., Shabinskyi, O., & Pechko, V. (2021). Milk price modeling and forecasting. Agricultural and Resource Economics: International Scientific E-Journal, 7(1), 81-95. https://doi.org/10.51599/are.2021.07.01.05

State Register of Breeding Entities in Animal Husbandry. (2020). Data and Resources. Retrieved from https://data.gov.ua/dataset/b3c7dd2a-f0a3-4750-89cb-90f760ba3e51

State Statistics Service of Ukraine. (2024). Statistical yearbook of Ukraine for 2023. Kyiv. Retrieved from https://ukrstat.gov.ua/druk/publicat/kat_u/2023/zb/11/year_23_u.pdf

State Statistics Service of Ukraine. (2025). Livestock. Retrieved from https://www.ukrstat.gov.ua/

Stavetska, R., Babenko, O., Starostenko, I. & Cherniak, S. (2022). Main trends of dairy industry in Ukraine. Bulgarian Journal of Agricultural Science, 28 (Supplement 1), 14–20. https://rep.btsau.edu.ua/bitstream/BNAU/8116/1/Main_trends.pdf

Szajner, P., Szczepaniak, I., & Łopaciuk, W. (2024). An assessment of the production potential and food self-sufficiency of Ukraine against the background of the European Union and Poland. Sustainability, 16(17), 7735. https://doi.org/10.3390/su16177735

Tulush, L., Hryshchenko, O., & Strikhovskyi, D. (2023). Trends in the development of dairy farming and its state financial support in Ukraine. Ekonomika APK, 30(5), 33-45. https://doi.org/10.32317/2221-1055.202305033

van der Linden, A., de Olde, E. M., Mostert, P. F., & de Boer, I. J. (2020). A review of European models to assess the sustainability performance of livestock production systems. Agricultural Systems, 182, 102842. https://doi.org/10.1016/j.agsy.2020.102842

Varchenko, O., Radko, V., Rudych, O., Svynous, I., & Tkachenko, K. (2019). Risks of dairy farming in Ukraine and ways of their minimization and neutralization. Agricultural Science and Practice, 6(1), 41-59. https://doi.org/10.15407/agrisp6.01.041