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Sustainable Development and Export-Oriented Marketing of Value-Added Agricultural Products as a Driver of Ukraine's Economic Recovery During and After the War

By Volodymyr Lagodiienko[1], Kateryna Sokoliuk[2], Liudmyla Dybchuk[3], Mariana Malchyk[4], Alona Tanasiichuk[5], Liudmyla Bondarenko[6], Nataliya Basiurkina[7]

ABSTRACT:

The study focuses on the analysis of sustainable development and export-oriented marketing of high value-added agricultural products as a key factor in Ukraine's economic recovery during the war and in the post-war period. The paper examines the structural features of Ukrainian exports, identifies key trends in their dynamics, and highlights the challenges of raw material dependence and limited processing depth. A comparative assessment is conducted of the export potential of various product categories, including grains, oilseeds, organic produce, and products of advanced processing. Based on the analysis, the study proposes a model for transitioning from a raw material-based economy to an innovation-driven economy focused on the development of regional agri-food clusters and the attraction of investment in processing technologies, certification, packaging, and product refinement. Within the framework of post-war recovery scenario modeling, three development trajectories are distinguished: a baseline (inertial) scenario, an innovation-driven (cluster-based) scenario, and an integration-oriented (EU-aligned) scenario. The findings demonstrate that the implementation of the integration-oriented scenario, which emphasizes the creation of export clusters, enhancement of technological readiness, digital transformation, and promotion of the "Ukrainian Organic / High Value AgriFood" brand would ensure the highest export growth rates and drive structural modernization of the agricultural sector. The study substantiates that the export of high value-added products represents a strategic pathway to enhancing Ukraine's economic resilience, international competitiveness, and integration into the European market. Promising markets for export development have been identified as the European Union, the Middle East, and Southeast Asia – regions characterized by stable demand for products with high levels of consumer trust and certification. The proposed recommendations focus on strengthening state support, developing innovation infrastructure, diversifying export destinations, and enhancing the role of sustainable marketing as a tool for economic growth.

[1]Doctor of Economic Sciences, Professor, Head of the Department of Marketing, Entrepreneurship and Trade, Odesa National University of Technology, Ukraine.
[2]Senior researcher at the Department of market mechanisms and structures, State Organization "Institute of Market and Economic & Ecological Research of the National Academy of Sciences of Ukraine", Ukraine.
[3]Professor of the Department of Management, Marketing and Entrepreneurship, Vinnytsia Cooperative Institute, Ukraine.
[4]Professor of the Department of Marketing National University of Water Management and Environmental Engineering, Ukraine.
[5]Professor of the Department of Marketing and Advertising, Vinnytsia Institute of Trade and Economics of State University of Trade and Economics, Ukraine.
[6]Doctor of Economics, Associate Professor, Professor of Tourism and Enterprise Economics Department, Dnipro University of Technology, Ukraine.
[7]Doctor of Economic Sciences, Professor, Head of the Department of Commercial Business, Commodity Research and Business Administration, Odesa National University of Technology, Ukraine.

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1. Introduction

Sustainable development and export-oriented marketing of value-added agricultural products as a driver of Ukraine's economic recovery during and after the war represent a highly relevant topic for both Ukrainian and international scholarly communities.

In the context of profound global economic transformations driven by geopolitical conflicts, climate change, energy crises, and the restructuring of global value chains, the issues of sustainability in the agricultural sector and the enhancement of its export potential have become increasingly critical. For Ukraine, these challenges are of particular importance, as the agricultural sector serves as a cornerstone of the national economy, contributing to food security, employment, and a significant share of foreign currency earnings.

The global scientific community has been actively addressing issues of sustainable development in alignment with the United Nations Sustainable Development Goals (SDGs). Among these, several goals are particularly relevant to the agricultural sector, including SDG 2 – Zero Hunger and sustainable agriculture, SDG 8 – Decent Work and Economic Growth, SDG 12 – Responsible Consumption and Production, and SDG 13 – Climate Action.

As a key sector for ensuring food security, agriculture lies at the heart of achieving these goals. Ukraine, as one of the world's leading producers of grains, oilseeds, and other crops, plays a vital role in maintaining global food stability. However, the ongoing war has presented the country with unprecedented challenges: the destruction of logistics infrastructure, restricted access to seaports, reduced investment, and the urgent need to restore damaged production facilities.

Under these conditions, economic recovery through the development of value-added exports (processing, branding, organic production, local clusters) represents a strategically important direction. It contributes to enhancing national competitiveness, generating new employment opportunities, and securing stable foreign exchange earnings. This approach enables a transition from a raw material–oriented export model to an innovation-driven model focused on domestic processing, localized production, and the creation of strong national brands in the global marketplace.

This research theme integrates economic, marketing, and socio-environmental dimensions, reflecting current interdisciplinary trends in academic inquiry. In particular, export-oriented marketing with a focus on added value encompasses such aspects as the formation of a positive international image for Ukrainian agri-brands, the development of efficient sales channels using digital technologies (AgriTech, e-commerce, traceability systems), the adaptation of products to international ecological and certification standards, and the promotion of cooperative and cluster-based collaboration among producers, processors, and logistics operators.

The results of this study have universal relevance, as the scientific and practical insights gained may be applied not only in Ukraine, but also in countries undergoing post-conflict or crisis recovery (e.g., the Balkans, the Caucasus, and certain regions of the Middle East). Ukraine's experience could serve as a model for developing effective strategies that integrate agricultural potential, innovative marketing, and sustainable development.

For both governmental institutions and the business sector, the topic has a distinctly applied dimension: it supports the development of policies aimed at assisting small and medium-sized agricultural producers, promoting domestic processing, generating value added within the country, improving logistics infrastructure, and expanding export capacities.

Thus, the study is contemporary, globally relevant, and strategically significant. It integrates economic, environmental, and social perspectives directed toward ensuring the long-term sustainability of the agricultural sector, enhancing Ukraine's competitiveness, and facilitating its integration into the global economy.

2. Literature Review

Among the leading international scholars systematically examining the consequences of war for Ukraine's agricultural sector, particular attention should be given to the work of Klaus Deininger, in collaboration with Daniel Ayalew Ali and Ming Fang (World Bank, 2023). Their research shows that, despite ongoing hostilities, the reduction in cultivated areas was relatively minor. However, the economic environment deteriorated to the extent that 46% of farms reported negative cash flows, and over half lacked access to credit. The authors emphasize that the primary threat lies not in the physical destruction of farmland, but in financial and logistical instability. Ensuring the sector's sustainable development will require the strengthening of financial support mechanisms for farmers and improved market access.

Another significant study by Natalia Kussul, Deininger, Ayalew Ali, Andrii Shelestov, and Guido Lemoine (World Bank, 2022) estimated that Ukraine lost approximately 20% of its winter grain production. Using satellite imagery, the authors concluded that economic uncertainty, rather than direct physical damage, was the most critical factor. Their methodology, based on remote sensing technologies, enabled accurate and timely assessment of agricultural losses. The advancement of agricultural technologies and digital monitoring tools may substantially enhance the resilience of the agri-food sector.

In the continuation of this research series, Deininger, Ayalew Ali, Kussul, Lemoine, and Shelestov (2024) focused on regional disparities. The authors found that logistical disruptions and increased transportation costs reduced farm profitability by over 60%. The study highlights that even in the absence of physical destruction, agricultural production may become economically unviable due to limited access to infrastructure. The restoration of transport corridors, the development of alternative export routes, and the establishment of logistics clusters are identified as strategic priorities for the future of agricultural exports.

A related study by Toralf Richter and Nicoletta Maestrini, conducted in cooperation with FiBL (Research Institute of Organic Agriculture) (2024-2025),

emphasizes that approximately 70% of Ukrainian organic exporters were able to maintain operations in 2022. They preserved their certification status, traceability standards, and access to key EU markets. Despite the war, the organic export sector demonstrated remarkable resilience, largely due to established partnerships and its orientation toward premium markets. Organic agriculture remains one of the most promising pathways for increasing value added and strengthening Ukraine's international image.

Ukrainian scholar Viktoriia Zubtsova (Kyiv National Economic University, 2024) analyzes the specifics of marketing strategy development among Ukrainian agri-businesses. She underscores the importance of market segmentation, the use of digital distribution channels, and the creation of brands with strong national identity. Her work is particularly valuable for its integration of marketing theory with the practical adaptation of international approaches to the Ukrainian context. To enhance global competitiveness, it is essential not only to increase export volumes, but also to actively build a brand for Ukrainian products based on quality, sustainability, and innovation.

Another important dimension of marketing transformation is explored by Tetiana Shkoda and Oleksandr Savych (2022). The authors argue that war radically reshapes marketing approaches, necessitating risk mitigation, adaptation of communication strategies, and the use of digital technologies to preserve customer relationships. They propose a crisis marketing model based on flexibility, partnership, and digital integration. This framework can serve as a foundation for developing post-war export marketing strategies, particularly for high value-added products.

In the context of systemic research on international marketing and sustainable development, the scholarly contributions of A. M. Tanasiichuk are noteworthy. Her body of work (Tanasiichuk et al., 2021; 2023; 2024; 2025) consistently focuses on the formation of strategies for Ukrainian enterprises to access international markets under global and domestic challenges. Tanasiichuk substantiates the interconnection between structural economic processes in Ukraine, marketing tools, and the potential for sustainable enterprise development. In particular, she proposes the conceptual foundations of international marketing diversification as a mechanism for enhancing business resilience in conditions of wartime economy. The author emphasizes the need for a transition from a raw material–based export model to an innovation-oriented one by fostering the production of high value-added goods, building national brands, and integrating environmental and social responsibility principles into business practices. Her research logically advances a scientific framework for export-oriented marketing as a driver of sustainable economic development, with a particular focus on the agricultural sector. It underlines the significance of innovative, digital, and adaptive mechanisms in the post-war reconstruction of Ukraine's economy.

A review of the academic literature reveals a broad consensus among scholars: the resilience of Ukraine's agricultural sector is determined not only by the physical continuity of production, but also by its capacity for adaptation, digitalization, and the generation of value added. The studies by Deininger, Kussul, and their collaborators emphasize the economic vulnerability of farmers, while the works of Richter, Zubtsova, and Tanasiichuk highlight the potential of innovative export strategies, international branding, and organic production.

The general conclusion is that Ukraine's economic recovery during and after the war is only possible through a shift from a raw material based export model to one centered on innovative marketing, processing, and the development of high value-added clusters. This aligns with global principles of sustainable development (SDGs 2, 8, 12, 13) and facilitates Ukraine's integration into the international economy on more advantageous terms.

However, it should be acknowledged that the comparative scope of existing research between the pre-war and wartime periods remains methodologically limited. Most studies rely on short-term or sector-specific data, which restricts the possibility of establishing robust long-term benchmarks of adaptive capacity. Nonetheless, emerging longitudinal datasets on agricultural productivity, export diversification, and technological adoption provide valuable opportunities to quantify resilience trends over time. Incorporating such empirical evidence would enable future research to better substantiate how innovation, digitalisation, and adaptive management translate into measurable improvements in sectoral efficiency and sustainable performance.

3. Results of the Study

In the context of profound transformations caused by the war and the urgent need for post-war reconstruction, the formation of an innovation-oriented development model emerges as a key objective of Ukraine's economic policy. The conducted research demonstrates that the agricultural sector holds the highest potential for securing sustainable economic growth through the intensification of export-oriented marketing and the enhancement of value added in the production structure. An analysis of global and national statistical data shows that the modernization of agricultural production, digitalization of distribution channels, and orientation toward markets with high quality standards are shaping new competitive advantages for Ukraine in the global arena.

At the same time, the effectiveness of these processes directly depends on the ability of enterprises to create, accumulate, and retain value added throughout the entire agri-food production chain. This indicator is central to understanding the economic outcomes of innovation-led development. It determines a country's position in global value chains and reflects the degree of its integration into the world economy. Analyzing the economic essence of value added and its role in enhancing the innovation capacity and competitiveness of Ukraine's agricultural sector, it becomes evident that value added serves as a key criterion for evaluating the effectiveness of economic modernization. It reflects the extent to which primary resources are transformed into final products with higher levels of consumer, technological, and economic utility. Under current conditions of global competition, the increase in the share of value added in the structure of production and exports is a decisive indicator of the transition from an extensive to an intensive model of economic growth. As noted by Porter (1990) and the OECD (2023), the creation of value added is the result of the synergy between innovation, human capital, and marketing strategies that enable the integration of products into global value chains.

Moreover, the transformative capacity of innovation-led development is closely linked to the engagement of international institutional partners. Multilateral cooperation with organisations such as the FAO, OECD, and EBRD plays a pivotal role in mobilising

financial resources, transferring technology, and promoting knowledge exchange in the agri-food sector. Through targeted investment programmes and capacity-building initiatives, these institutions help to enhance productivity, environmental sustainability, and digital integration within agricultural value chains. Incorporating such partnerships into Ukraine's modernisation strategy can therefore accelerate the implementation of advanced technologies and strengthen the overall resilience of the national agri-food system.

In the context of the agricultural sector, value added is generated not only at the stages of primary production but also through processing, packaging, logistics, certification, marketing, and branding. A high share of value added in agri-food products reflects the depth of technological processing and the producer's orientation toward the end consumer: both of which are indicators of an economy's innovation maturity. For Ukraine, this criterion is of strategic importance: the transition from raw material exports to the production of ready-to-market agri-food goods with high value added enables sustainable economic growth, increased employment, foreign exchange stability, and enhanced food security.

Value added also serves as a key indicator of innovation activity, as it implies the application of new technologies, digital solutions, environmental standards, and sustainable production models. According to the World Bank (2024), countries with a high share of value added in their agricultural exports exhibit faster GDP growth and more robust integration into international markets. Thus, the development of high value-added sectors is not only a sign of innovation capacity, but also a foundation for the structural modernization of Ukraine's economy amid wartime challenges and post-war recovery.

Thus, the creation of value added in the agricultural sector serves not only as an indicator of economic innovativeness but also as a foundation for the development of effective foreign economic strategies. In this context, export-oriented marketing becomes particularly significant as a key instrument for enhancing the competitiveness of national products and ensuring Ukraine's integration into global markets, especially during periods of crisis and post-crisis transformation. The essence of export-oriented marketing lies in the systematic application of marketing principles to promote national products in international markets, taking into account demand specifics, quality standards, cultural nuances, and environmental requirements of target countries. As Kotabe & Helsen (2020) point out, export marketing is a crucial factor in the successful integration of firms into global supply chains, as it enables businesses not only to respond to market changes but also to proactively shape consumer preferences.

For Ukraine, export-oriented marketing takes on exceptional importance in wartime and post-war contexts, where there is a pressing need to compensate for declining domestic demand by expanding into foreign markets. As demonstrated in the research by Tanasiichuk (2020-2024), building an effective system of international marketing for Ukrainian enterprises requires a shift from the extensive export of raw materials to a strategy focused on positioning high value-added products, developing national brands, and leveraging digital promotion channels such as AgriTech solutions, e-commerce platforms, and traceability systems.

In this context, export-oriented marketing serves not only an economic function but also a reputational one – shaping a positive image of the country as a reliable partner

and producer of environmentally safe and innovative products. This contributes to increased trust from international partners, attraction of investment, and expansion of export geography. At the same time, a marketing strategy grounded in the principles of sustainable development ensures not only competitive advantages but also the long-term resilience of the national economy. Thus, export-oriented marketing becomes a system-forming factor in Ukraine's economic recovery and integration into the global economy on the basis of equal partnership.

The implementation of an effective export-oriented marketing strategy is impossible without the parallel adoption of innovative approaches to production and value chain management. Innovation becomes the driving force that transforms marketing from a sales tool into a mechanism for shaping the new quality of agri-food products and enhancing their value added.

Innovative models of value-added generation in the agricultural sector are a key avenue for realizing the concept of sustainable development, as they integrate technological, economic, and environmental components with the goal of increasing the competitiveness of agri-food production. In the context of globalization and economic digitalization, the efficiency of the agricultural sector increasingly depends on the ability to integrate innovation across all stages of the value chain—from raw material cultivation to the creation of final products with high added value.

Contemporary research *(OECD, 2023; FiBL, 2024; Tanasiichuk et al., 2024)* identifies several core models of innovation-driven growth in the agricultural sector:

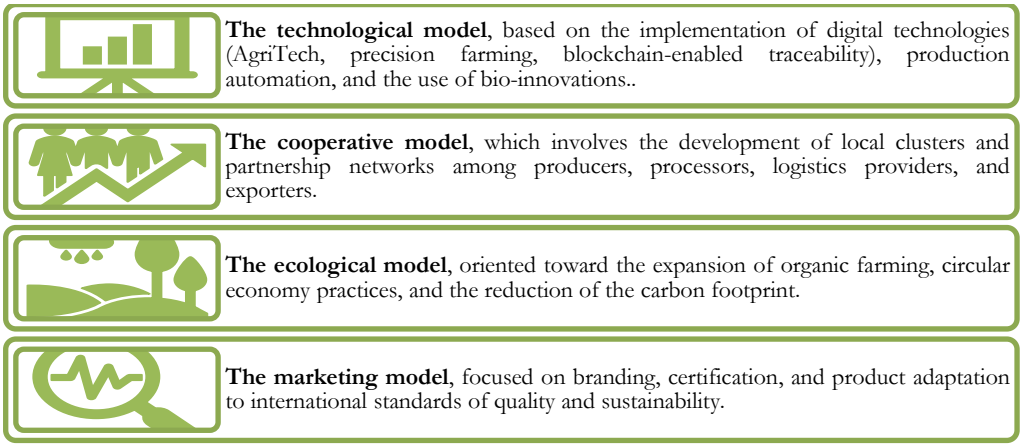

Figure 1. Models of Innovation-Driven Growth in the Agricultural Sector

In the case of Ukraine, these models can be effectively integrated within a cluster-based approach that fosters collaboration among farmers, research institutions, government bodies, and private enterprises. As *Richter & Maestrini (2025)* argue, clusters of organic exporters demonstrate high resilience even under wartime risks due to digital coordination mechanisms and long-term contracts with EU-based partners. Thus, the creation of value added through innovative models not only enhances the economic efficiency of the agricultural sector but also forms the structural foundation for national economic recovery.

In this way, innovation-driven value-added models support not only the production dimension but also the marketing infrastructure of agricultural development. Their successful implementation requires a comprehensive approach to product positioning in foreign markets, which can be achieved through well-designed marketing strategies. Ultimately, marketing emerges as a key mechanism for transforming technological and organizational innovations into global competitive advantages.

Marketing strategies for promoting value-added agricultural products determine a country's ability to maintain and expand its position in global markets while strengthening its reputation as a reliable and innovative producer. The foundation of such strategies lies in the combination of branding, digital marketing, certification, and adaptation to local market requirements, which ensures the effective positioning of Ukrainian products in the premium quality segment.

At the same time, the effectiveness of value-added marketing strategies depends significantly on understanding cross-cultural consumer behaviour. Perceptions of the "Ukrainian Organic" brand vary across markets: in the European Union, consumers tend to associate it with ethical production, environmental stewardship, and traceability, while in Asian markets, preferences are more strongly influenced by health-related attributes, safety assurances, and premium packaging. These distinctions determine the degree to which Ukrainian exporters can adapt product narratives and certification standards to local expectations. Consequently, the international competitiveness of Ukraine's agri-food exports relies not only on technological and organisational innovation but also on cultural intelligence and the ability to tailor branding to diverse market perceptions.

As *Kotabe & Helsen (2020)* emphasize, modern international marketing must be not only sales-oriented but also focused on creating consumer value by communicating the ecological, social, and cultural characteristics of products. For Ukrainian agricultural goods, this implies a focus on natural origin, sustainable production, traceability, and compliance with EU and FAO standards.

According to the findings of *Tanasiichuk et al. (2023-2025)*, the most successful Ukrainian companies are those that implement digital marketing tools (e-commerce platforms, big data analytics, social media marketing), develop national brands (e.g., Ukrainian Organic, Green Agri Food), and establish partnership alliances with international distributors. Such approaches not only increase export volumes but also raise the share of value added retained within the country, contributing to structural modernization and long-term economic resilience.

Export-oriented marketing with a focus on value-added products also functions as a mechanism of economic diplomacy. It enhances trust in Ukrainian businesses, strengthens the country's international reputation, and opens up new channels for cooperation. Therefore, in the post-war period, marketing strategies that promote high-tech, environmentally sustainable, and branded agricultural products will play a decisive role in Ukraine's successful integration into the European and global economic space.

The conducted theoretical and analytical review confirms that sustainable development and export-oriented marketing of value-added agricultural products are key drivers of Ukraine's economic resilience amid war and recovery. The agricultural sector, which has traditionally been a pillar of national GDP and foreign exchange earnings, demonstrates strong potential for structural modernization through the synergistic

application of innovation, digitalization, and marketing strategies oriented toward international markets.

A synthesis of scholarly sources confirms that sustainable economic recovery is possible only through a shift from a raw-material export model to an innovation- and marketing-driven model – one that centers on the creation and retention of value added at all stages of the agricultural production and distribution chain. It is innovation clusters, digital technologies, the development of organic production, and the establishment of national brands that enhance the competitiveness of Ukrainian products and facilitate their integration into global value chains.

In line with comparative studies conducted by the OECD and the World Bank, further validation of these models requires empirical assessment of export performance indicators. Establishing quantitative correlations between innovation cluster dynamics, branding initiatives, and export outcomes could provide a stronger analytical foundation for evaluating resilience across transition economies. Such an approach would make it possible to benchmark Ukraine's agri-food sector within a broader international context and to identify specific mechanisms through which marketing and innovation jointly contribute to sustainable post-war recovery. Future research should therefore integrate longitudinal export data to substantiate the effectiveness of innovation-led branding strategies in enhancing competitiveness and global market integration.

In the context of a wartime economy, export-oriented marketing acquires not only economic but also geopolitical significance, functioning as a tool of economic diplomacy and international positioning of Ukraine as a reliable producer of eco-friendly and innovative products. The combination of sustainable production, branding, certification, digital marketing, and a focus on added value creates the foundation for a new model of agricultural growth – one based on quality, trust, and technological efficiency.

Therefore, the synergy of sustainable development, innovative value creation models, and export-oriented marketing forms the strategic basis for Ukraine's economic recovery. However, the effectiveness of these innovation- and marketing-driven models will also depend on addressing regional disparities in implementation. Less industrialised regions often face limited access to investment, infrastructure, and skilled labour, which constrains their ability to adopt advanced technologies and develop strong branding capabilities. Bridging this gap requires targeted policy interventions, decentralised innovation programmes, and regional partnerships aimed at capacity-building and knowledge transfer. Ensuring the participation of all regions in innovation-driven modernisation is crucial for achieving a balanced, inclusive, and sustainable transformation of Ukraine's agri-food system in the post-war context.

This provides a solid foundation for further research on actual trends in agricultural exports during 2022-2025, including the analysis of their structure, geography, foreign exchange dynamics, and the impact of wartime conditions on the effectiveness of export marketing.

The next stage of this research aims to systematize both quantitative and qualitative indicators that reflect the effectiveness of value-added creation and the implementation of export marketing strategies under wartime and post-war conditions. In particular, it is advisable to distinguish the following groups of indicators (Table 1). The systematization of these indicators will enable the construction of a comprehensive model

for assessing the effectiveness of agricultural exports and testing the hypothesis that an increase in the share of value-added products is positively correlated with the resilience of Ukraine's economic development during and after the war.

In subsequent stages, the proposed indicator framework should be empirically validated using real export datasets. Quantitative modelling of correlations between export diversification, value-added share, and sectoral resilience would provide statistical evidence to support the theoretical assumptions formulated in this study. Such an approach would not only enhance the robustness of sustainability analysis but also contribute to data-driven policymaking by identifying measurable pathways for strengthening Ukraine's export performance and economic resilience in the post-war recovery period.

Table 1. Systematized Indicator Framework Reflecting the Effectiveness of Value-Added Creation and Export Marketing Strategy Implementation

Group	Indicators / Metrics
Economic indicators	– Export structure (raw, processed products); – Share of value added in the agricultural sector's GDP; – Dynamics of foreign exchange earnings and export profitability.
Geographical and market indicators	– Diversification of export destinations; – Changes in the structure of trading partners; – Positioning of Ukrainian products in the EU, Middle Eastern, and Asian markets.
Innovation, technological, and environmental indicators	– Share of organic products in total agricultural exports; – Level of digitalization in distribution channels (e-commerce, traceability systems, AgriTech); – Participation in cluster-based or cooperative projects; – Implementation of sustainable production standards (FAO, EU Organic, ISO 14001).
Social and structural indicators	– Number of new jobs created in processing sectors; – Participation of small and medium-sized enterprises in export clusters; – Level of regional integration in agricultural production.

The defined system of indicators (Table 1) reflects a comprehensive approach to assessing the effectiveness of value-added creation and the implementation of export marketing strategies in Ukraine's agricultural sector. Based on these indicators, it becomes possible to conduct an in-depth analysis of actual trends in agricultural export development during 2022-2025, identify the key drivers of its dynamics, and evaluate the impact of wartime conditions on the outcomes of foreign trade activities.

The next stage of the research involves a sequential examination of each group of indicators presented in Table 1: economic, geographical, innovation-technological, environmental, and social-structural. This will make it possible to identify trends in the structure of exports and the dynamics of foreign exchange earnings, assess the degree of market diversification and changes in the geography of trading partners, analyze the level of technological advancement, environmental sustainability, and digitalization of agricultural production, and determine the social effects associated with the development of processing capacities and clusterization.

Thus, the next stage of the research will be dedicated to a detailed analysis of the indicators outlined in Table 1, with the aim of identifying patterns that characterize the current state and growth potential of Ukraine's export-oriented agricultural sector.

Following the theoretical justification of the importance of export-oriented marketing and value-added creation in agriculture, the subsequent step is a practical analysis of Ukraine's foreign trade data. This stage focuses on identifying actual trends in the structure of agri-food exports, determining the ratio between raw and processed products, and assessing the level of value added based on macroeconomic indicators and the dynamics of foreign exchange earnings.

For this purpose, statistical data for the period 2022–2025 will be used, categorized according to the sections of the Ukrainian Classification of Goods for Foreign Economic Activity (UKTZED) covering key agricultural commodity groups (Table 2). The subsequent systematization will allow for a quantitative assessment of export performance, a comparative analysis of trends, and the preparation of a basis for scenario modeling of post-war recovery.

Table 2. Export Performance of Ukraine's Agricultural Sector, TOP-10 Commodities in 2024, 2022-2025 (January-July), USD thousand

HS Code and Product Name (UKTZED)	2022 USD thousand	% of total volume	2023 USD thousand	% of total volume	2024 тис.дол.	% of total volume	2025 (Jan–Jul) USD thousand	% of total volume	Product Type(raw / processed)	Value Added Level(low /
Total	44135592,5	100,0	37584289,0	100,0	41733285,6	100,0	23309702,7	100,0		
10 Cereals	9108153,5	20,6	8307010,1	22,1	9418272,5	22,6	4349893,3	18,7	Raw	Low
15 Animal or vegetable fats and oils	5948570,7	13,5	5649063,6	15,0	5756448,9	13,8	3775112,6	16,2	Processed	Medium
12 Oil seeds and oleaginous fruits	3757692,3	8,5	2819473,7	7,5	3393750,5	8,1	1232372,9	5,3	Raw	Low
23 Residues and waste from the food industry	1081829,2	2,5	1397446,7	3,7	1481089,4	3,5	867620,2	3,7	Raw	Low
02 Meat and edible meat offal	923757,5	2,1	892295,2	2,4	1052793,3	2,5	686377,5	2,9	Processed	Medium
17 Sugars and sugar confectionery	299573,9	0,7	596323,5	1,6	651650,9	1,6	275980,9	1,2	Processed	High
04 Milk and dairy products; bird eggs; natural honey	452080,0	1,0	403527,6	1,1	489315,5	1,2	383565,4	1,6	Processed	Medium
19 Preparations of cereals	251789,3	0,6	314372,1	0,8	374524,1	0,9	265260,9	1,1	Processed	High
08 Edible fruits and nuts	312964,2	0,7	256688,1	0,7	361449,6	0,9	109083,3	0,5	Raw	Low
20 Preparations of vegetables	222609,7	0,5	199497,1	0,5	317594,9	0,8	184412,1	0,8	Processed	High
Other product groups	21776572	49,3	16748591	44,6	18436396	44,1	11180024	48		

R-Raw, P-Processed	L-Low, M-Medium, H-High

Note: Data for 2025 are provided for the period January-July and reflect current trends.

An analysis of the structure of Ukraine's agricultural exports for the period 2022-2025 (January–July) (Table 2) indicates the continued raw material orientation of the national agri-food sector, while also revealing gradual shifts toward an increased share of processed products with higher value added. Cereals (HS code 10) have traditionally accounted for the largest proportion, comprising over 20% of total exports during 2022-2024. However, in January-July 2025, their share declined to 18.7%, reflecting a degree of diversification in the export structure and a weakening of excessive dependence on the grain segment.

Fats and oils (HS code 15) remain the second-largest commodity group, accounting for 13-16% of total agricultural exports. These are medium-processed products that ensure stable foreign exchange earnings, yet remain sensitive to fluctuations in global prices and transportation logistics. The decline in this segment's share in 2025 may be attributed to wartime restrictions on maritime shipping and reduced investment in processing capacities.

Products with a high level of value added, such as confectionery, cereal-based preparations, and processed vegetable products (HS codes 17, 19, 20), still represent a minor share of exports (less than 3%), yet demonstrate remarkable resilience even under crisis conditions. This reflects a higher level of competitive adaptability among enterprises focused on branded, certified, and environmentally sustainable products. In particular, confectionery and grain-based preparations have maintained positive export dynamics despite declining domestic demand.

In contrast, raw material categories, such as oilseeds, fruits, and food industry residues, are characterized by low value added and significant volatility. Their decline in 2024–2025 has been driven by both logistical barriers and increased competition in global commodity markets.

Overall, more than 44% of exports fall under "other product groups," which reflects the fragmentation of Ukraine's agricultural exports and, at the same time, indicates potential for structural deepening through the development of processing clusters, organic production, and innovative value chains.

Given that all analyzed periods (2022-2025) fall within wartime conditions, the data presented in Table 2 reflect the adaptive capacity of Ukraine's agricultural business in a crisis economy. At the same time, the results for 2025 cover only the January-July period and therefore represent an interim assessment of the current trend. The decline in the share of raw commodities and the stabilization of exports of higher value-added products indicate the beginning of a structural shift toward a more innovative and diversified development of the agricultural sector.

However, in order to substantiate the depth of these changes, a quantitative analysis of export dynamics by processing level is required, as presented in Table 3. This stage made it possible to assess the rate of change in export volumes of products with different levels of value added and to identify which segments have proven to be the most resilient or vulnerable during the wartime period.

Table 3. Dynamics of Ukraine's Agricultural Exports by Processing Level and Value Added in 2022-2025 (January-July)

Product Type	Value Added Level	2022, USD thousand	2023, USD thousand	2024, USD thousand	2025 (Jan–Jul) USD thousand	Average Share, %[1]	Absolute Change[2], USD thousand	Rate of Change, %	Compound Annual Growth Rate (CAGR)[4], %	Contribution to Total Exports, % (2024)	Export Stability Index (ESI)[5]
Processed	High	773972,9	1110 192,7	1343 769,9	725 653,9	2,5	−48 319,0	−6,2 %	−2,1 %	3,2 %	0,94
Processed	Medium	16 432 561,7	15 251 896,5	16 716 830,2	9 194 949,0	47,0	−7 237 612,7	−44,0 %	−16,8 %	40,1 %	0,83
Raw	Low	14 654 562,0	12 780 618,6	14 260 639,2	6 558 970,0	43,5	−8 095 592,0	−55,2 %	−24,0 %	33,5 %	0,70

Note: Data for 2025 are provided for the period January-July and reflect current trends.

Average Share, % – the average percentage share of each group in the export structure for 2022-2025.

[2] Absolute Change – the difference between export volumes in 2025 (Jan-Jul) and 2022, in USD thousand.

[3] Rate of Change, % – relative change compared to 2022.

CAGR, % (Compound Annual Growth Rate) – reflects gradual change over the 3-year period (2022-2025).

[5] Export Stability Index (ESI) – a composite indicator reflecting the relative stability of export revenues for a given product category during wartime (2022-2025). Approximate formula: ESI = (Average Share in Export Structure) / |Rate of Change| + 100

Table 3 presents a generalized overview of the dynamics of Ukraine's agricultural exports in 2022-2025, taking into account the level of processing and value-added creation. The results indicate the persistence of a predominantly raw material–based export structure, albeit with a gradual strengthening of the role of processed goods, which tend to be more resilient to wartime risks, logistical constraints, and fluctuations in external demand.

A comparative analysis shows that the largest share of exports (47.0%) is held by medium-processed products – primarily oils, meat, dairy, and primary food industry outputs. At the same time, this very segment experienced the most significant decline in volume, exceeding USD 7.2 billion (-44.0%), with a compound annual growth rate (CAGR) of -16.8%. This trend highlights the high sensitivity of enterprises at the medium technological level to the pressures of a wartime economy, including rising costs of logistics, energy, and risk insurance, as well as the decline in international demand.

High value-added products, despite their relatively small share in total exports (around 2.5%), demonstrate relative stability. The decline in this category in 2025 amounts to only -6.2%, while the Export Stability Index (ESI = 0.94) is the highest among all groups. This resilience can be attributed to market diversification, orientation toward

premium EU segments, the development of Ukrainian-origin brands, and the use of digital promotion channels such as AgriTech, e-commerce, and traceability systems.

The sharpest contraction is observed in the raw product group (low value added), where export volumes decreased by more than USD 8.0 billion (-55.2%) and the compound annual decline rate reached -24%. The ESI = 0.70 confirms the low resilience of raw exports to external shocks, particularly port infrastructure blockades, global grain price instability, and limited domestic processing capacity.

For comparison, in EU countries, the share of high value-added agricultural products in export structures averages 42-45% (OECD, 2024), while in OECD countries it reaches about 48-52%, with a predominance of ready-made food products, processed beverages, organic goods, and biotechnological segments. While the share of raw material exports in the EU does not exceed 10-12%, in Ukraine it remains above 40%, indicating a significant structural asymmetry and underutilized potential for domestic processing.

At the same time, export stability indicators (ESI) in EU countries range from 0.90 to 0.97, reflecting the high adaptability of processing industries to global price and logistics shocks. Ukraine's indicators, particularly 0.83-0.94 for processed products, demonstrate the beginning of alignment with these trends, but still require further support through policies that promote value-added exports and attract investment into cluster infrastructure.

Thus, the dynamics in Table 3 confirm a gradual shift in the focus of agricultural exports from a raw-material model to a more processed one, although the pace of this process remains below the average European level. In the context of war and economic recovery, a clear pattern emerges: the higher the value-added level of a product, the more resilient its export performance under crisis conditions. Increasing the degree of processing, technological modernization, development of organic production, and branded agri-products should become a strategic priority of state policy for sustainable economic growth and Ukraine's integration into the EU and OECD economic space.

The next stage of the study involves a quantitative assessment of the effectiveness of agricultural exports by processing level and value-added creation. The goal is to conduct a comparative analysis of export dynamics by main product groups, determine the ratio of raw to processed products, and calculate indicators of export resilience and value-added level. This approach allows for a substantiated understanding of the real structural changes in Ukraine's foreign trade activities during 2022-2025, assessment of the adaptive potential of the agricultural sector, and identification of priority directions for further development in wartime economic conditions.

The methodological basis of the study relies on the use of official international statistical sources such as ITC Trade Map, TheGlobalEconomy.com, FAOSTAT, and World Bank Data, which ensure comparability of indicators with the HS/UCCFEA classification system and high reliability of external trade statistics. The selected time period of 2022-2025 covers the entire active phase of the armed conflict and the initial stage of post-crisis recovery, allowing for the tracking of real changes in the structure of agricultural exports, their sensitivity to external shocks, and capacity for recovery.

The selection of these databases is due to their high level of data updates, the ability to perform cross-market comparisons, and detailed structuring by product groups, geographic destinations, and levels of technological processing. To ensure a

comprehensive assessment, an indicator system defined in Table 1 is applied, covering economic, geographic, innovation-technological, and socio-structural indicators.

Agricultural products are grouped by value-added level and processing depth, in accordance with the international OECD Trade in Value Added (TiVA) methodology:

– Raw products (low value-added level): grains, oilseed crops, fruits, residues of the food industry;

– Medium-level processed products: meat and edible by-products, dairy products, vegetable oils, feed, and primary food processing products;

– High-level processed products: confectionery, ready-to-eat grain products, processed vegetable products, organic and branded agri-products.

This structuring allows not only to track changes in export volumes but also to assess the qualitative parameters of foreign trade dynamics: processing level, technological intensity, environmental component, and integration into global value chains.

Based on the specified methodology, the calculation of the following key indicators is provided for each product group (Table 4).

Table 4. Comparative assessment of the efficiency and resilience of Ukraine's agricultural exports by processing level (based on ITC Trade Map data, 2020-2024).

	Export volume, thousand USD	Annual export value growth	Annual global import growth	Market concentration index, %	Export stability index
Processed / High					
17 Sugars and sugar confectionery	651593	32	14	0,04	0,97
19 Preparations of cereals	375840	1	9	0,06	0,91
20 Preparations of vegetables	317571	13	10	0,14	0,86
Processed / Medium					
15 Animal or vegetable fats and oils	5756474	-2	9	0,07	0,85
02 Meat and edible meat offal	1052796	11	5	0,09	0,91
04 Milk and dairy products; bird eggs; natural honey	488076	3	7	0,06	0,92
Raw / Low					
12 Oil seeds and oleaginous fruits	3360023	14	7	0,12	0,84
23 Residues and waste from the food industries	1480807	-3	8	0,11	0,82
08 Edible fruit and nuts	361466	5	5	0,08	0,89
10 Cereals	9420113	-4	7	0,08	0,85

Note: The data for 2025 covers January–July, reflecting the current trend. Export Stability Index (ESI): ESI = |Global import growth rate / Ukraine's export growth rate| + 100

Table 4 demonstrates that the most resilient to wartime risks were processed goods with high added value, for which the Export Stability Index (ESI) exceeds 0.9. These are primarily confectionery and ready-made grain products targeted at European markets. At the same time, the largest export segments by volume, raw products such as grains and oilseeds, show lower resilience indicators (0.82-0.85), indicating dependence on global price fluctuations and transportation constraints. All market concentration indices are ≤0.15, indicating moderate diversification.

The analysis of the dynamics and efficiency of Ukraine's agri-food exports in 2022-2024 (Table 4) confirms the persistence of structural differences between raw and processed product groups, while also indicating a gradual shift toward a more technological and stable export model. According to the results, the highest export stability indicators (ESI 0.91-0.97) belong to high value-added categories – primarily confectionery (code 17), grain-based products (code 19), and processed vegetables (code 20). These categories show positive average annual export growth (1-32%) alongside an increase in global demand by 9-14%, which points to high competitiveness and flexibility in changing market conditions.

Medium-processed products (fats and oils, meat, dairy products) form the core of foreign currency earnings in Ukraine's agricultural sector. However, their annual growth rates range from -2% to +11%, reflecting the impact of logistical barriers, price volatility, and energy costs caused by wartime disruptions. Despite a decline in oil exports in 2023, the Export Stability Index (ESI) of 0.85-0.92 indicates a preserved adaptive capacity of processing enterprises – particularly due to the reorientation of exports toward EU and Middle Eastern markets.

Raw product groups (grains, oilseeds, fruits, and food industry residues) continue to account for over 40% of agricultural exports, but they show the lowest stability indicators (ESI 0.82-0.85). Grain crops (code 10), despite being the absolute leader by volume (over $9.4 billion in 2024), show a negative growth rate (-4%) for the period 2020-2024, mainly due to port logistics restrictions and a high level of market concentration (0.08). A similar pattern is observed in the oilseed segment, where export volumes grow faster than global import demand (14% vs. 7%), but the high market concentration (0.12) reveals dependency on a limited number of trading partners.

Compared to EU and OECD countries, where the share of high value-added products in agricultural exports reaches 42-50%, Ukraine's indicator remains significantly lower, around 10-12% (based on calculations from Tables 2-4). At the same time, the export stability levels for processed segments (0.91-0.97) are gradually approaching average European values (0.93-0.97, according to OECD, 2024), indicating a positive trend in the adaptation of Ukrainian businesses to the realities of a wartime economy.

In summary, the results confirm that increasing the share of processed and high-tech agricultural products directly enhances the resilience of Ukraine's agricultural exports, reduces dependency on raw commodity fluctuations, and lays the foundation for sustainable economic recovery. Strategic priorities in this context should include the expansion of domestic agricultural processing capacities, support for the export of organic,

branded, and certified products, integration of Ukrainian agri-producers into European value chains, and promotion of innovations and AgriTech solutions in logistics and digital marketing.

Thus, during 2022-2025, Ukraine demonstrates a gradual transition from a raw-material-based export model to a more processed and resilient structure, aligning with the trends of EU and OECD countries. However, the pace of this transformation requires further acceleration through a targeted policy of agricultural sector industrialization.

The next stage of the study involves identifying the most promising directions for diversifying Ukraine's agricultural exports, taking into account the potential for generating ultra-high added value (Table 5). Based on the results of the export resilience assessment (Table 4) and the analysis of global demand trends, it is appropriate to highlight those product groups that combine technological processing depth, high competitiveness, and the ability to integrate into European and global value chains. These groups form the core of future export growth in the high value-added agri-food segment.

Table 5. Top 5 Ukrainian Agricultural Products with Ultra-High Value-Added Potential

№	Commodity Group (HS Code)	Potential for value creation	Key Competitiveness Factors	Promising Markets	Indicative Convergence Group*
1	17 Sugar and Sugar Confectionery	Very high – processing, branded products, potential for "organic" and "fair trade" certification	Development of Ukrainian brands, use of local raw materials, low energy consumption	EU (Germany, Poland, Netherlands), Middle East (UAE, Saudi Arabia), Asia (South Korea, Japan)	High (0,85-0,9)
2	19 Preparations of cereals (pasta, flakes, snacks)	High – secondary processing, potential to be positioned as "healthy food"	Focus on healthy nutrition, export under private label, technological simplicity of production	EU, Canada, North Africa, Southeast Asia	High (0,83-0,88)
3	20 Vegetable processing products (juices, sauces, dried vegetables)	High – export in the form of concentrates, semi-finished products, local raw material base	Premium markets for natural products, export to the HoReCa segment	EU, Japan, South Korea, Israel	High (0,84-0,9)
4	04 Milk, dairy products, eggs, honey	Medium-high – high quality standards, export of premium honey and cheese	EU Organic certification, use of digital traceability, geographical indications	EU, Middle East, China	Medium (0,78-0,82)
5	15 Animal or vegetable fats and oils and their cleavage products (refined, packaged, organic)	High, if packaging, branded products, and bio-oils are developed	Export of packaged products, demand for bio-oils and cold-pressed oils	EU, Canada, South Korea, Australia	Medium-high (0,8-0,85)

The convergence index (ranging from 0 to 1) was determined by expert assessment using the formula Ci=1/3(Si+Qi+Di)
S_i compliance with technical and certification standards of the EU/OECD market, Q_i similarity of consumer preferences (e.g. organic quality, premium positioning, packaging, labeling),
D_i level of solvent demand and logistical accessibility.

Table 5 summarizes the results of selecting the five most promising agri-food product groups of Ukraine, identified through a systematic analysis of export volumes, export dynamics, value-added levels, and the Export Stability Index (ESI). The table is based on data from ITC Trade Map, FAOSTAT, and OECD Agri-Outlook (2024), ensuring compatibility with international HS classifications and a high level of macroeconomic data reliability. The selection was based on five key criteria:

- level of processing and value-added creation (based on Tables 2-4);
- export dynamics during 2020-2024;
- global import growth rates for the corresponding product groups (indicator of global demand);
- degree of importer concentration (indicator of market diversification);
- market convergence index, reflecting the degree of alignment between EU/OECD market requirements and demand structure with the characteristics of Ukrainian production.

A convergence index value (Ci) above 0.8 indicates a high level of compatibility between Ukrainian products and the European market, as well as their ability to integrate into joint production and distribution chains without significant certification or adaptation barriers.

While compiling the table, Tariff Rate Quota (TRQ) restrictions within the trade regime between Ukraine and the EU were also taken into account. For example, product groups such as "sugar and sugar confectionery" (HS code 17) and "dairy products" (HS code 04) are subject to duty-free quota limits. These limits partially constrain short-term export flexibility, but at the same time, they stimulate the production of certified, branded, and organic products with higher profitability that are not subject to tariff barriers.

Thus, the identification of Ukraine's Top 5 agri-food products with ultra-high value-added potential reflects not only a static snapshot of the current structure of agricultural exports, but also a forward-looking roadmap for developing product groups with strong high-value growth potential. The results enable the formulation of structural modernization pathways for Ukraine's agricultural sector, focusing on increasing the share of processed products, minimizing the impact of quota restrictions, and expanding presence in markets with high convergence levels (0.8-0.9).

The summary of Table 5 results forms the basis for the next stage of the study — the identification of geographic directions for export growth within each of the defined high value-added agri-food product groups. Determining the priority import markets makes it possible to assess not only Ukraine's actual presence in global trade chains, but also the untapped potential for entry into new market segments.

To this end, the study utilizes data from ITC Trade Map (2024), which provides structured information on import volumes by country, the share of Ukrainian exports in global supply, market concentration levels, and growth potential. This approach enables the identification of the Top 5 key destination markets for each of the product groups considered most promising in the high value-added agri-food sector.

The results are systematized in a way that outlines major importers of Ukraine's high value-added agri-food products, their share in total Ukrainian exports, import volumes, demand dynamics, and any potential trade barriers or quota restrictions. The comparative analysis (Table 6) focuses on two product groups – "17 Sugar and sugar confectionery" and "15 Edible fats and oils of plant origin", which demonstrate contrasting yet strategically significant pathways for the development of Ukrainian exports. These groups were selected for detailed examination because they represent different levels of processing (deep processing versus basic food raw materials), are both included in the list of the top five agri-food categories with the highest potential for value creation (as

defined in Table 5), demonstrate significant export volumes, and interact with EU markets where tariff-rate quotas (TRQ) and certification barriers are in place.

Table 6. Export Dynamics of Ukrainian Product Groups "17 Sugar and Sugar Confectionery" and "15 Edible Fats and Oils of Plant Origin" and the Structure of Global Imports in These Product Groups (2020-2024)

Indicator / Country	2020	2021	2022	2023	2024	Product Group / Comment
1	2	3	4	5	6	7
Ukraine – Total Export (thousand USD)	**250 271**	**246 533**	**301 401**	**596 376**	**651 593**	**17 Sugar and sugar confectionery**
Bulgaria	4 621	5 825	11 924	49 722	50 749	EU – main growth market after 2022
Turkey	12 309	4 363	7 635	11 100	48 171	Promising non-EU destination
Poland	20 092	20 856	44 649	60 021	41 965	Active integration into the EU market
Italy	1 371	2 048	15 975	61 505	33 762	High growth rates after trade liberalization
World Import (million USD)	**46 310**	**53 361**	**63 082**	**72 579**	**74 089**	**Steady rise in global demand (+60% over 5 years)**
United States	4 907	5 277	6 474	6 938	7 174	Key non-European importer
China	2 630	3 149	3 632	3 858	4 184	Potential market for organic products
Germany	1 779	1 940	2 053	2 802	2 769	One of the largest EU consumers
United Kingdom	1 284	1 482	1 689	2 329	2 191	Demand for branded products
Ukraine – Total Export (thousand USD)	**5 746 922**	**7 037 234**	**5 983 647**	**5 648 708**	**5 756 474**	**15 Animal or vegetable fats and oils**
India	1 445 850	1 925 973	772 354	338 757	720 388	Largest non-European market (decline after 2022)
Poland	275 417	394 955	792 414	616 746	646 462	Stable demand within the EU
Spain	342 329	470 808	263 969	250 512	617 000	Recovery after 2023, +146%
Romania	14 905	14 563	429 822	1 000 915	476 211	New EU logistics hub
Netherlands	529 112	762 965	389 733	370 134	466 509	EU transit center
World Import (million USD)	**105 994**	**153 447**	**185 386**	**158 667**	**156 047**	**Growth of the global fats and oils market (+47% over 5 years)**
USA	6 854	10 194	14 451	15 653	17 204	Largest importer with growing demand
India	10 597	17 459	21 639	16 553	17 017	Maintains leading role but reduces purchases
China	11 260	15 969	15 349	15 211	12 620	Stagnation of imports after 2022
Netherlands	6 740	8 657	10 456	8 366	8 633	EU – re-exporter and processor
Italy	4 128	5 267	6 496	6 091	6 768	Demand for packaged cold-pressed oils

An analysis of the import structure for sugar and confectionery products shows that Ukrainian exports increased more than 2.5 times between 2020 and 2024 (from $250.3 million to $651.6 million), confirming a steady rise in external demand for products in this category. The main importing countries of Ukrainian goods: Bulgaria, Turkey, Poland, Hungary, and Italy have demonstrated significant growth in purchases, especially after 2022, when the trade regime between Ukraine and the EU was liberalized. In particular, exports to Bulgaria increased more than tenfold (from $4.6 million to $50.7 million), to

Hungary fifteenfold, and to Italy nearly twenty-fivefold. This indicates active integration of Ukrainian producers into European production and distribution chains and highlights the EU as the key driver of export expansion in high value-added products.

At the same time, data on global importers shows that the global confectionery market is experiencing steady growth – from $46.3 billion in 2020 to $74.1 billion in 2024 (+60% over five years). The largest importers: the USA, China, Indonesia, Germany, and the United Kingdom are highly import-dependent, meaning a significant portion of their domestic consumption is covered by imports. This creates a strategic "window of opportunity" for Ukraine to enter new markets beyond the EU, particularly in Southeast Asia (Indonesia, China) and North America (USA, Canada), where demand is increasing for organic and natural sweets – products for which Ukraine has a strong raw material base (sugar, honey, fruits).

Thus, Ukrainian businesses have two main trajectories for expanding their market presence:

– Deepening expansion in existing European markets (such as Bulgaria, Poland, and Italy), where stable distribution channels have already been established and a simplified certification regime is in place thanks to the Association Agreement.

– Diversifying exports into new, import-dependent markets with high demand potential – primarily in Asian and American countries.

To achieve this, businesses should focus on premium segments such as branded confectionery, gluten-free, and organic products, which are in demand in global retail chains and are not subject to EU tariff rate quotas (TRQ).

In summary, the structure of global imports indicates that Ukraine is well positioned to maintain its role as a supplier to the EU while also expanding into new markets where imports are a key source of meeting domestic demand. This opens up prospects for the growth of high value-added exports and the strengthening of the competitive advantages of Ukrainian brands in the global confectionery market.

The export performance of Ukraine's HS Group 15 "Vegetable oils and fats" during 2020-2024 shows significant fluctuations due to the impact of military conflict, disruptions in maritime logistics, and global price shocks. Export volumes decreased from USD 5.98 billion in 2022 to USD 5.76 billion in 2024 (-3.7%). However, 2024 shows signs of stabilization following a sharp decline in 2023, indicating a gradual recovery of exports through the expansion of alternative overland and Danube River trade routes.

The main importers of Ukraine's HS Group 15 "Vegetable oils and fats" remain India, Poland, Spain, Romania, and the Netherlands, which together account for over 45% of the group's total exports. In 2024, the largest increases were seen in shipments to Spain (+146% compared to 2023) and Romania (+376%), indicating a reorientation of Ukrainian exports toward EU markets following the loss of several Asian destinations. In contrast, India, previously Ukraine's top importer of vegetable oil, reduced its purchases nearly threefold due to a national import substitution policy and shifts in logistic chains.

At the global level, the fats and oils market remains one of the most dynamic segments in the food sector: import volumes grew from USD 106 billion in 2020 to USD 156 billion in 2024 (+47%). The largest importers: the United States, India, China, the Netherlands, and Italy account for over 55% of global demand, underscoring the high

import dependency of these markets. For Ukraine, this opens up opportunities to expand its presence in the segment of ready-packaged and branded oils, which offer significantly higher profit margins than raw commodities.

The convergence index of Ukrainian vegetable oils with EU and OECD markets is estimated at 0.82-0.85, reflecting high technological compatibility, compliance with stringent quality standards, and the active adoption of sustainable practices – particularly in the production of cold-pressed and organic oils. The main challenge remains the quota and tariff regulation under the TRQ regimes (e.g., for sunflower oil exports to the EU), which limits duty-free export volumes. However, this constraint simultaneously incentivizes a strategic shift toward value-added products, including packaged, branded, and certified oils that meet organic and sustainable production standards.

Given the consistently high global demand and opportunities in premium oil segments, HS Group 15 "Vegetable oils and fats" holds one of the highest export growth potentials for the 2025-2030 period. It is well-positioned to become a key driver of Ukraine's expanded presence in markets such as the EU, Middle East, Canada, and Southeast Asia.

Since the methodology for analyzing export dynamics, global import structures, and identifying promising markets is identical across all five high value-added agri-food product groups, detailed calculation tables are not included in this section. The findings are based on data from ITC Trade Map, FAOSTAT, and the OECD Agri-Outlook (2024), utilizing indicators such as export volumes, growth rates, convergence levels, and share in global trade.

Below are the summary results of the analysis for three additional agri-food product groups – HS 19 "Preparations of cereals", HS 04 "Dairy products, eggs, and honey", and HS 20 "Processed vegetable and fruit products", which, together with HS 17 (Sugar and confectionery) and HS 15 (Vegetable oils and fats), form the core of Ukraine's high value-added agricultural exports.

Summary analysis of HS Group 19 "Preparations of cereals": Ukrainian exports of cereal-based processed foods have shown stable growth since 2022, increasing by +48% from USD 253 million to USD 374.5 million in 2024. The main destinations are EU countries: Romania, Poland, Moldova, and Germany indicating the emergence of a shared agri-food production space within the Central European agricultural belt. Globally, the market for this product group grew to USD 113.2 billion (+38%), reflecting sustained consumer interest in the healthy food and private label segments. For Ukraine, there is significant export potential in expanding to EU markets, Canada, and South Korea, where import dependency on ready-to-eat food products remains high. A convergence index above 0.85 indicates a high degree of regulatory and market alignment, supporting the ability of Ukrainian producers to integrate into European food supply chains, particularly in low-gluten products, cereal snacks, and flakes.

Summary analysis of HS Group 04 "Dairy products, eggs, and honey": between 2020 and 2024, exports in this group increased by 15%, reaching USD 489 million, despite fluctuations in 2023. The main importers: Moldova, Poland, Germany, Italy, and the United States indicate market diversification and gradual entry into the EU premium segment. Globally, the dairy market grew from USD 92.5 billion to USD 116.8 billion (+26%) over the same period. The top importers: Germany, China, France, the

Netherlands, and Italy remain key consumers, providing real potential for Ukraine to expand exports within the European market. The convergence index is estimated at 0.78-0.82, reflecting moderate compatibility in standards and technologies. A key constraint remains the TRQ regime, which limits duty-free exports of cheeses and powdered milk, but also encourages niche segments such as organic dairy, artisan cheeses, and branded honey. This sector is strategically important for the development of high-tech processing and the formation of export-oriented clusters under the EU's future "green" policy.

Summary analysis of HS Group 20 "Processed vegetable and fruit products": exports rose from USD 172.6 million to USD 317.6 million (+84%) between 2020 and 2024, making this one of the most dynamic high value-added product groups. Major importers include Poland, Germany, the United States, Austria, and the Netherlands. The global import volume in this category reached USD 90.2 billion (+44%), with the leading markets being the USA, Germany, the United Kingdom, France, and Japan. The convergence index of 0.84-0.90 is one of the highest among Ukraine's agri-food exports, driven by alignment in technological standards and growing demand for natural concentrates and dried products. Notably, this group is not subject to strict TRQ quotas, allowing for flexible export conditions under the EU's autonomous trade preferences. As a result, Group 20 combines high growth, deep processing, and low trade barriers, making it a priority segment for structural expansion of Ukraine's agricultural exports.

The analysis of the three product groups: HS 19 "Preparations of cereals," HS 04 "Dairy products, eggs, and honey," and HS 20 "Processed vegetables and fruits" confirms that high value-added products are shaping a new architecture of Ukraine's agricultural exports. These groups show strong growth rates (+15% to +84% over five years); a growing share of the EU in export destinations; a market convergence index of 0.78-0.90, indicating technological and consumer compatibility with OECD markets; and the presence of niche, high-margin, low-quota-dependent segments. Thus, export growth in these directions can boost value-added agricultural exports by 30-40% in the medium term, strengthen trade resilience, and accelerate Ukraine's integration into the European agri-food space.

A systemic analysis of five key high value-added agri-food product groups (HS codes 15, 17, 19, 20, 04) reveals common patterns in export structure and external market dynamics. Despite differences in scale and distribution channels, all groups demonstrate a steady increase in the share of processed or deeply processed products, higher technological convergence with EU markets (0.78-0.90), and a focus on high value-added consumer segments.

Based on the conducted analysis, a summary table has been developed, reflecting key export trends, major importing markets, expansion potential, primary trade barriers, and recommended strategic directions for each product group. Table 7 serves as a final analytical tool for setting strategic priorities in Ukraine's external trade policy for the medium term (2025-2030).

Table 7. Conclusions and strategic guidelines for expanding exports of Ukraine's high value-added agri-food products

№	Product Group (HS Code)	Current Export Trends (2022-2024)	Key Importers (2024)	Market Expansion Potential	Key Barriers	Recommended Development Strategies
1	17. Sugar and Sugar Confectionery	Stable growth (+32%); high demand for branded products	Poland, Italy, Hungary, Turkey, Germany	High (0,88-0,90)	TRQ quotas in the EU; certification requirements	Development of "organic" and "fair trade" brands; expansion into the Middle East
2	19. Preparations of Cereals (Snacks, Pasta)	Moderate growth (+1-9%); stable demand in the EU	Poland, Romania, Germany, Kazakhstan, Moldova	High (0,85-0,88)	Price competition; lack of marketing channels	Development of the healthy food segment; cooperation with EU retail
3	20. Processed Fruit and Vegetable Products	High dynamics (+84%); reorientation toward the EU	Poland, Germany, Austria, Netherlands, USA	High (0,84-0,90)	Certification; logistics costs to distant markets	Investment in drying technologies, concentrates, and bio-products
4	04. Dairy Products, Eggs, Honey	Stable demand, moderate growth (+7%); EU as the main market	Moldova, Poland, Germany, Italy, USA	Medium (0,78-0,82)	EU TRQ quotas; need for EU Organic certification	Development of geographical brands; modernization of traceability systems
5	15. Vegetable Fats and Oils (Refined, Packaged)	Decline (-2%); partial market diversification	Poland, Spain, India, Romania, Netherlands	Medium-high (0,80-0,85)	Price fluctuations; energy costs; logistics	

Analysis of global markets confirms that Ukraine has the potential to significantly increase exports of high value-added products, especially in processed segments (groups 17, 19, 20). These groups demonstrate a high level of market convergence with the EU (0.84-0.90), growing global demand (+9-14% annually), and resilience to wartime risks. At the same time, there are access barriers to EU markets, including tariff-rate quotas (TRQ), certification requirements (EU Organic, BRC, IFS), and the need to develop logistical infrastructure.

Based on the completed analytical stages, assessment of export dynamics by commodity group, analysis of processing levels, examination of global market trends, and identification of institutional barriers – the logical conclusion of the study is the modelling of post-war recovery scenarios for Ukraine's agricultural exports. At this stage, an expert assessment was conducted of the development potential of key clusters with the highest value-added generation, including: grains, oilseeds, organic products, and deep-processed goods. The calculations are based on a combination of quantitative export indicators (2020-2024) and qualitative insights from market experts, which allowed for the formulation of three transformation scenarios for the agricultural sector: baseline, innovative, and integration (EU-oriented). These scenarios reflect Ukraine's gradual shift from a raw-material-based to an innovation-driven economy, where export-oriented clusters, advanced processing technologies, production digitalization, international quality standards, and participation in global value chains play a key role.

To summarize the results, Table 8 "Expert Assessment of Post-War Recovery Scenarios" presents a structured overview of the potential of different development

pathways, their impact on the share of processed products in exports, the dynamics of agricultural sector GDP, and the level of integration into the global economy.

Table 8. Expert Assessment of Post-War Recovery Scenarios for Ukraine's Agricultural Exports

Development Scenario	Key Characteristics	Cluster Potential (added value)	Share of Processed Products in Export Structure, %	Projected Agricultural GDP Growth by 2030, %	Integration into Global Value Chains
1. Baseline (inertial)	Preservation of the raw material export model, limited investment, fragmented processing.	Grains and oilseeds.	25-28	+5-6	Low, constrained by logistical risks
2. Innovative (cluster-based)	Development of regional deep processing clusters, digital infrastructure, and traceability systems.	Cereal preparations, confectionery, processed vegetables	38-42	+10-12	Medium, partial participation in EU value chains
3. Integrative (EU-oriented)	Integration into EU value chains, promotion of the "Ukrainian Organic / High Value AgriFood" brand.	Organic products, bottled oils, high value-added processed foods	50+	+15-18	High, participation in EU and OECD production chains

The results of the modelling indicate that the highest potential for economic recovery and export growth lies in the integration scenario, which envisages not only the restoration of production but also a structural transformation of the agricultural sector. The main focus should be on the development of clusters for deep processing and integration into EU value chains. This will allow Ukraine to move from the status of a raw material supplier to that of a producer of high-quality, certified food products.

According to expert estimates, implementation of this scenario could increase the share of processed products in the export structure to 50%, ensure a 15-18% growth in the agricultural sector's GDP by 2030, and strengthen Ukraine's position in premium global markets (EU, Middle East, Asia). A key prerequisite is state support for high value-added exports, assistance with certification, standardisation, investment in processing, packaging, and labeling, as well as promotion of the national brand "Ukrainian Organic / High Value AgriFood" as a marker of quality and trust.

Thus, the final stage of the study demonstrates that Ukraine's post-war economic recovery must be based on the principles of sustainability, innovation, and European integration, with high value-added agricultural exports becoming a key driver of long-term growth and competitiveness.

4. Conclusion

The results of the study confirm that the sustainable development of the agricultural sector and the formation of an export-oriented marketing strategy for high value-added products are key prerequisites for Ukraine's post-war economic recovery.

The structure of agri-food exports has been analysed, revealing a clear imbalance between the raw material focus of exports and the limited share of processed goods. The

research identifies that the greatest potential for value creation lies in the development of specific clusters – cereals, oilseeds, organic products, and high-value processed foods.

The transition model from a raw-material-based to an innovation-driven economy involves the development of export-oriented clusters, investment in processing technologies, certification, packaging, and labeling, as well as integration into European value chains.

The post-war recovery scenarios developed in this study demonstrate that the integration-driven model, focused on EU alignment and international promotion of the "Ukrainian Organic / High Value AgriFood" brand, holds the greatest potential for economic growth. Implementation of this scenario could increase the share of processed goods in exports to 50%, improve profitability for producers, and boost the agricultural sector's GDP by 15-18% by 2030.

The integration scenario would not only raise domestic value-added but also expand Ukraine's presence in premium markets across the EU, the Middle East, and Asia, where demand for ecological, organic, and certified products is steadily growing.

Therefore, Ukraine's export strategy in the post-war period should be based on the principles of sustainability, innovation, gender equality, and compliance with EU standards. It should enhance the country's competitive advantages in global markets, create new jobs, reduce regional disparities, and improve the quality of life. In this way, high value-added agri-food exports become not only an economic but also a social driver of Ukraine's recovery.

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