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photo: Ministry of Agrarian Policy and Food of Ukraine

Eurointegration 2.0

THE UKRAINIAN DAIRY SECTOR

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INTRODUCTION

This report is a continuation of analytical work initiated in "*Current State and Trends of Cattle Rearing, Cattle Meat and Milk Sectors in Ukraine*" by Pyvovar and Rozhkov. The earlier study provided a overview of the cattle sector's evolution in Ukraine, tracing key developments in herd dynamics, production efficiency, and market adjustment during the post-Soviet transition and the years of full-scale war.

Building upon that foundation, the current report deepens the analysis by focusing exclusively on the **Ukrainian dairy sector.** It aims to identify the structural, economic, and institutional drivers that define the sector's present performance.

Specifically, the report complements the previous analysis by introducing:

A disaggregated assessment of production systems, distinguishing between the household and industrial sub-sectors, and their respective roles in sustaining national milk supply and rural food security.

An evaluation of milk quality and safety standards, documenting progress toward EU-aligned regulation and the implications for competitiveness and trade.

Mapping of the dairy value chain, covering production, collection, processing, consumption, and export dynamics.

A comparative analysis with Poland, illustrating how EU accession helped to transforme a national production system.

A regional perspective, using cluster analysis to identify geographic concentrations of milk production and processing over 2019-2024, and to assess the asymmetric direct war impact across oblasts.

A review of the evolving legal, regulatory, and institutional environment, including alignment with EU veterinary, sanitary, and food safety frameworks.

An overview of government, private sector, and donor support initiatives since 2022, capturing the scope and coordination of emergency and recovery measures targeting dairy producers.

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1. THE STATE OF UKRAINIAN MILK PRODUCTION AND ITS ROLE IN FOOD SECURITY

- **Ukraine moved from global dairy production leader (top-6 in 1990s) to net-importer (in monetary terms).**
- **Dual structure (households vs. industrial) defines the system, stricker regulation (since 2019) poses a structural barreer for commercialization of households and micro-producers.**
- **Households still dominate by headcount but not by raw milk quality and safety or market position.**
- **Industrial farms drive modernization and quality improvement along with structural changes (increase in median farm size, aligned with global trend).**
- **Fat/protein improvements are the new source of value for the sector that improves commercialization and opens new export markets.**

1.1. PRODUCTION LANDSCAPE

- **Household milk is still vital for rural diets but EU-aligned safety norms losing market value and households' cows' herd reduction is accelerated.**
- **Industrial farms' productivity offsets shrinking herds, reaching 8,167 kg/cow – the record levels outpacing the EU average.**
- **The processing sector benefits from the superior quality and safety of milk sourced from industrial (commercial) farms, while household-produced milk is largely excluded from food processing and primarily utilised for feed production.**

The contemporary Ukrainian dairy sector is the product of a long and challenging evolution, marked by significant structural changes since the country's independence. Its current state cannot be understood without first acknowledging a persistent, three-decade-long downward trend in overall production volumes and cow inventory. This contraction has been a defining feature of the post-Soviet era, transforming Ukraine from a global dairy powerhouse ranking sixth worldwide in 1992 with 3.6% of global production to a more modest player, holding the 18th position with just 1.2% of the world's volume by 2018.[1] Total milk production fell to a post-1990s low of 7.3 million metric tons (MT) in 2024. This decline continued, with output recorded at 8.7 million MT in 2021, dropping to 7.7 million MT in 2022 after the full-scale invasion, and further to 7.3 million MT in 2024. This prolonged decline had

1 Main trends of dairy industry in Ukraine https://www.cabidigitallibrary.org/doi/pdf/10.5555/20220565980

already shifted Ukraine's trade balance, turning it from a consistent net exporter in 2019 into a net importer of dairy products in the years after (consistent negative net export at -US$68-US$185 million in 2019-2024, with an exception in 2022). The sector is defined by a dual structure: on one side, unregistered subsistence and semi-subsistence producers rearing the largest number of cows and relying on informal networks and supplying local farmers' and urban markets; on the other, registered industrial farms integrated into formal supply chains. These two systems operate under fundamentally different economic models, levels of efficiency, and market orientations.

HOUSEHOLD SUB-SECTOR

First, the household sub-sector has traditionally formed the backbone of Ukrainian milk production in terms of sheer volume and animal numbers. Before the 2022 invasion, these small-scale, often subsistence-level farms (48% total milk collected in households was sold[2]) accounted for most of the national dairy herd (67% or 769 thousand heads in 2024), holding approximately 769 thousand heads, which is 67% of the total number of cows in Ukraine in 2024. This translates to households producing 58% of the country's total milk volume, marking a low yield per cow in comparison to industrial farms. This production model is characterized by low operational costs, minimal use of expensive feed[3] or veterinary services, and a reliance on seasonal grazing with occasional purchase of better feed.[4] Consequently, it suffers from low efficiency, rudimentary sanitary practices, and significantly lower milk yields per animal. The worsened economy of production is amplified by restricted access to markets. Due to improved quality and safety requirements in 2019[8] when milk safety grades were revised to align with EU standards, access to milk produced in households was significantly restricted due to stricter bacterial and somatic cells count[5] in comparison to milk from industrial farms. Although this sub-sector plays a significant role in local food supply and mitigating food insecurity (especially in rural and front-line areas where processed milk and dairy products are less affordable or even available) it is in steep decline, driven by inefficiency, structural barriers, and war.

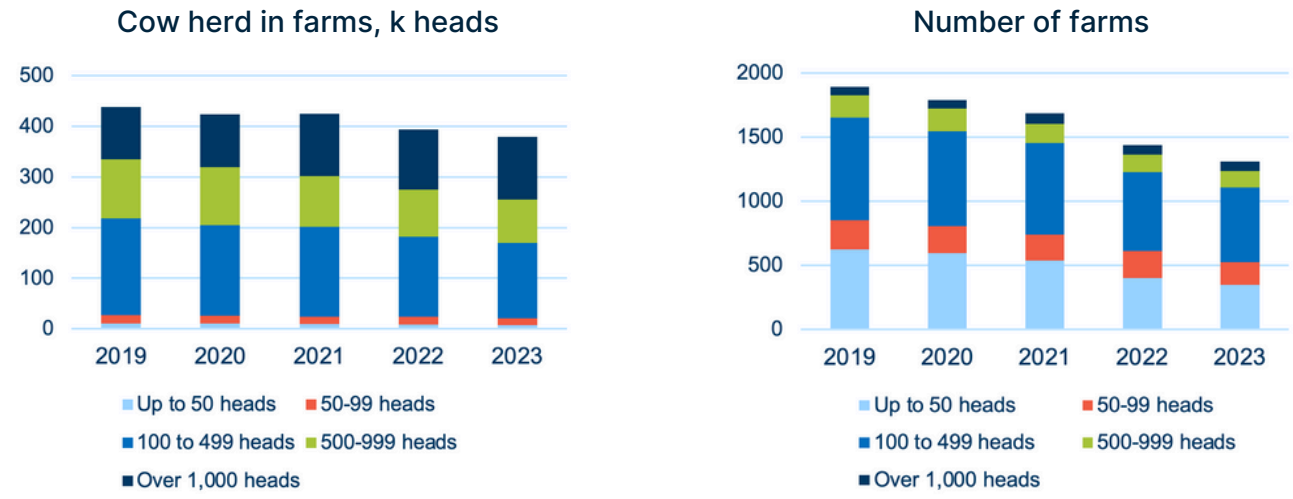
INDUSTRIAL FARMS SUB-SECTOR

Second, the industrial (commercial) farm sub-sector represents the modernizing and commercial[i] side of Ukrainian dairy, producing 90% of raw milk for processing (meeting safety and quality standards)[6]. From 2019 to 2023, the total number of industrial farms fell from 1,894 to 1,309, with the sharpest losses among small farms under 50 head, which dropped by nearly half. Mid-sized farms (100–999 head) also declined steadily in both herd size and

2 Ukrstat. Agricultural activities of households in 2021. www.ukrstat.gov.ua
3 Livestock and Products Annual. USDA. https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=Livestock%20and%20Products%20Annual_Kyiv_Ukraine_UP2025-0027.pdf
4 Current state and trends of cattle rearing, cattle meat and milk sectors in Ukraine. KSE. https://kse.ua/wp-content/uploads/2025/02/Cattle_UA.pdf
5 Yermak et al., Problems of ensuring milk quality in Ukraine in terms of European standards implementation. 2020. https://keypublishing.org/jhed/wp-content/uploads/2020/07/01.-Full-paper-Svitlana-Yermak.pdf
6 Ukrstat. Raw milk processing statistics. https://stat.gov.ua

numbers. Large farms with over 1,000 head showed resilience, growing their herds from 103.6 to 123.3 thousand (Figure 1). By 2023, they represented nearly one-third of the national herd, highlighting a clear shift toward consolidation and large-scale production.

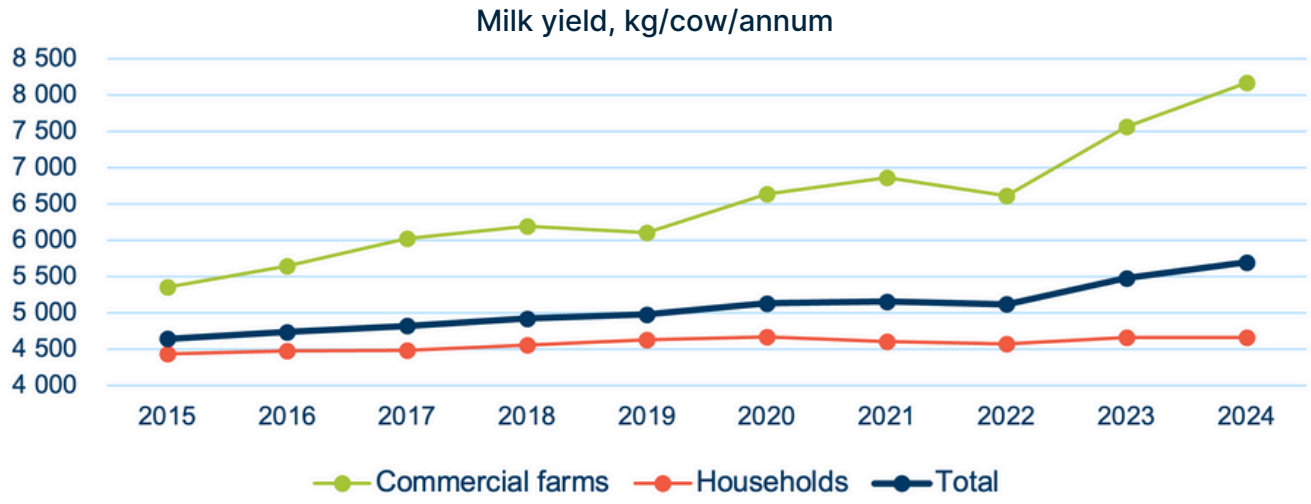
Figure 1. Structure of industrial farms in Ukraine.



Source: Ukrstat

Amidst the structural shifts in herd distribution, another defining trend stands out: the steady and sustained growth in productivity on industrial farms. This momentum, building well before 2022, has only accelerated. From 2015 to 2021, average yields in industrial farms rose by almost 30%, from 5,352 to 6,863 kg per cow per year, from 2015 to 2024, by almost 53% (Figure 2). Despite the disruptions of war, this trajectory not only held but intensified. By 2024, industrial farms reached a record 8,167 kg per cow, nearly 20% above pre-war levels. These gains have been critical in offsetting herd declines, ensuring a stable industrial milk supply. In contrast, household production has remained flat, holding at roughly 4,400–4,600 kg per cow over the last decade.

Figure 2. Milk yield



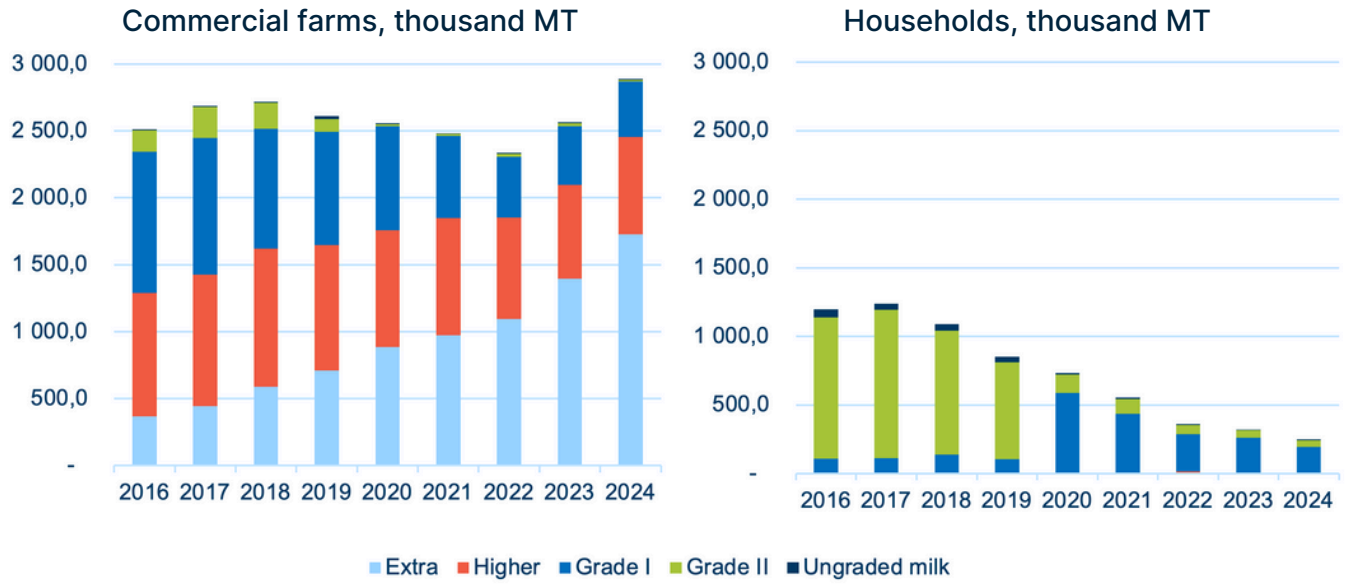
Source: Ukrstat

SAFETY AND QUALITY STANDARDS OF MILK

Milk produced by households and industrial farms meets established safety and quality standards. These are defined by State Standard (DSTU) 3662:2018, which aligns with EU Regulation (EC) No 853/2004. The DSTU set several safety grades (coupled with the requirements concerning the share of dry substances, i.e., fat, protein). "Extra"[ii] grade corresponds to the EU standard for raw milk intended for food business operators, and although full implementation has been delayed by the war, the safety of milk supplied for processing continues to improve.

The volume of extra Grade milk sold for processing[8] (by households and industrial farms) rose from nearly 11% in 2016 to almost 40% in 2021 and reached 55.2% in 2024 (1.728 MMT of 3.129 MMT) (Figure 4). At the same time, low safety milk nearly disappeared in processing: Grade II plus ungraded fell from 33.8% of total purchases in 2016 to about 2.0% in 2024. These gains are led by industrial suppliers, where Extra reached 59.9% in 2024, and Grade II coupled with ungraded, was just 0.5%. Households, by contrast, delivered little Extra/Higher; their 2024 deliveries were dominated by Grade I (about 80%,) with roughly 20% still in Grade II used for non-food processing (feed, casein).

Figure 3. Safety grades of milk supplied for processing

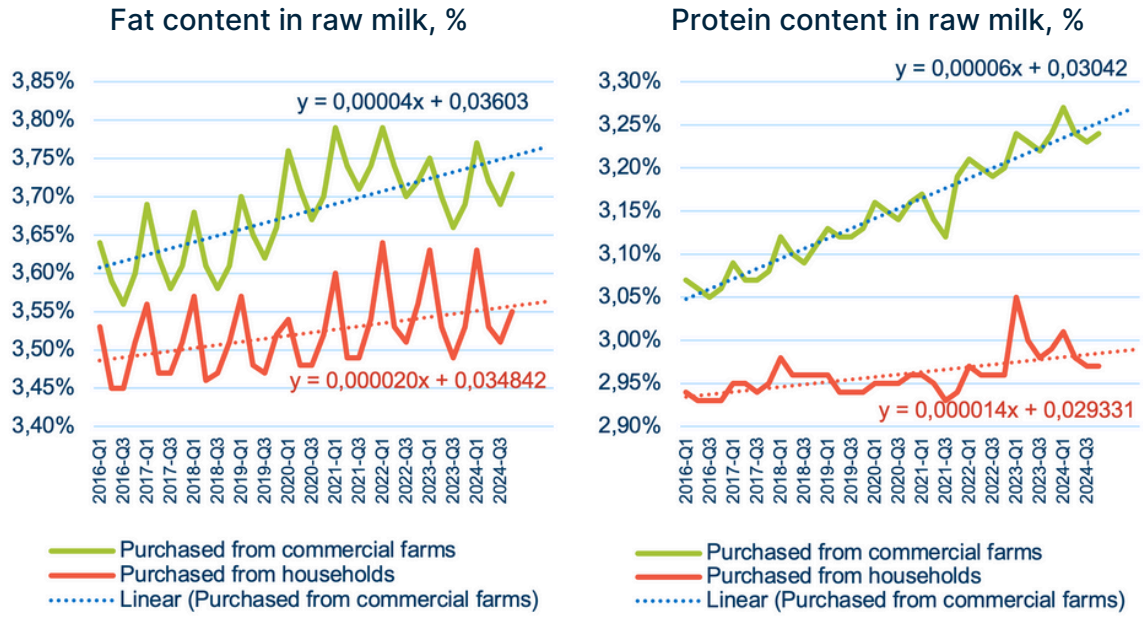


Source: Ukrstat

Under Ukrainian grading standards, quality grades matter commercially as per legislation, only 'extra grade', 'higher grade,' and 'first grade' milk is allowed for food processing. Thus, ensuring milk safety is a fundamental barrier for production commercialization and market integration for a dairy farm. While industrial farms continue to increase both the volume and share of "Extra grade" milk, household milk supply remains predominantly "Grade I," which falls short of safety standards.

Quality characteristics of milk comprise protein and fat content shares. Ukraine's raw-milk supply mix has shifted decisively toward higher quality (Figure 3) as volumes consolidate in professional industrial farms[7]. By 2024 Q4, milk from industrial farms averaged 3.73% fat and 3.24% protein, versus 3.55% fat and 2.97% protein from households, gaps of 0.18 and 0.27 percentage points, respectively. To assess the rate of improvement in fat and protein content, linear trend estimates were constructed. Results show a widening gap: for industrial suppliers, fat content has increased by about 0.016 percentage points per year and protein by 0.024, totalling gains of roughly 0.14–0.22 points since 2016. Household milk improved more slowly, with annual increases of about 0.008 points in fat and 0.0056 points in protein, only 0.07 and 0.05 points over the same period. This, assuming fixed prices for butter and skimmed milk powder (€6.0/kg and €2.5/kg respectively), the quality improvement itself yielded in additional revenue of €25.5/MT in the industrial milk sector and €11.6/MT in the households sector (see Appendix 1).

Figure 4. Fat and protein content in raw milk, linear trends of fat and protein content in households and industrial farms



Source: Authors based on Ukrstat

1.2. THE DAIRY VALUE CHAINS

- **There are two distinct, nearly complementary supply systems: one with low market integration (milk form household)s, and another that is highly integrated into the market (milk from industrial farms).**
- **Household milk is mostly consumed locally: sold to neighborhoods or on local markets (sanitary checks apply).**

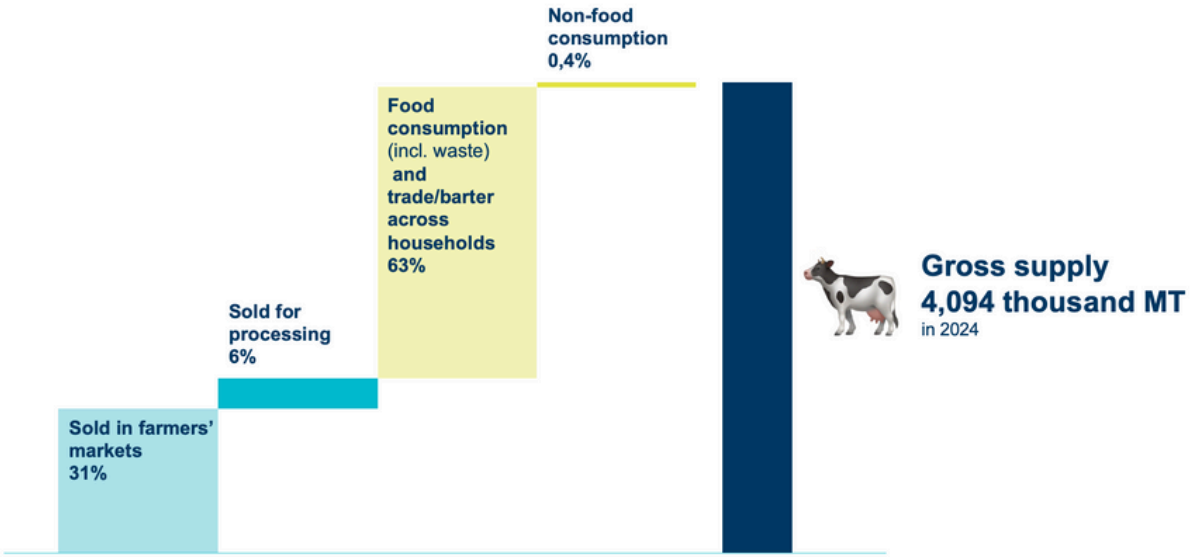
7 Ukrstat. Supply of raw milk to processing (2016-2023). https://stat.gov.ua

- **Persistent 30-40% price gap between industrial and households milk reflects structural exclusion.**
- **Processors primarily concentrate on staple commodities, while diminished access to EU market and predictabilty of terms of trade has been impeding faster growth.**

SUPPLY FROM HOUSEHOLDS

Households accounted for the larger share of raw milk production in 2024, generating 4,093.9 thousand tons (57% of national output). Based on Ukrstat data[iii] we derive the main consumption patterns. Volume of 2,581.1 thousand tons[8] (63% of gross milk production in households) was consumed within households as food and feed (including food waste) and shared within a neighborhood as a means of barter. Remaining 1,512.8 thousand tons (37% of gross milk production in house-holds) are sold via two main channels: (1) neighborhood, local and urban markets (1,269.4 thou-sand tons, or 74% of marketed milk)[7], largely as traditional unprocessed products, sour cream, and cottage cheese[9]; and (2) to processing factories via milk collection points (243.4 thousand tons or 26% of marketed milk) (Figure 5). As the safety and quality standards of that milk lag behind (mainly "Grade I' and "Grade II") the industrial farms' milk, it is mainly for non-food production (casein, lactose, feed) (see Appendix 2 for details).

Figure 5. Households' milk production, supply and consumption.

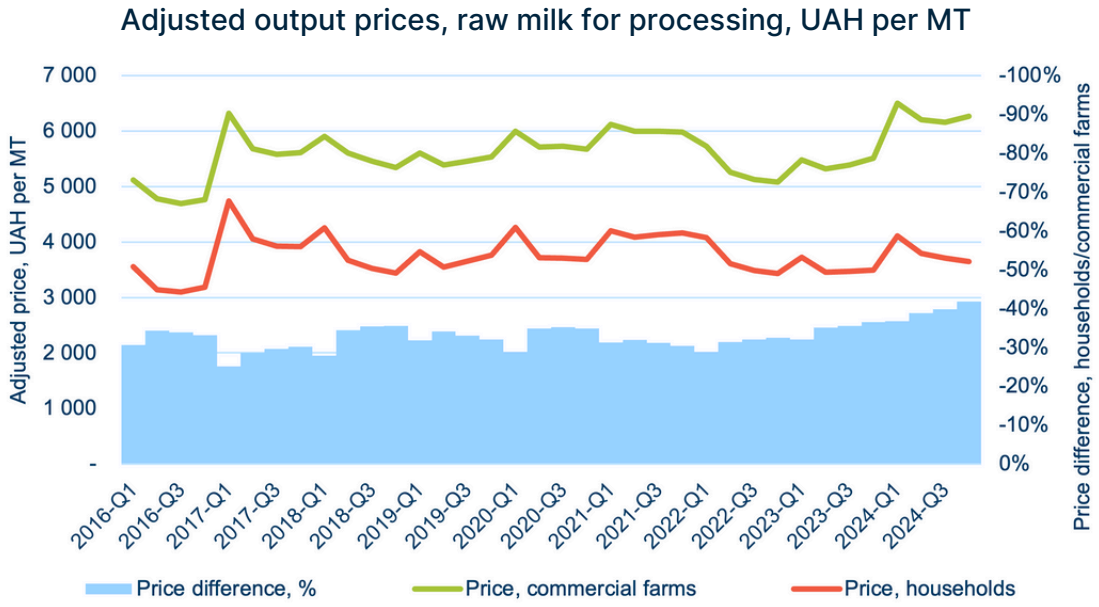


Source: Authors

8 Own analysis based on Ukrstat data. https://ukrstat.gov.ua
9 Farm and dairy. https://www.farmanddairy.com/columns/ukraines-dairy-industry-relies-on-imports-small-household-herds/706247.html

Households sell milk through two main channels: directly to consumers at local and farmers' markets, and for processing. Milk and dairy products sold in local and farmers' markets are subject to quality and safety checks run by regional and local sanitary units of SSUFSCP[10]. According to sanitary regulations, tests identify fat and protein content and the content of macrobiotics of dairy products and milk that are sold directly to final consumers on such markets. Raw milk for processing is delivered to collection points, which may be privately owned, cooperative, or operated by processing enterprises. These sales are typically spot-based, limiting households' bargaining power and strengthening the market position of collection points. The main structural barrier for households is the lower safety and quality of milk, which prevents its use in producing higher-margin processed products. As a result, households receive prices 25–42% lower per litre than industrial farms (Figure 6). The price gap remains stable around 30–35%, narrowing only occasionally to 25%, indicating persistent structural disadvantages rather than short-term market fluctuations.

Figure 6. Prices of milk sold for processing



Source: Authors
Note: The output prices of raw milk sold for processing have been adjusted for the Consumer Price Index (CPI)[11], with 2016 as the base year (2016 = 100).

SUPPLY FROM INDUSTRIAL FARMS

In contrast, industrial **farms** are the industrial producers (capital and labour-intensive) that are deeply integrated into the formal market structures and consistently increasing the milk output (compound annual growth rate - CAGR) of milk output in industrial farms (in 2015-2024) is 1.3%; in households: -6.8%. This happened at the intensive margin (CAGR of cow herd in 2015-2024 is -4%) as a result of farms' technological improvements. They sell the vast

10 https://dpss.gov.ua/en
11 National Bank of Ukraine. https://bank.gov.ua

majority of their output directly to processing plants (from 81% of total milk produced in 2021 to 96% in 2024, with a peak in 2018 – 99%), often under more structured, contractual arrangements[12]. As the primary source of high-quality, standardized raw milk, these farms are indispensable for the production of skimmed milk powder (SMP), cheese, yogurts, whey, and other value-added dairy products that require a consistent supply and safe inputs.

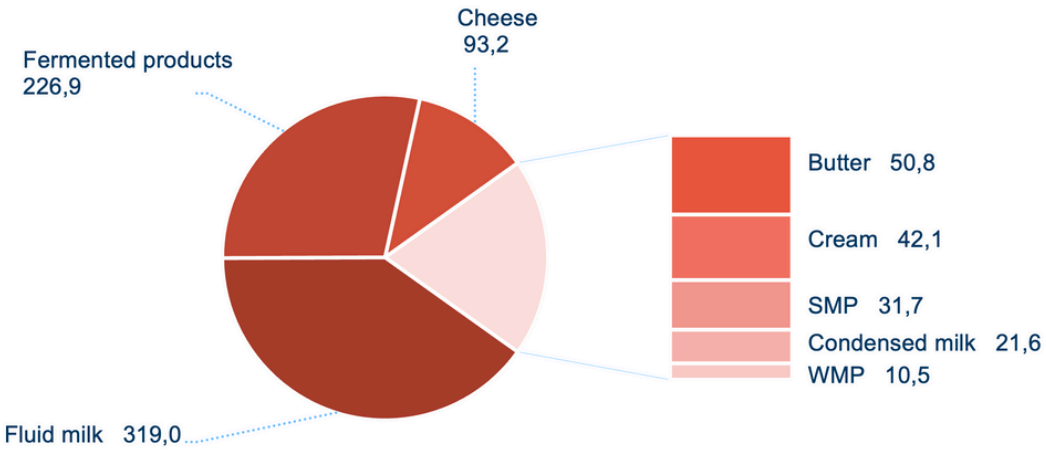
DAIRY PROCESSING

The processing sub-sector in Ukraine is notable for its relatively low level of market concentration compared to other countries. The top eight processing companies in Ukraine controlled 32% in 2017[13] and 33% of the dairy products (including drinking milk) in 2024 (see Appendix 3)[14]. While top-3 Polish milk processors (two of them are cooperatives) control 53% of the market[15], the U.S. DFA handles around 22% of the U.S. raw milk[16]. This landscape includes Ukrainian companies (Terrafood, Yahotynskyi dairy plant, Lustdorf, Ternopil dairy plant, Halychyna, Dairy factory Roshen), major international players such as Danone, Lactalis, and PepsiCo, who operate manufacturing facilities in the country. Processing companies generally are not involved in milk production itself and concentrate on processing raw milk produced by other companies: 97% of companies in terms of market share do not rear livestock[17].

The product mix is diverse, but the core of the industry revolves around commodity and staple products for export[18]: butter, various types of cheese (while soft cheese dominates), skimmed milk powder (SMP), and whole milk powder (WMP), and products for strong domestic orientation (fluid milk, yoghurts, kefir, etc.). During 8 months of 2025, in absolute terms, the production portfolio was dominated by products oriented on domestic market and export to Moldova (fluid drinking milk (319 thousand MT), buttermilk and fermented products (226.9 thousand MT)) and products oriented on both domestic and export markets (cheese -93.2 thousand MT) followed by butter and cream, SMP, condensed milk and WMP).

12 Gereles, Szőllősi. 2021. https://doi.org/10.19041/APSTRACT/2021/3-4/11
13 Fedets, Movchan. 2020.https://me.gov.ua/download/609be069-a4ec-461e-813d-af8d46215d12/file.pdf
14 Ukrstat. Financial reports of firms in 2024 https://data.gov.ua
15 Companies press releases (Mlekovita, Mlekopol, Polmlek).
16 DFA. 2017. Main trends of dairy industry in Ukraine https://www.cabidigitallibrary.org/doi/pdf/10.5555/20220565980
17 YouControl.Market
18 Clai. www.clal.it

Figure 7. Main dairy products' portfolio in 2025, thousand MT



Source: Ukrstat

CONSUMPTION AND EXPORTS

The final links in the chain are **domestic consumption and foreign trade.** Per capita consumption of dairy products in Ukraine has historically been at a similar level to neighbouring countries but below the level to achieve SDG-2030 (380 kg per annum)[31]. In 2021, it stood at 207 kg per year[19], worsening in 2022-2023 (206 and 202 kg per capita per annum) but showing recovery in 2024 (estimated 209 kg per capita per annum)[20], which is comparable with Poland (225 kg/annum), Slovakia (190 kg/annum)[21]. The war initially depressed total consumption, as 5-6 million refugees, predominantly women and children, who are active dairy consumers, left the country[22].

EU-27 consumption levels are broadly balanced across milk (53 kg as of 2024), cheese (21 kg), butter (4 kg), and milk powders (1–2 kg). Ukraine's consumption is dominated by fluid milk (92 kg in 2024) and remains much lower in processed products: cheese (4 kg), butter (1,5 kg), SMP (0,18 kg), and WMP (0,16 kg). The ratio of liquid to processed dairy is therefore far higher in Ukraine than in the EU. This likely reflects the lower purchasing power of consumers, who tend to choose cheaper drinking milk, often from their own production, over higher-priced processed dairy products.

19 UCAB & Ministry of Agrarian Policy and Food of Ukraine. Agricultural production balance sheet. https://minagro.gov.ua/
20 MAPF. Food Balances in 2024.
21 Eurostat. 2025
22 UNHCR office. https://data.unhcr.org/en/situations/ukraine

Table 1. Per capita consumption of processed dairy products, kg/annum

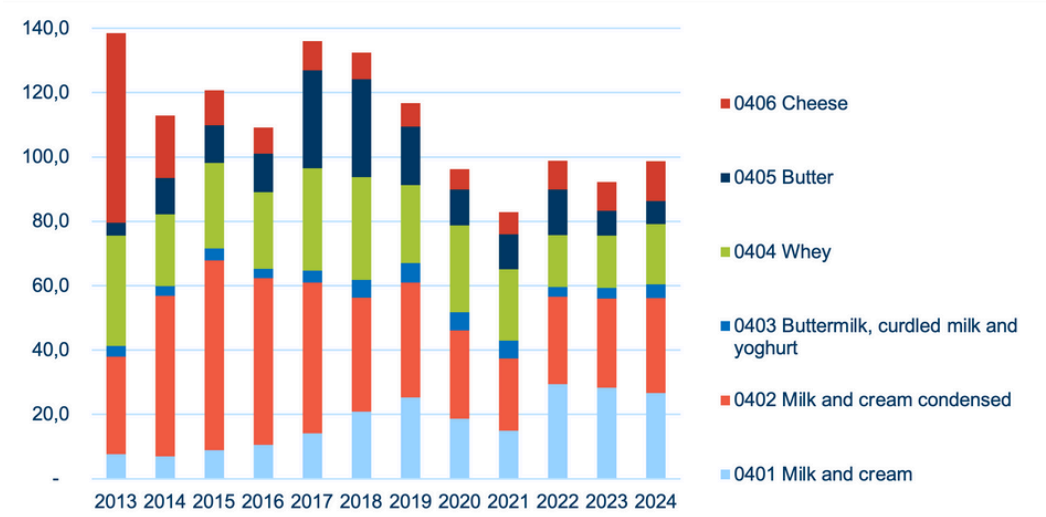
		2020	2021	2022	2023	2024
Milk	EU-27	53,92	53,71	53,36	53,13	53,04
	Ukraine	112,47	111,97	106,87	102,06	92,18
Butter	EU-27	4,27	4,32	4,28	4,23	4,11
	Ukraine	1,86	1,63	1,27	1,54	1,53
Cheese	EU-27	20,54	20,66	20,63	20,86	21,14
	Ukraine	4,97	5,19	4,26	4,37	4,31
SMP	EU-27	1,78	1,68	1,9	1,68	1,61
	Ukraine	0,47	0,47	0,1	0,13	0,18
WMP	EU-27	0,94	0,84	0,9	0,9	0,97
	Ukraine	0,18	0,2	0,17	0,16	0,16

Source: Clal

Ukraine's dairy trade is highly sensitive to global market dynamics and lacks stable long-term outlets (Figure 8). Most export growth periods correspond to global price surges or short-term demand spikes. For instance, exports of milk and cream (HS 0401) expanded rapidly between 2014 and 2021, when global milk prices rose, and new destinations such as Qatar emerged during the 2016-2017 price upturn. Condensed milk and cream (HS 0402) reached record levels in 2015–2016, coinciding with the international price surge that began in 2016, before declining as global demand weakened. The 2017–2018 boom in butter exports (HS 0405), rising from 12 thousand MT to over 30 thousand MT, was directly linked to a global butter price spike that increased profitability and pushed producers to export more. Similarly, whey (HS 0404) exports surged in 2017 after China tripled its imports, but volumes collapsed in subsequent years when global supply expanded and prices fell.

By contrast, products not tied to world price spikes or high-demand markets, such as buttermilk, curdled milk, and yoghurt (HS 0403), showed only gradual changes, reflecting weaker external incentives. Cheese (HS 0406) exports demonstrate another pattern of volatility: after Russia's 2014 import ban eliminated 80 % of Ukraine's main market, volumes dropped fourfold and never fully recovered, despite temporary gains in 2022 when tariff- and quota-free access was introduced.

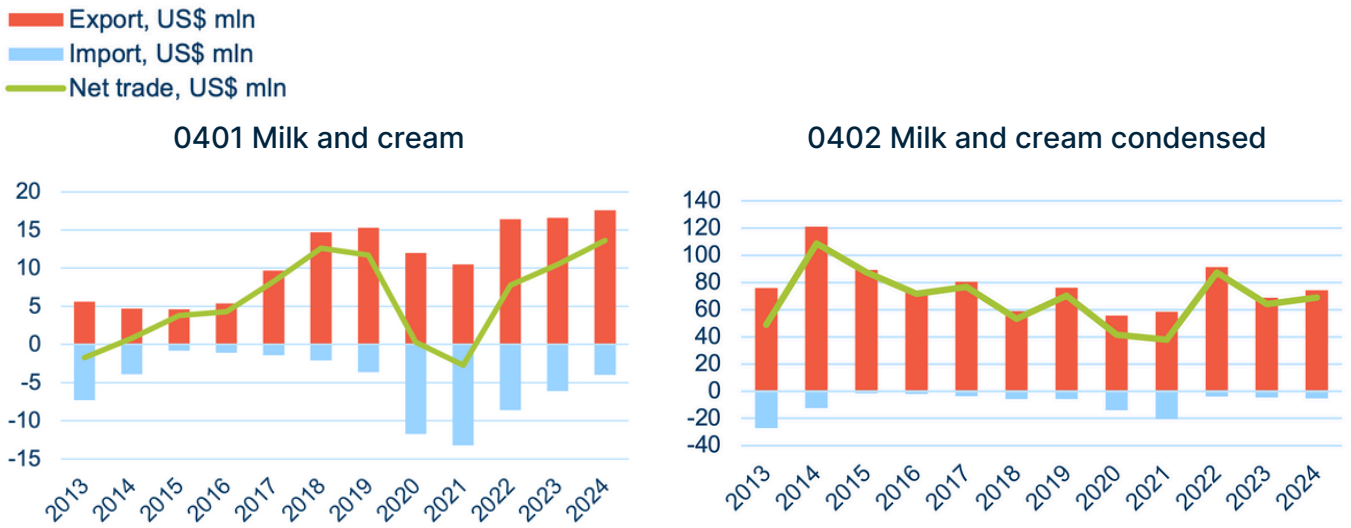
Figure 8. Structure of exports (thousand MT)

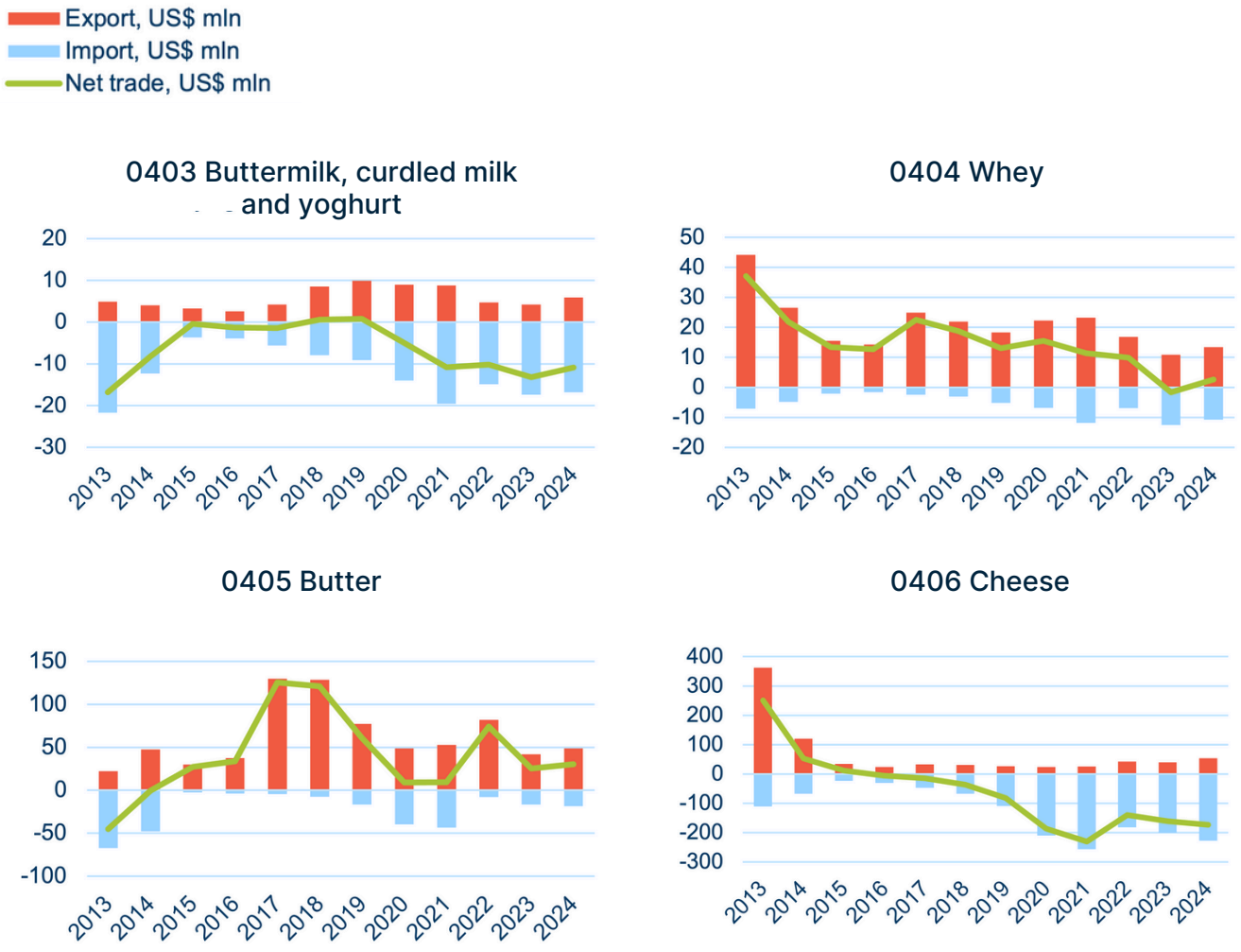


Source: ITC Trade map

Ukraine's dairy trade balance shifted sharply after 2014 due to market loss, global price shocks, and shifting competitiveness. Milk and cream (HS 0401) moved from deficit to surplus, while condensed milk and cream (HS 0402) remained the most stable and profitable line, benefiting from steady demand in traditional CIS and Middle Eastern markets. Buttermilk, curdled milk, and yoghurt (HS 0403) stayed negative in the balance of trade due to shrinking production coupled with increased imports from Poland and the EU (especially after 2017). Whey (HS 0404) generated temporary surpluses when Chinese demand surged in 2017–2018, but weakened as global prices and volumes fell. Butter (HS 0405) achieved record trade gains during the global butter price boom but moderated later as competition intensified. In contrast, cheese (HS 0406) collapsed from a strong surplus to a deep and persistent deficit following Russia's and Kazakhstan's 2014 import ban, as Ukraine failed to replace its main market, coupled with growing imports from the EU (Figure 7).

Figure 9. Foreign trade in dairy products





Source: ITC Trade Map

1.3 COMPARATIVE ANALYSIS: UKRAINE VS. POLAND

- **EU accession transformed Polish dairy sector: investments pushed the structural changes, open market incentivized producers.**
- **No structural dualism in Poland.**
- **Polish milk yields comparable to Ukraine's industrial farms but systemwide.**
- **Poland exports one-third of milk; Ukraine is barely self-sufficient.**

Poland is the EU's third-largest milk producer (after Germany and France), third-largest butter producer, fourth-largest cheese producer, with an average milk yield of 7,312 litres/cow/year in 2024[23]. At the same time, Poland joined the EU in 2004 and transformed into a large agricultural producer in the EU.

In terms of **production scale and trajectory,** the two countries have moved in opposite directions. While Ukraine's output has been in long-term decline, Poland has transformed into a major EU dairy power. In 2024, Poland produced over 16 million MT of milk (in 2004 production was 11 MMT), more than double Ukraine's output[24]. This growth has been consistent since 2004, with Polish milk production increasing by a remarkable 45% by 2022, a testament to the transformative impact of EU integration and access to the Common Agricultural Policy (CAP)[25].

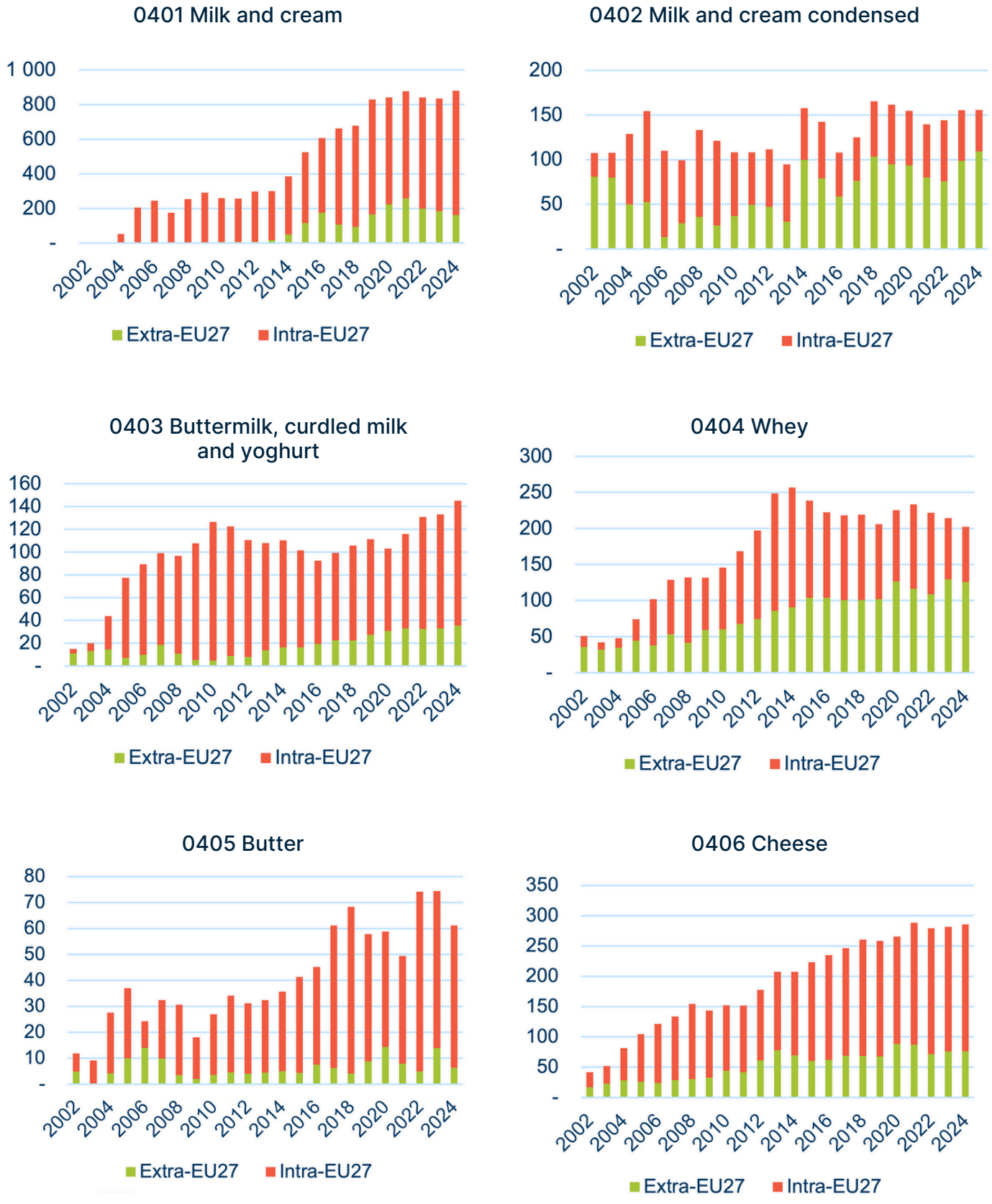
The farm structure and productivity in both nations have seen significant consolidation. Poland experienced a 78% reduction in the number of dairy farms between 2004 and 2022, a process of concentration that mirrors the trend now accelerating in Ukraine. Moreover, after joining the EU, households rearing cows had either to halt production or modernize in order to complete the market integration; hence, there are no such phenomena as dualistic production in Poland as there is in Ukraine.

In the Polish system, farms with 30 or more cows are considered the competitive backbone of the industry, producing between 60% and 70% of the national milk supply[26]. While in Ukraine, farms of 100-500 cows are the main players on the market. Polish average milk yield per cow reached 7,312 liters in 2023. While this national average is below the record 9,000 kg/year achieved by Ukraine's top industrial farms in 2024 (e.g., Astarta), it represents a much higher baseline across the entire Polish production system, which is not weighed down by the household sector as a separate group of producers.

The divergence is most stark in the **processing and value-addition** segment. Poland's processing industry is highly developed and fully integrated in the EU market. The average share of EU countries in trade before the accession in 2004 was 30%; in 2024, it grew to 70%. The export volumes increased steadily and rapidly (growing on average 10% per year), driven by the increasing supply of quality milk from modernized farms (36.5% of all milk delivered to Polish dairies was processed into products for export[27]) and open access to the EU common market (Figure 10). In contrast, the Ukrainian dairy processing sector exhibits a predominantly price-responsive behavior, adjusting production volumes and export composition in reaction to fluctuations in international market prices for specific products.

23 Eurostat
24 Eurostat. https://ec.europa.eu/eurostat
25 Quick scan Polish dairy sector. https://www.agroberichtenbuitenland.nl/actueel/nieuws/2020/10/21/quick-scan-polish-dairy-sector
26 Polish Dairy Farm Transformations and Competitiveness 20 Years after Poland's Accession to the European Union - AGRIS, https://agris.fao.org/search/en/providers/122436/records/675ad7250ce2cede71d2dde9
27 Clal. https://www.clal.it/en/index.php?section=quadro_europa&country=PL

Figure 10. Poland's export intra- and extra-EU 27 (after 2020), thousand MT



Raw milk quality is another critical point of differentiation. As an EU member, Poland must adhere to and fully comply with stringent quality and safety standards (that correspond with Ukrainian "extra grade" milk). While the quality of milk from Ukraine's industrial farms meets EU safety levels (60% of total milk sourced from industrial farms[8] compliant with EU standards for milk suitable for human consumption), the large volume of lower-quality milk from the household sector creates a significant national quality deficit compared to supply available to Polish processors (95% of raw milk from randomly selected 104 farms meet "extra grade" milk standard)[28]. Hence, more than half of the Ukrainian milk supply cannot be processed into food products, and value addition is limited to only industrial farms' supply, further shrinking the supply base for processing.

Finally, in terms of **consumption and self-sufficiency,** the two countries have similar per capita consumption levels. Polish consumption was estimated at 214 kg/year in 2022, comparable to Ukraine's 209 kg/year in 2024. Poland's high output gives it a milk self-sufficiency level of 121%, meaning over one-fifth of its entire production is a structural surplus available for export[20]. Ukraine, in contrast, reaches a milk self-sufficiency level of only 100.3%[29], leaving virtually no structural surplus available for export.

1.4. DAIRY SEGMENT IN FOOD SECURITY

- **Dairy ensures caloric and nutrient stability in remote areas, households, and close to warfare.**
- **Availability remains (domestic production coupled with increased imports), but affordability severely worsened due to the war.**
- **Nutritional intake needs improvement in absolute values: dairy protein is 15% of total intake, fat 22%; however, it is 41-47% less in absolute terms than in Poland.**
- **While the sector demonstrates resilience, underlying vulnerabilities persist; ongoing war, high input costs, and constrained consumer budgets continue to pose significant risks to dairy production.**

Dairy products are the source of 10% (294 kcal/day/person) of daily calorie intake in Ukraine (2022), making it the second most important source of calories after wheat products (778 kcal/day/person)[30]. We assess dairy segment of food security in Ukraine based on four dimensions: dairy physical availability, dairy economic affordability, dairy nutritional

28 Pyz-Łukasik et al. Quality of raw cow's milk intended for processing and retail sale from Eastern Poland. 2024. dx.doi.org/10.21521/mw.6967
29 Clal. Ukraine: dairy sector. https://www.clal.it/en/?section=stat_ucraina
30 Faostat. https://www.fao.org/faostat/en/#data/FBS

utilization, and stability of availability, affordability, and utilization.

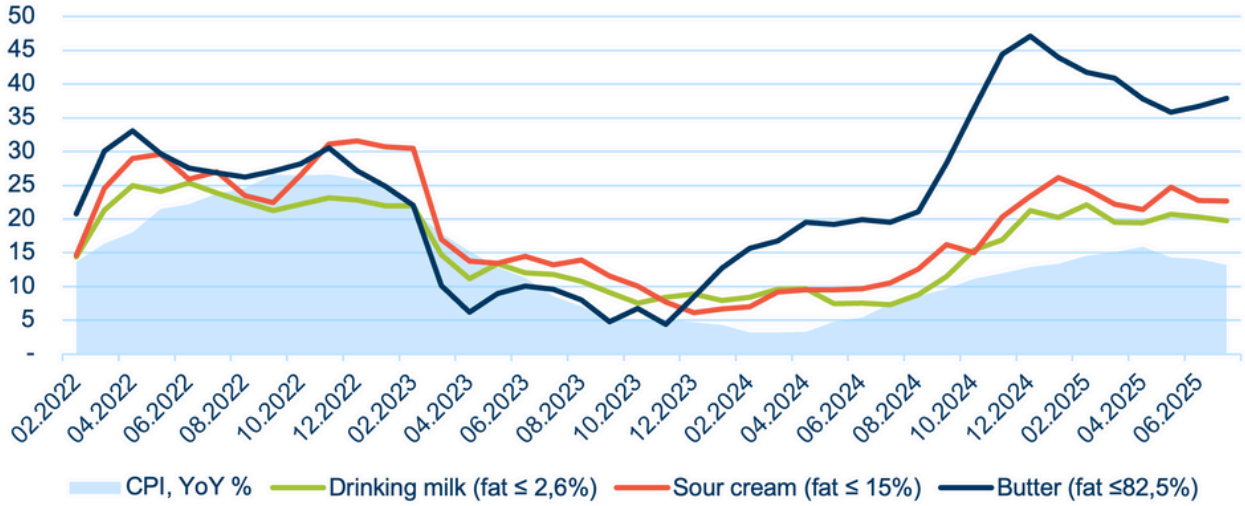
Dairy physical availability: Domestically, the sector is fundamental to the availability of essential foodstuffs. This is particularly true in rural communities, where subsistence and small-scale household production provide food, acting as a crucial safety net during economic hardship and war. At the national level, despite the significant decline in overall production (-17% change in 2022-2024), a total capacity of 6 million tons indicates that the sector can meet domestic demand for traditional dairy products (milk, cheese, cottage cheese, butter) without shortages[31]. Imported dairy products (e.g., condensed milk (+20% YoY, 2024), cheese (+14% YoY, 2024)) balance the market when domestic processing lacks capacity to satisfy the demand.

Dairy economic affordability: The war has placed severe pressure on the affordability of dairy products for Ukrainian consumers (CPI in 2022 peaked at 26% YoY)[32]. The conflict has driven up key production costs, particularly for feed, energy, and logistics[33], which has translated directly into higher retail prices. Agricultural households report[34] similar constraints in livestock production that create pressure on dairy product prices. Another factor contributing to increasing pressure on domestic prices is the world reference price for dairy products, in 2021-2022 FAO Food Index[35] fluctuates from 120 to 130.

On the domestic market, in mid-2024, year-on-year price increases for staple dairy items like butter and cheese ranged from 21% to 47%[36]. This inflation has a significant impact on a population whose disposable incomes have been eroded by the war (internally displaced persons, pensioners, families with children). This trend was exacerbated in the latter half of 2023, when a surge in raw milk procurement prices to a ten-year high further squeezed consumer budgets. In such cases, the milk and dairy products produced in households can partially mitigate the effect price surge; however, due to increased feed prices, rearing livestock in households remains unprofitable[37]. Given the dominance of households in production, their role is substantial in supporting the population with affordable calories.

31 Infagro. Food safety and the dairy industry of Ukraine. 2023. https://infagro.com.ua/eng/food-safety-and-the-dairy-industry-of-ukraine/
32 National Bank of Ukraine. https://bank.gov.ua
33 MAPF. Ukraine: impact of the war on agriculture profitability. https://minagro.gov.ua/storage/app/sites/1/uploaded-files/Impact%20of%20the%20War%20on%20Agriculture%20Profitability_Issue%204.pdf?%5F%5Fcf%5Fchl%5Ftk=miC3%2EtnmAYuyHJfvNt7aEsbv7PE3JBUtixUzF6InwmE%2D1718707806%2D0%2E0%2E1%2E1%2D4095
34 WFP, FAO and KSE. 2025. Joint Food Security and Livelihood Assessment of Frontline and Bordering Regions in Ukraine. May 2025. Kyiv
35 FAO Food Price Index. https://www.fao.org/worldfoodsituation/foodpricesindex/en/
36 Ukrstat. https://stat.gov.ua
37 Pyvovar, Rozhkov. 2023. Current state and trends of cattle rearing, cattle meat and milk sectors in Ukraine

Figure 11. Price indices for dairy products and CPI index, (YoY, %)



Source: Authors based on Ukrstat

Dairy nutritional utilization: Dairy products are a key source of nutrients, supplying essential protein, fat, calcium, and micronutrients. In Ukraine, dairy protein accounts for 15% of total protein intake (18.9 g/person/day) and dairy fat for 22% of total fat intake (13.5 g/person/day)[38]. Despite similar proportional shares to Poland, where dairy provides 22.3% of protein and 22.9% of fat, Ukrainians consume 47% less dairy protein and 41% less dairy fat in absolute terms.

Stability: The stability of the dairy supply chain has been profoundly threatened by the war. The sector faces a constant barrage of risks that could disrupt supply at any moment (including direct physical destruction of dairy farms and processing facilities, widespread energy blackouts that cripple essential processes like milking and refrigeration, acute labor shortages caused by military mobilization and population displacement, and severe logistical disruptions from damaged infrastructure)[39]. While affordability remains weaker than before 2022, demand is balanced by domestic and imported ready products, contributing to the stable availability of dairy products.

2. A REGIONAL DISAGGREGATION OF UKRAINE'S DAIRY SECTOR

- **Production geography split: growing central "dairy bowl" vs. collapsing east and south; west is transforming toward industrial farms.**

38 FAO. Food Balances, Ukraine & Poland protein and fat intake. 2022. https://www.fao.org/faostat/en/#data/FBS
39 EU, UN, GoU, World Bank: Ukraine - Fourth Rapid Damage and Needs Assessment. 2025.http://documents.worldbank.org/curated/en/099022025114040022

- **Four industrial (commercial) farm clusters and four household clusters reflect structural changes where proximity to processors is pivotal.**
- **Industrial recovery is centred in the central oblasts and is gradually expanding to the western regions, which have historically had a significant proportion of household milk production.**

2.1. THE "DAIRY BOWL" OF UKRAINE

This section expands Part 3 of the study *"Current State and Trends of Cattle Rearing, Cattle Meat and Milk Sectors in Ukraine"*[5] by introducing a more rigorous methodology for regionalizing milk production. Given the uneven spatial distribution of dairy producers, identifying production clusters is essential for mapping supply chain actors and detecting bottlenecks (to be included in forthcoming Volume II of this study), as milk production, processing, and retail are highly sensitive to market proximity[40]. To this end, cluster analysis was applied to group Ukrainian regions by their gross milk production dynamics for 2019–2024, using hierarchical clustering (Ward's method).

Ward's[41] method identifies the minimum of the total within-cluster variance (Error Sum of Squares (ESS)) at each merge step. It fuses clusters that cause the smallest rise in ESS, reflecting variance from cluster centroids. The number of clusters was identified using Duda index, which tests whether adding clusters doesn't sufficiently reduce the within-variance relative to between and dendrograms for visual identification. For industrial farms (Figure 12) the tests and dendrogram's investigation confirmed five regional clusters, for households, four clusters (Figure 13).

To visually investigate the link between milk production and milk processing across regions, the financial reports data (revenues in 2024, location, firm ID - EDRPOU) of dairy processing entities were used (Figure 12). The total number of firms and FOPs with respective code of economic activity is more than 1600, however only 331 companies reported revenues in 2024 which is used as proxy for market size (FOPs are the rest). The analysis, however, has a drawback as the location of registration was mapped, not the actual production facility cite.

INDUSTRIAL DAIRY FARMS CLUSTERS

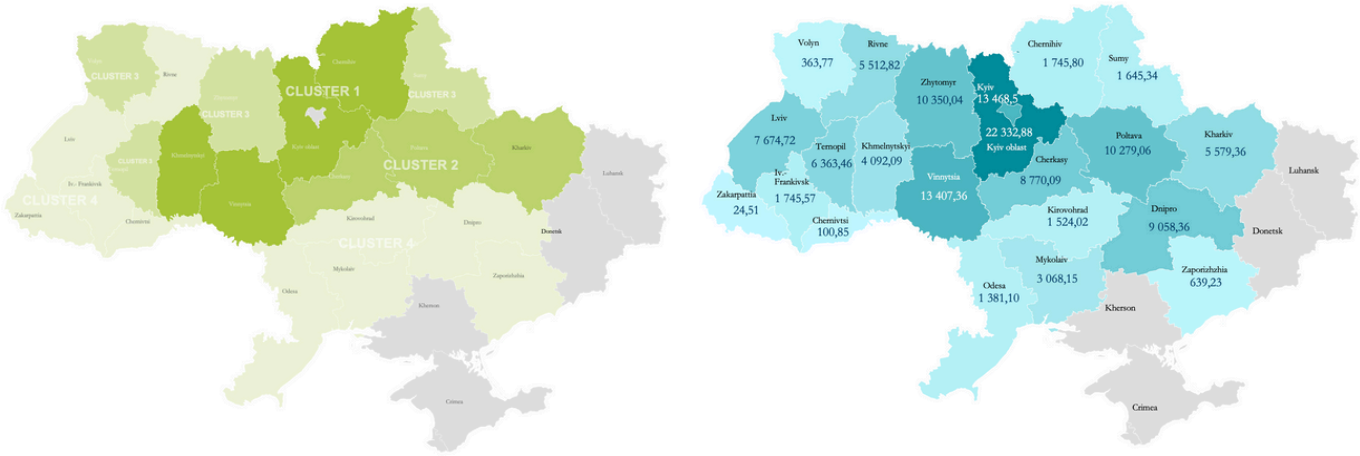
The full-scale Russian invasion has had a profoundly asymmetric impact on Ukraine's dairy industry, especially in eastern and southern oblasts, which faced direct hostilities,

40 van der Lee et al., Effects of proximity to markets on dairy farming intensity and market participation in Kenya and Ethiopia https://doi.org/10.1016/j.agsy.2020.102891

41 Randriamihamison et al. Applicability and interpretability of Ward's hierarchical agglomerative clustering with or without contiguity constraints. https://hal.science/hal-02294847v2

occupation, and repeated attacks on agricultural and energy infrastructure. Before 2022, these regions collectively produced around 24% of Ukraine's industrial milk, but by 2025 the production had reduced twice, and data is not available for in Kherson, Dontesk and Luhansk oblasts for post-2022. Zaporizhzhia oblast recorded an 88% reduction in its industrial dairy herd since 2021 and an 87% fall in milk output, while Kharkiv oblast, once a major pre-war production center, saw its industrial herd shrink by 47% and milk production fall by 45%.

Figure 12. Milk production clusters industrial farms in 2019-2024, and revenues of dairy processing firms (2024) in mln UAH (right hand side map).



Source: Authors

Clusters 1–3 (Table 2, Figure 12), located in the central and northern regions, corresponded to the safer zone (analysis does not address intensified shelling of Chernihiv and Sumy in 2025) and benefited from proximity to large processing plants. Between 2019 and 2024, these clusters showed substantial increases in raw milk production (from +19% to +32%) and high dairy processing output per firm, with annual averages exceeding 500 mln UAH in Clusters 1 and 2. Their expansion demonstrates both the resilience of the industrial segment and the role of central regions as processing hubs connected to major enterprises such as Terra Food, Milk Alliance, Danone, and Roshen.

By contrast, Clusters 4 and 5 encompass areas where historically households dominated in milk production along with southern and eastern regions (Mykolaiv & Zaporizhzhia, cluster 4; Kharkiv, cluster 5) that are most exposed to war-induced shocks. Cluster 4, spanning ten southern and western oblasts, recorded a 3% decline in milk collection despite hosting the largest number of processing firms. Its smaller average processing revenue (251.9 mln UAH per firm) indicates fragmentation and potentially limited scale efficiency. Cluster 5 (Kharkiv) represents the distinct territory severely affected by the war, with a 32% drop in milk production and heavy destruction of industrial farms and logistics.[40]

Table 2. Industrial farms' dairy production clusters and processing firms' performance in 2024

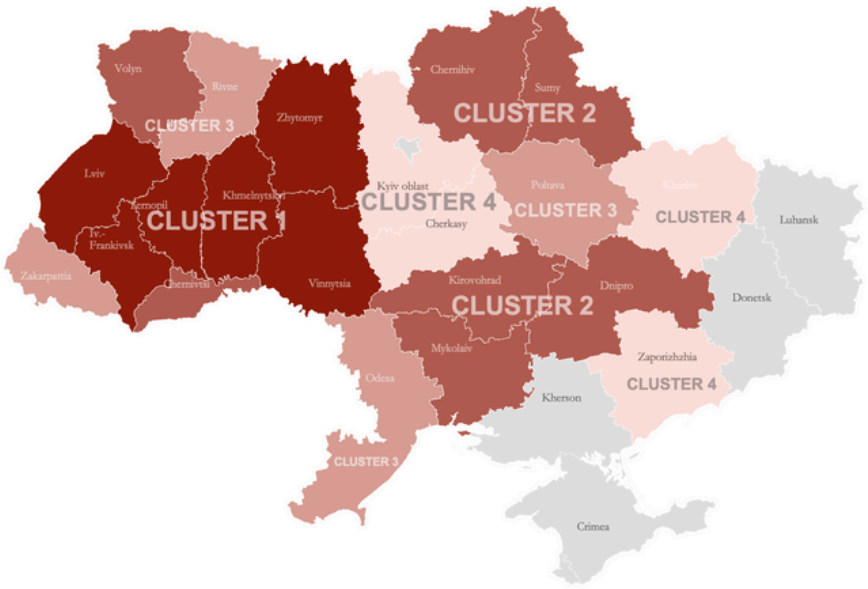
Cluster, Regions	2019 raw milk production (kMT)	2024 raw milk production (kMT)	Δ raw milk production (kMT)	Δ% raw milk production	Gross processing output (mln UAH)	Number of processing firms	Average output mln UAH per firm
1 - Vinnytsia, Kyiv (oblast, city), Khmelnytskyi, Chernihiv	836,6	1 055,4	218,8	26%	55 046,6	104,0	529,3
2 - Cherkasy, Poltava	688,1	817,6	129,5	19%	19 049,1	36,0	529,1
3 - Volyn, Ternopil, Zhytomyr, Sumy	457,3	601,9	144,6	32%	18 722,6	47,0	398,4
4 - Zaporizhzhia, Dnipropetrovsk, Zakarpattia, Chernivtsi, Odesa, Kirovohrad, Ivano-Frankivsk, Rivne, Lviv, Mykolaiv	367,1	354,7	-12,4	-3%	30 729,3	122,0	251,9
5 - Kharkiv	241,3	163,4	-77,9	-32%	5 579,4	19,0	293,7

Source: Authors based on Ukrstat, YouControl

HOUSEHOLDS' DAIRY PRODUCTION CLUSTERS

In parallel with industrial farms, small household producers of milk exhibit distinct spatial patterns and wartime dynamics (Figure 13). The four clusters for household producers differ from those for industrial farms. Cluster 1, the largest in terms of production volumes, encompasses western regions, areas of the most modest milk production in industrial farms (except Vinnytsia and Khmelnytskyi). Cluster 2 is fragmented; its eastern part is divided by the Poltava region. Cluster 4 comprises two large regions leading in milk production in industrial farms (Kyiv and Cherkasy) and severely war-affected regions (Kharkiv and Zaporizhzhia). Cluster 3 does not exhibit a clear spatial distribution pattern and is the most geographically fragmented.

Figure 13. Households milk production clusters in 2019-2024



Source: Authors

Household milk output declined across all clusters between 2019 and 2024, but the magnitude and causes varied sharply. The most moderate contraction occurred in Cluster 1 (Zhytomyr, Ivano-Frankivsk, Lviv, Khmelnytskyi, Ternopil, Vinnytsia), where production fell by 29% (–750 thousand MT of gross production) (Table 3). These western and central regions remained relatively secure as they were not exposed to vast damage and absorbed large numbers of displaced people, sustaining local demand and partially cushioning rural producers from sharper losses.

Cluster 2 (Rivne, Poltava, Odesa, Zakarpattia) showed a comparable but slightly deeper decline of 37% (–622 thousand MT). The smaller absolute base and prevalence of subsistence-oriented production limited exposure to market disruptions. Low integration with processing chains meant households could redirect milk to informal or local markets, slowing the rate of contraction despite weak modernization incentives.

By contrast, Clusters 3 and 4 were much harder hit. Cluster 3 (Volyn, Sumy, Mykolaiv, Kirovohrad, Dnipropetrovsk, Chernivtsi, Chernihiv) lost 22% (–273 thousand MT), reflecting even deeply deteriorating production economics in areas closer to frontlines or affected by logistics and input cost shocks. Here, processors' inability to offer remunerative prices (due to technical barriers in quality and safety) undermined household participation, while limited diversification left producers vulnerable to market withdrawal.

Cluster 4 (Zaporizhzhia, Kharkiv, Cherkasy, Kyiv) recorded the steepest fall - a 69% (–538 thousand MT) as warfare, occupation, and displacement directly destroyed household herds and further weakened local marketing networks (urban and farmers' markets). The near collapse of small-scale production in this cluster reflects both acute conflict exposure and structural dominance of industrial farms, which increasingly replaced household suppliers in the milk chain.

Across clusters, the uneven pattern stems from two interacting forces: geographic exposure to war-related disruption and structural differences in dairy organization. Regions where industrial farms were already strong saw faster household exits. FAO assessment[42] confirms that household producers entered the war period with constrained access to credit, feed, and technology, and an ageing labor base. These pre-existing weaknesses magnified wartime shocks, explaining why Clusters 3 and 4 suffered disproportionately while western areas maintained partial resilience.

Table 3. Households' dairy production clusters

Cluster, Regions	2019 raw milk production (k MT)	2024 raw milk production (k MT)	Δ raw milk production (k MT)	Δ% raw milk production
1 - Zhytomyr, Ivano-Frankivsk, Lviv, Khmelnytskyi, Ternopil, Vinnytsia	2,606	1856	-750	-29%
2 - Rivne, Poltava, Odesa, Zakarpattia	1669	1047	-622	-37%
3 - Volyn, Sumy, Mykolaiv, Kirovohrad, Dnipropetrovsk, Chernivtsi, Chernihiv	1246	973	-273	-22%
4 - Zaporizhzhia, Kharkiv, Cherkasy, Kyiv	780	242	-538	-69%

Source: Authors based on Ukrstat, YouControl

3. LEGAL REGULATION OF CATTLE AND DAIRY FARMING IN UKRAINE

Basic Laws

- Law of Ukraine "On Milk and Dairy Products" No. 1870-IV of 24.06.2004
- Law of Ukraine "On Identification and Registration of Animals" No. 1445-VI of 04.06.2009
- Law of Ukraine "On Veterinary Medicine" No. 1206-IX of 04.02.2021

42 FAO. Improving Milk Supply in Northern Ukraine. 2013. https://openknowledge.fao.org/handle/20.500.14283/i3446e

- Law of Ukraine “On the Basic Principles and Requirements for Food Safety and Quality” No. 771/97-VR of 23.12.1997 (as revised in 2015)
- Law of Ukraine “On State Control Over Compliance With Legislation on Food, Feed, By-products of Animal Origin, Animal Health and Welfare” No. 2042-VIII of 18.05.2017
- Law of Ukraine “On Breeding in Animal Husbandry” No. 3691-XII of 15.12.1993
- Law of Ukraine “On Feed Safety and Hygiene” No. 2264-VIII of 21.12.2017

Secondary Legislation and CMU Resolutions

- CMU Resolution No. 918 of 16.08.2022 “On Approval of the Procedure for Using Funds Provided in the State Budget to Support Agricultural Producers”
- CMU Order No. 76-r of 31.01.2025 “On Approval of the Concept of the State Targeted Economic Program for the Development of Animal Husbandry for the Period until 2033”
- Ministerial Orders and Technical Regulations
- Order of the Ministry of Agrarian Policy No. 118 of 12.03.2019 “On Approval of Hygiene Requirements for the Production of Raw Milk”, as amended

3.1. OVERVIEW OF UKRAINIAN LEGISLATION

The key legal act is the Law of Ukraine “On Milk and Dairy Products” No. 1870-IV of 24.06.2004, which establishes the legal and organizational framework for the production of high-quality and safe milk, dairy raw materials, and products. This law has been amended multiple times (latest version effective from 01.10.2023), reflecting changes in policies and standards. It defines terms (e.g., raw milk, dairy raw material, traditional dairy products) and sets quality requirements for milk. In particular, it obliges producers to obtain a production certificate for dairy products and requires farms keeping cows and selling milk to have veterinary health certificates for animals.

The Law of Ukraine “On Identification and Registration of Animals” No. 1445-VI of 04.06.2009 establishes mandatory cattle registration: each cow must be tagged (individual ear tag) and registered in the central database with owner and location details. This system enables tracking of animal movements, disease outbreak control, and planning for sector development.

Veterinary legislation directly affects dairy farming. The Law of Ukraine “On Veterinary Medicine” No. 1206-IX of 04.02.2021 (replacing the 1992 law) modernized approaches to animal health and welfare. It introduced European principles of veterinary and sanitary control, requirements for veterinary practice, and licensing of veterinarians. Full implementation will occur after martial law ends, but provisions on disease prevention, control of zoonoses (tuberculosis, brucellosis, leukemia in cattle), and veterinary servicing are already in force. For dairy farms, this means compliance with veterinary-sanitary rules for keeping cows, timely herd testing for dangerous diseases, and preventive epizootic measures.

Food safety is regulated by the Law of Ukraine No. 771/97-VR (new edition of 2015) “On the Basic Principles and Requirements for Food Safety and Quality”. It obliges milk market operators to implement HACCP systems and ensure traceability “from farm to fork”. In 2023, Law No. 3221-IX of 30.06.2023 introduced major updates to food security regulation and livestock development, including updated definitions and requirements for raw milk and dairy-containing products aligned with EU standards. Minimum quality criteria were established for milk intended for processing or direct sale, covering microbial contamination levels, somatic cell count, absence of inhibitors, etc.

Other important laws include the Law of Ukraine “On Breeding in Animal Husbandry”, which regulates genetic selection and breeding (e.g., assigning pedigree farm status, controlling genetic resources), crucial for herd productivity. The Law of Ukraine “On State Control…” No. 2042-VIII of 18.05.2017 governs inspections and veterinary-sanitary control of dairy farms and processors, defining the powers and duties of inspectors and introducing risk-based supervision in the food sector.

Ministerial orders detail dairy sector requirements. For example, the Ministry of Agrarian Policy issued hygiene and safety requirements for milk. In September 2024, amendments (Order No. 2033, registered on 14.08.2024) introduced detailed criteria for raw milk sold directly to consumers (on farms, via milk vending machines, etc.), specifying quality indicators and state control procedures. These measures aim to improve consumer-grade milk quality.

3.2. ADVISORY SERVICES

The Law of Ukraine “On Agricultural Advisory Activities” No. 1807-IV of 17.06.2004 defines the legal basis for advisory networks. State, municipal, private, and NGO advisory centers operate in regions, offering consultations to farmers. In dairy farming, advisors help with feeding high-yield cows, optimizing rations, mastitis prevention, milk quality management, and modern milk-ing/cooling technologies. These services are vital for smallholders and family farms lacking in-house vets or technologists.

Advisory services can be funded by state/local budgets and other sources. Previously, the state supported them via project competitions and compensation schemes. Currently, emphasis is on international aid and projects. For instance, in 2023, with Swiss-Ukrainian projects, the Ministry conducted information campaigns on legislative changes and food safety training for dairy farmers. Industry associations (e.g., the Ukrainian Association of Milk Producers) also provide advisory services for herd management, genetics, milk analysis, etc. Strengthening advisory systems is seen as a strategic tool for dairy sector competitiveness and EU integration.

3.3. STATE POLICY

By CMU Order No. 76-r of 31.01.2025, the Concept of the State Targeted Economic Program for Animal Husbandry Development until 2033 was approved. It identifies animal husbandry as a key component of agriculture for food security, market stability, and export potential.

The Concept provides for:

- stabilization and growth of livestock numbers,
- support for local breeds and breeding,
- investment attractiveness through combined state and market tools,
- support for small/medium producers, cooperatives, and direct sales,
- stable veterinary, biosafety, and ecological balance in livestock farms.

It prioritizes small/medium producers and sets a target of 10% share of livestock output from farms in certain segments. Measures include partial state reimbursement (up to 25% of costs, excl. VAT) for farm construction/renovation and processing facilities, and up to 80% reimbursement for breeding animals. During martial law, a support program provided 5,300 UAH per cow. In 2025, further incentives were introduced to strengthen dairy farming.

At the regional level, local governments also adopt programs. For example, Chernihiv Region approved a Dairy Farming Development Program for 2025–2027 (Order No. 13 of 08.01.2025), offering co-financing for herd growth, artificial insemination with high-quality genetics, and farmer training in modern dairy management.

3.4. SANITARY AND PHYTOSANITARY SERVICES

Ukraine has a comprehensive sanitary and phytosanitary control system. The main authority is the State Service for Food Safety and Consumer Protection (SSUFSCP), which combines veterinary and sanitary-epidemiological functions. Through regional offices, it oversees farms and processors, verifying compliance with veterinary-sanitary rules, conducting herd tests (tuberculosis, brucellosis, leukemia), and organizing vaccinations. All farms selling milk must obtain an operational permit confirming compliance with biosafety and hygiene standards (fencing, sanitary barriers, milking/storage conditions, etc.).

Processors must also have permits and HACCP systems in place. Inspectors conduct regular audits, milk sampling, veterinary record checks, and hygiene inspections. In 2019, detailed hygiene requirements for raw milk production (Order No. 118/2019) came into force, covering milking practices, cow cleanliness, dairy equipment sanitation, etc.

In 2024, new criteria for raw milk were adopted (Order No. 2033 of 11.07.2024, registered

14.08.2024). For the first time, strict microbial and somatic cell thresholds were applied to unpasteurized milk sold directly to consumers (farm, market, vending machine sales). Requirements for pasteurized milk for processors were also revised, aligning with EU quality grades (extra, high, first grade, etc.), preparing Ukraine's dairy sector for European integration.

Feed safety also matters: the Law "On Feed Safety and Hygiene" (2017) sets standards for feed production, reducing risks of toxins/pesticide residues. The SSUFSCP monitors imported feed additives and checks feeds for mycotoxins, heavy metals, etc., since feed quality directly impacts milk safety.

Ukraine's veterinary and sanitary services implement the "farm-to-fork" principle in the dairy sector. All stages—from cow health on the farm to final product testing—are under official oversight. Regular audits, unannounced inspections, and laboratory monitoring ensure milk meets safety and quality standards. This is crucial for Ukraine's EU integration, as alignment with EU requirements will make Ukrainian dairy competitive and export-ready.

4. PUBLIC, PRIVATE, AND DONOR SUPPORT INITIATIVES SINCE 2022

In response to the existential crisis triggered by the 2022 invasion, a robust and multifaceted support ecosystem has been mobilized by international partners, private entities, and the Ukrainian government to ensure the survival and resilience of the country's agricultural sector, including the dairy industry.

Government of Ukraine: Faced with overwhelming fiscal pressures, the government was forced to redirect the majority of its direct agricultural support programs towards national defense. However, to mitigate the impact on the sector, it introduced compensatory measures, including significant tax cuts (2022-2023) and a broad simplification of regulatory procedures to ease the operational burden on producers. **The EU** has provided direct support to small (3-100 heads) dairy (cattle) farmers in 2022 (UAH 324 million; 61,132 heads in 10,094 farms; average receipt was UAH 32,1 thousand). **The World Bank:** A key financial supporter, the World Bank launched the **Agriculture Recovery Inclusive Support Emergency (ARISE) Project.** This major initiative is designed to mobilize over $500 million in loans and grants to provide more than 90,000 Ukrainian farmers with access to affordable working capital and grants for agricultural production throughout 2023 and 2024. The project aims to ensure liquidity and help farms, including small ones, continue their operations under extremely challenging conditions. In particular ARISE project financed direct support to cow

farms (3-100 heads), resulting gross funds of UAH 522 million; 13,006 farms received on average UAH 40,2 thousand. **United States Agency for International Development (USAID)**: Through its flagship **Agriculture Resilience Initiative – Ukraine (AGRI-Ukraine)**, USAID has become a cornerstone of international support. The initiative has successfully mobilized over $510 million from a coalition of donors and private sector partners. Its impact has been extensive, reaching over 14,000 farmers (representing more than 30% of the country's registered producers) with critical inputs such as seeds and fertilizers, as well as providing financing and innovative storage solutions. While its primary focus has been on bolstering grain production and export logistics to address global food security, the broad support for farm resilience and access to finance has had positive spillover effects for the entire agricultural sector, including dairy. **Government of Canada:** Canada has provided targeted and long-term support specifically aimed at the dairy sector's grass-roots development. Through its partnership with the development organization SOCODEVI, Canada has funded programs to establish and strengthen dairy cooperatives based on Canadian best practices. This support has included the creation of new family dairy farms and the construction of a $3 million dairy processing plant in western Ukraine to serve local co-ops. In 2025, a new $20 million, seven-year project was announced, with a specific focus on empowering rural women entrepreneurs in the dairy sector through training, mentorship, and financial assistance. **Private Sector and NGOs:** The private sector has also played a vital role. Global food company **Nestlé** invested CHF 40 million in a new production facility in the Volyn region. Another notable initiative is the **"Family Dairy Farms" project,** a private investment effort aimed at creating networks of small, commercially viable family farms (15-50 cows). This project promotes rural entrepreneurship and seeks to build a more robust and decentralized milk supply base.

APPENDIX 1

Estimation of Value Gains from Raw Milk Composition (2016 Q1 – 2024 Q1)

1. Data sources

Quarterly data on fat and protein content in raw milk (2016 Q1–2024 Q1) were used for two supply channels: milk purchased from industrial farms and milk purchased from households. Technical compositions of dairy products were based on standard EU parameters: butter (77.5 % fat, 0.85 % protein, 0.1 % lactose) and SMP (27.5 % protein, 0.5 % fat, 50.8 % lactose). Average wholesale EU market prices over the same period were applied: €6.0/kg for butter and €2.5/kg for SMP[43].

Compositional change: The difference in fat and protein percentages between 2016 Q1 and 2024 Q1 was calculated for each supplier category.

- industrial farms: +0.13 percentage points (fat), +0.20 percentage points (protein).
- Households: +0.10 percentage points (fat), +0.07 percentage points (protein).

Conversion to product equivalents: Additional milk solids were converted into their equivalent quantities of butter and SMP using their respective fat and protein concentrations (assuming fixed lactose share):

$$Butter(kg/kg_{milk}) = \frac{\Delta fat}{0.775},$$

$$SMP\ (kg/kg_{milk}) = \frac{\Delta protein}{0.275},$$

2. Valuation.

The incremental product quantities were multiplied by average EU prices to estimate the compositional value gain per kilogram of milk:

$$Additional\ Revenues\ = (6 \cdot \Delta butter) + (2.5 \cdot \Delta SMP)$$

3. Comparison:

The difference in per-ton value between milk from industrial farms and from households represents the compositional earnings advantage. This approach assumes *constant milk volumes and processing efficiency, attributing all value change to compositional quality*.

3. Results

By 2024 Q1, industrial milk had a higher solids content, yielding approximately €25.5 per ton of additional value compared with the 2016 baseline, versus €11.6 per ton for household milk.

43 European Comission. EU prices of dairy commodities. https://agriculture.ec.europa.eu/data-and-analysis/markets/price-data/price-monitoring-sector/milk-and-dairy-products_en

APPENDIX 2

Technical barriers for milk eligible for food and non-food processing.

Raw Milk Grade (DSTU 3662:2018)	Maximum Somatic Cell Count (SCC) (thous./cm³)	Total Bacterial Count (TBC) (thous./cm³)	Recommended Usage in Processing
Extra	Up to 100	Up to 100	All types of food products. Primarily: infant nutrition, sterilized and pasteurized milk, premium cheeses (with long maturation periods), condensed milk, and other products with high quality requirements.
Higher	Up to 400	Up to 300	Wide range of food products: drinking milk, kefir, yogurt, sour cream, butter, cheeses (excluding some premium cheeses).
First	Up to 500	Up to 500	Limited range of food products. Can be used for the production of butter, cheese products, some types of cheeses (with shorter maturation periods), or for standardization of mixtures.
Ungraded / Second Grade	Over 500	Over 500	Technical processing only: production of casein, lactose, or as animal feed.

Source: DSTU 3662:2018, MAPF order 118 as of March 12, 2019

APPENDIX 3

Top 20 dairy processing companies in terms of market share in 2024.

Company	EDRPOU	Revenue in 2024, mln UAH	Market share in 2024
LLC "TERRAFOOD"	36867724	5 875,9	5,1%
ADDITIONAL LIABILITY COMPANY "YAGOTYN OIL PLANT"	00446003	5 635,6	4,9%
FIRM "LUSTDORF" IN THE FORM OF A LIMITED LIABILITY COMPANY	23063575	4 850,2	4,2%
PJSC "TERNOPIL DAIRY PLANT"	30356917	4 849,4	4,2%
LLC "MILK COMPANY "HALYCHYNA"	39685014	4 708,2	4,1%
PJSC "VINNYTSA DAIRY PLANT "ROSHEN"	00418018	4 321,6	3,7%
LLC "DANON DNIPRO"	31489175	4 105,4	3,5%
PJSC "KOMBINAT "PRYDNIPROVSKY"	01528186	3 392,3	2,9%
JSC "RUD"	00182863	3 378,7	2,9%
PJSC "DUBNOMOLOKO"	05496081	3 047,9	2,6%
PP "BILOTSERKIVSKA AGROPROMYSLOVA GROUP"	13961362	2 658,5	2,3%
LLC "ANDRUSHIVSKIY OIL PLANT"	30873067	2 622,0	2,3%
PJSC "KREMENCHUKSKY "MISKMOLOKOZAVOD"	00446782	2 517,6	2,2%
LASUNKA LLC	24440838	2 347,4	2,0%
KHLADOPROM ICE CREAM FACTORY	39106394	2 276,9	2,0%
B.MK LLC	39387655	2 089,0	1,8%
PYRYATYNSKYY CHEESE FACTORY	00446865	2 010,1	1,7%
RADIVYLIVMOLOKO LLC	31259168	1 914,5	1,7%

LACTALIS-MYKOLAEV JSC	23624594	1 866,5	1,6%
Dairy House LLC	31770165	1 803,4	1,6%
Other processors		**49 528,8**	**42,8%**
TOTAL		**115 800,0**	**100,0%**

[i] Commercial dairy farms, in contrast to households, are represented by legal entities and single perpetrators (FOPs) producing milk for processing.

[ii] Ukraine's classification (SCC = somatic cell count; TBC = total bacterial count a.k.a. KMAFAnM at 30 °C):

1. Extra - TBC ≤ 100,000 CFU/mL; SCC ≤ 400,000 cells/mL.
2. Higher — TBC ≤ 300,000; SCC ≤ 400,000.
3. Grade I — TBC ≤ 500,000; SCC ≤ 500,000.
4. Grade II (legacy, now only for technical/non-food uses): TBC < 3,000,000; SCC < 800,000.
5. Ungraded — worse than Grade II or otherwise fails legal safety criteria (e.g., inhibitors/antibiotics); cannot be placed on the food market.

Since 2019, Ukraine has classified milk for food processing by Extra/Higher/I; Grade II was restricted to technical processing (casein, feed, etc.). General safety thresholds for raw milk placed on the market are set by DSTU 3662:2018; MAPF Order No. 118 and later updates.

[iii] Milk sales structure is derived from the Household Living Standards Survey - 2021 (rural areas) and the Milk Supply to Processing – 2024 datasets of Ukrstat. The remaining share (milk produced but not sold) covers own consumption, barter, and use as animal feed. In 2025, an estimated 32.9 thousand calves are reared in households (assuming one calf per household per year, with 450 kg of milk used per calf). Non-food use, primarily for calf rearing, accounts for about 0.4% of total milk production.

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