

Abstract

Traceable Dairy Supply Chain Implementation in Ukraine for Improved Export Potential †

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This research critically examines how the traceable dairy supply chain can be implemented in Ukraine to foster socio-economic outcomes, such as reduced food safety risk, higher product quality, improved shipping and storage, and greater consumer confidence for improved export potential. The traceability of the dairy supply chain has the potential to significantly improve socio-economic conditions within countries. The Ukrainian dairy sector has experienced many fundamental and persistent problems, and such problems have been exacerbated by the Ukraine/Russia conflict. The Ukrainian dairy supply chain predominantly originates with family farm production of less than 10 cows. The Ukrainian dairy industry is primarily aimed at the domestic market, with most dairy products consumed within the country. The export of Ukrainian dairy industry products is only just developing. Concurrently, the main challenges facing the formation of supply chains for exporting Ukrainian products include securing reliable partners in other countries, forming optimal intermediary networks, and deploying Industry 4.0 technologies to ensure adequate dairy product transport and storage.

Dairy supply chains are complex systems susceptible to disruptions and unforeseen events. For the dairy sector, maintaining the safety and quality of dairy products when risks and vulnerabilities are present is critical. The 2023 dairy export forecast for Ukraine is uncertain and based on an absence of Russian advances. Despite the decreased production, the export of 2022 Ukrainian summer and fall dairy products exceeded that of 2020 and 2021. Given the highly seasonal nature, household milk is often used to produce dry milk and whey, which are then exported. Current domestic demand for dairy products remains very low due to lower disposable incomes and substantial population outflow, leading to a raw milk excess supply despite the lower production. The importance of supporting Ukraine's economy was recognized as Great Britain (from 26 April 2022) and the EU (from 4 June 2022) abolished their import duties for all Ukrainian products (including dairy) and simplified trans-shipment procedures. Available data indicate that Ukraine's export of skim milk powder (SMP) grew significantly in 2022, with butter and milk fat being the other major exports. There are 39 Ukrainian dairy production facilities approved for EU exports (with 11 new facilities accredited after the war started in 2022). Exports of butter and SMP are most attractive for Ukrainian dairy processors with high global prices driving exports despite logistics issues. Traceability promises opportunities for improved resilience and decision making throughout the supply chain, helping to provide much needed income.

This research analyzes the current state of dairy product export from Ukraine based on an interpretive sensemaking literature review to identify the socio-economic benefits



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of introducing traceable dairy supply chain features and processes. Attention is drawn to barriers that should be addressed in order to ensure the successful implementation of traceable dairy supply chains in Ukraine, such as the adoption of Industry 4.0 technologies, financial constraints, lack of or difficulties in enforcing regulations, lack of necessary infrastructure, and limited coordination among stakeholders. These issues warrant thoughtful consideration by policymakers and business stakeholders who wish to apply effective traceable dairy supply chain-enabled management strategies for improved export potential, especially in the context of predominantly family farm production.

Finally, the findings from this research are used to make some exploratory recommendations for the successful implementation of traceability systems in Ukraine in the near future.

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