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UKRAINE'S ECONOMIC INTEGRATION INTO THE EU ORGANIC PRODUCTS MARKET IN THE CONTEXT OF THE GREEN TRANSITION

Abstract

This article examines the current state and prospects for the integration of Ukraine's organic sector into the EU market in the context of the green transition. It analyses the dynamics of changes in the area of organic land, exports, and Ukraine's position in the supply of organic products to the EU market. Based on an analysis of statistical data for 2012–2024 and constructed linear regression models, it is concluded that the EU organic market is mature and predictable for identifying effective directions for Ukrainian exports. Using SWOT analysis, the key challenges facing the sector have been identified: the raw material orientation of exports, the lack of specialised logistics infrastructure, the complexity of certification procedures, the lack of state support, and the shortage of skilled person-

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nel. Ukraine's strengths and opportunities in the context of economic integration into the EU organic market have been outlined. The article substantiates the necessity of a transition from raw material exports to the production of branded products with high value added to enhance Ukraine's competitiveness within the framework of the European F2F strategy. Based on the assessment of Ukraine's organic market, a number of measures are proposed to facilitate the integration of Ukrainian producers into the EU organic market.

Key Words:

agri-food sector, certification, economic integration, EU market, forecasting, green transition, organic market, organic products, SWOT analysis, value added.

JEL: F14, F15, L66, O13, O19.

5 tables, 8 figures, 41 references.

Problem Statement

In the current landscape, the global market for organic products is demonstrating steady growth, exceeding €136 billion in 2023 (Willer et al., 2025), and serving as a key indicator of the global agri-food sector's transition towards sustainable development models. The European Union is the largest consumer of organic products and is actively setting new standards for quality and environmental responsibility for European producers and all its trading partners. Practical implementation is governed by the European Green Deal, a key component of which is the "From Farm to Fork" strategy (F2F strategy). For Ukraine, which possesses a significant bank of land and is a major producer of agricultural products, the EU organic market represents a strategic vector for economic integration in the context of the green transition.

Currently, Ukraine has a formally recognised status as a reliable supplier of organic products to the EU, as evidenced by the harmonisation of national legislation with the key Regulation (EU) 2018/848 (European Parliament & Council of the European Union, 2018). However, despite significant potential and the formal removal of institutional barriers, the depth of economic integration remains insufficient.

The core economic problem lies in structural imbalances: Ukrainian organic exports to the EU remain predominantly raw material-oriented, particularly in the supply of wheat, maize, barley, and soybeans. This results in a reduced economic effect and high vulnerability to external shocks. At the same time, Ukraine forgoes a significant portion of the value added associated with further processing carried out in EU countries, which limits foreign exchange earnings and investment in the domestic processing sector. Raw material exports are extremely sensitive to fluctuations in global prices, logistical disruptions, and political decisions in importing countries. Furthermore, the situation is exacerbated by the full-scale russian-Ukrainian war, which has led to the destruction of logistics infrastructure, changes in cropland, increased production risks, and unpredictable market volatility. All these factors require an immediate review of traditional export markets and the development of economically sound measures to transition from a model of a raw material supplier to that of an exporter of high-profit organic products amidst Ukraine's recovery.

The relevance of this study stems from Ukraine's strategic focus on full integration into the EU economic area. **The aim of this article** is to identify promising directions for the economic integration of Ukraine’s organic sector into the EU market in the context of the green transition and to develop effective measures for its implementation based on a comprehensive assessment of the market’s structural characteristics, the identification of key barriers and competitive advantages.

Literature Review

Current academic literature clearly identifies organic production as a key tool for achieving the Sustainable Development Goals (SDGs) (United Nations Department of Economic and Social Affairs, 2025), specifically SDG 2, SDG 3, SDG 6, SDG 8, SDG 12, SDG 13, SDG 14, and SDG 15 (de Schaetzen, 2019) and the implementation of the circular economy concept in agri-food systems (Dovgal et al., 2024). The need to address the challenges of organic production development in the context of the green transition is intensified by the fact that “the global agricultural economy is currently caught in a vicious cycle, as agricultural production contributes a significant emissions footprint and simultaneously suffers the most from its impact on yields, product quality, and resource availability” (Krysovatyy et al., 2024).

Recognizing the critical nature of this situation and the need to strike a balance between environmental safety and the economic efficiency of organic production, European institutions are converting environmental requirements into specific legal provisions and developing appropriate mechanisms for their implementation. In particular, the F2F strategy (European Commission, 2020) aims to achieve 25% organic farmland by 2030, which would stimulate domestic EU pro-

duction and tighten requirements for importers of organic products. However, economic studies (Wesseler, 2022) raise concerns regarding the F2F strategy, specifically: environmental restrictions on reducing the use of pesticides and fertilizers could lead to a decline in the output of the EU's agricultural sector; a likely decrease in supply and rise in prices could result in a reduction in consumer welfare. To minimize overall societal losses, it is imperative to support modern biotechnologies and implement appropriate institutional changes. An integral aspect of the environmental sustainability of agricultural products is compliance with standards regarding animal welfare, pesticide utilization, and antibiotic use. And it is organic products that are "much less contaminated by pesticides, and with residues of much lower toxicity compared to those found in conventional foods" (Gomiero, 2018).

Ukraine has formally harmonised its legislation with Regulation (EU) 2018/848; however, its practical implementation requires significant investment in traceability systems, state control, and the institutional capacity of national certification bodies (Ignatenko, 2021; Malokhlib, 2021; Prokopenko & Udova, 2025). The potential benefits of establishing an effective regulatory framework for the domestic organic sector at all levels of the economy will contribute to increasing the profitability of agricultural producers, expand export potential, strengthen Ukraine's image as a supplier of high-quality products, and improve the overall level of food safety in the country and the population's health (Mylovanov, 2018).

Despite complex administrative barriers and the high cost of certification, organic production remains attractive due to the premium price it commands for both large and small businesses. In Ukraine, the war has highlighted the limited potential of large agricultural holdings, which, due to their focus on raw materials and rigid technological dependence, have lost their flexibility in crisis conditions. In contrast, smallholder and family farms processed crop and livestock products, produced berries, fruit and vegetables, proved their efficiency, and maintained their logistical links (Lotysh & Kostetska, 2023). The development of such farms is key to stabilising the market and ensuring Ukraine's successful European integration.

Notwithstanding the positive trend in organic production volumes, the structure of Ukraine's organic exports to the EU is sub-optimal. Ukraine is one of the largest suppliers of raw organic materials, which are used by European companies for further processing and re-export. This provides Europe with resources but leaves Ukraine at the lower end of global value-added chains (Smolii & Mostoviak, 2024; Tkalenko et al., 2021). The key problem facing domestic organic production is a lack of investment in processing infrastructure and the absence of targeted state programmes aimed at stimulating exports of finished organic products. The issue of state financial support for organic production in Ukraine is insufficiently regulated, as legal and financial conditions must be established at the state level to ensure the further development of organic production (Lohosha, 2024).

The latest analytical publications (Basysta, 2025; Lyzun et al., 2024; Trofimtseva, 2024) highlight the unprecedented challenges that have radically altered the conditions for European integration. The war has created logistical shocks and led to a reorientation of trade flows towards land borders with EU countries, resulting in increased transport costs and the formation of "traffic jams" at borders, which limit the speed of supply – a critical factor for organic products. The shortage of domestic financial resources caused by the state of war hinders the planning and financing of long-term measures to implement EU regulations and also limits investment in processing.

On the basis of a review of scientific research, it has been determined that a practical problem remains unresolved, linked to institutional and financial barriers, as well as structural imbalances in Ukraine's organic exports in the context of economic European integration.

Methodology

The methodological framework of the study comprises quantitative and qualitative methods, which enable the systematisation of statistical information, the analysis of current status and trends, and the identification of risks and development potential for Ukraine's organic market in the context of EU integration. Economic-statistical and graphical methods, as well as comparative analysis, were used to visualise, interpret and compare the rates of change in organic land areas in Ukraine and the EU, the dynamics of organic product exports by major countries, total imports into the EU and Ukraine's share therein, and per capita consumption of products in the EU for the period 2018–2024. Using regression analysis and extrapolation, trend lines with a high coefficient of approximation were plotted up to 2027 to determine the capacity of the European market.

To identify internal strengths and weaknesses, as well as external opportunities and threats arising during the process of European integration of the Ukrainian organic sector, the SWOT analysis method was used, and an overall integrated assessment of its current state was determined. Following the experts' decision, the elements within each field of the SWOT analysis were assigned corresponding weighting coefficients, which together total 1. To determine the intervals within the assessment scale and interpret the results, the quartile method was used, which allowed the following four zones to be identified: –10.0…–5.0 points – critical state of integration; –4.9…0 points – significant integration problems; +0.1…+5.0 points – positive developments in integration processes; +5.1…+10.0 points – significant prospects for integration.

The comprehensive application of the selected scientific tools enabled the formation of a holistic picture of the current state of Ukraine's organic market, providing an in-depth analysis of its economic, financial and institutional determinants to identify the challenges and prospects of integration into the EU market in the context of the transition to a climate-neutral economy.

Research Results

The effectiveness of Ukraine's European integration strategy in the organic sector is inextricably linked to an objective analysis of the dynamics of the national market and the structure of demand in key EU partner countries. The consumption of organic products is now an established global trend in the context of the green transition. Ukraine's organic sector demonstrated steady growth until the start of russia's full-scale invasion, remaining one of the most dynamic in Europe. Today, despite all the challenges and threats, organic production in the country is recovering and developing.

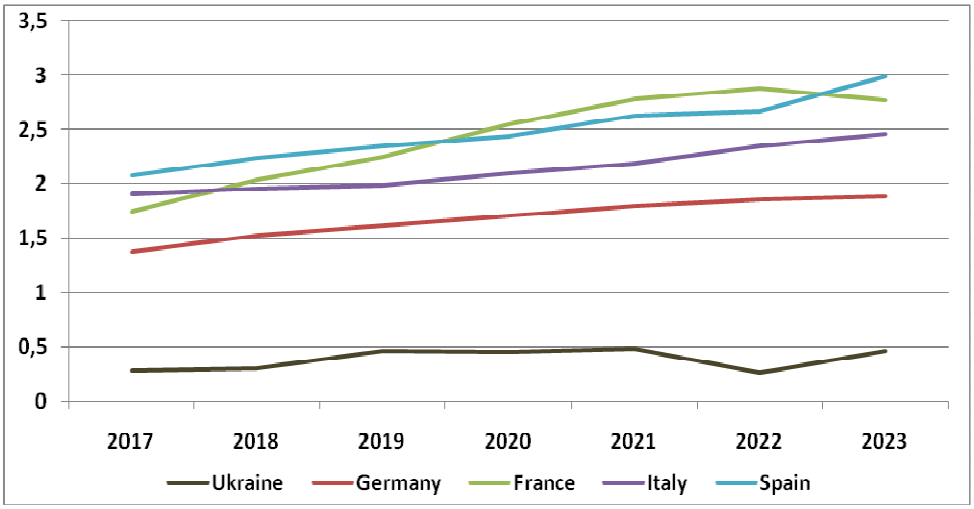
In 2021, the Ukrainian government adopted the National Economic Strategy to 2030, which officially sets the target of increasing the area of organic farmland in Ukraine (Cabinet of Ministers of Ukraine, 2021). It is planned that by 2030, organic land will account for 3% of Ukraine's total agricultural land area (or approximately 1.3 million hectares), and the volume of organic product exports will increase to US$1 billion (Cabinet of Ministers of Ukraine, 2024). In August 2023, the State Register of Organic Operators began functioning. However, russia's full-scale invasion led to a reduction in cropland due to the occupation and hostilities in the south and east of the country.

The 2024 Organic Map of Ukraine (Organicinfo, n.d.-b) shows a 25.8% decrease in the area of certified organic farmland – certified to a standard equivalent to EU and US organic legislation – compared to 2023 (from 471,176 ha to 349,348 ha), which is linked to hostilities, changes in logistics routes and a lack of state support for organic producers. Despite the war, the country's organic sector has maintained its institutional and production stability, as confirmed by statistics from recent years. The total area of land with organic status remained relatively stable, even during the crisis years of 2022–2023 (Figure 1). This indicates a high degree of inertia and commitment among organic operators to this production standard. The share of organic land in Ukraine in 2023 stood at 1.1%. However, despite significant land losses in the first year of the war, the growth rate of land under organic production between 2017 and 2023 stood at 8.5%, which is a significant achievement compared to the growth rates of organic land areas over the same period in EU countries (France –8%, Italy +4.3%, Germany +5.5%, Spain +6.3%).

In the EU, the area of organic farmland increased by 0.6 million hectares between 2022 and 2023, with a growth rate of 3.6%, though this growth is rather uneven. On the one hand, there has been a 3.8% reduction in cultivation areas in France and some northern European countries, whilst on the other hand, there has been significant growth in organic cultivation areas in countries such as Estonia (13.0%) and the Netherlands (12.5%). Growth in the organic market has also been recorded in Germany. In 2022, following the outbreak of full-scale war in Ukraine, the German market suffered severely, responding with significant inflation. However, in 2023 the organic market grew by 5%, in 2024 by 5.7%, and in 2025 it is estimated to be worth approximately €17 billion (Shor, 2025).

Figure 1

Trends in the amount of land under organic production in Ukraine and EU countries, 2017–2023, in million hectares



Source: compiled by the authors based on Willer et al. (2022, 2023, 2024, 2025), Organicinfo (n.d.-c).

Organic land in the EU accounts for 10.9% of the total agricultural land area. At the same time, to achieve 25% organic farmland by 2030, an annual growth rate of 10% is required for the period 2023–2030, or the conversion of 3.26 million hectares of land per year and 22.8 million hectares in total to organic status. The countries with the highest share of organic agricultural land in the EU include Austria (27.3%), Estonia (22.9%) and Portugal (21.7%) (Willer et al., 2025).

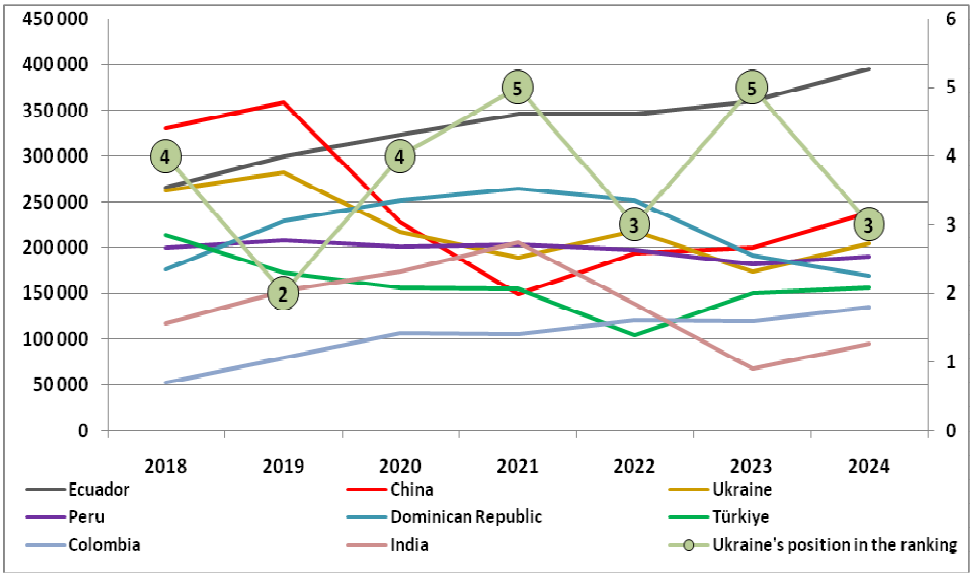
Ukraine occupies an important position among the countries exporting organic products to the EU (Figure 2). In 2024, as in previous years, the largest volume of organic product exports was traditionally directed to EU countries – 203,897 tonnes worth US$120.6 million, accounting for almost 84% of total organic product exports from Ukraine.

Following the results of 2023, Ukraine ranked 5thout of 125 countries in terms of the volume of organic products exported to the EU (European Commission, 2024), and in 2024, it was able not only to maintain but also to strengthen its position in the ranking of the world's largest exporters of organic products to the EU, rising to 3rdplace behind Ecuador and China, which is a direct result of logistics diversification and increased demand for the products. An analysis of the dy-

namics of organic product exports to the EU for 2018–2024 shows that Ukraine was among the top five exporting countries throughout this period. The significant potential for organic production, even in wartime, suggests that Ukraine meets all EU requirements for the cultivation, processing and certification of such products.

Figure 2

Trends in exports of organic products to the EU by major countries, 2018–2024, tonnes

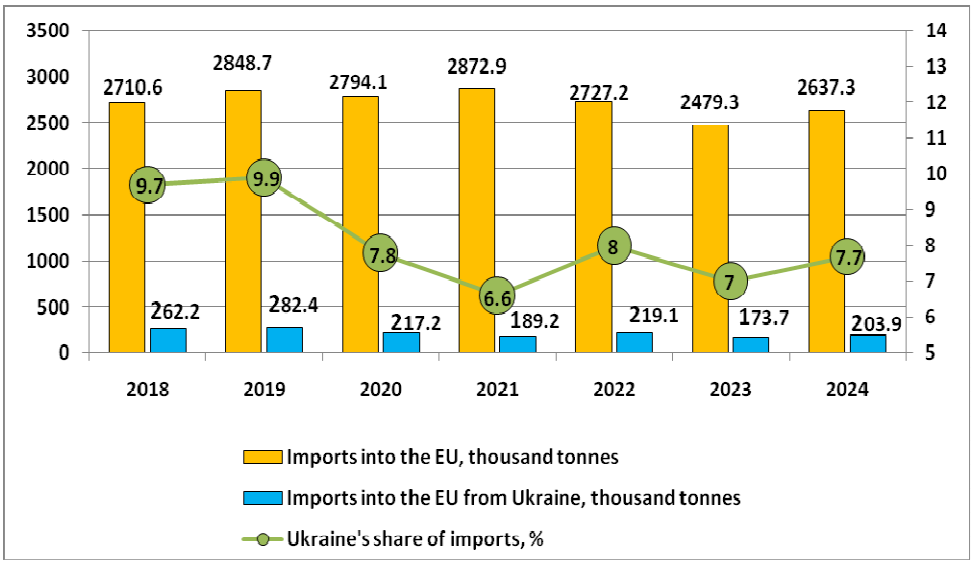


Source: compiled by the authors based on European Commission, DG Agriculture and Rural Development (2025).

The trend in organic product imports into the EU reflects a steady upward trend between 2018 and 2021. However, the russian invasion led to a rise in global food prices and a decline in demand for organic products. As a result, import volumes fell by 5% in 2022 and by a further 9% in 2023. The gradual increase in imports in 2024, up 6.4% compared to 2023, did not even reach the import volumes of 2018 (Figure 3).

Figure 3

Trends in organic product imports into the EU for 2018–2024

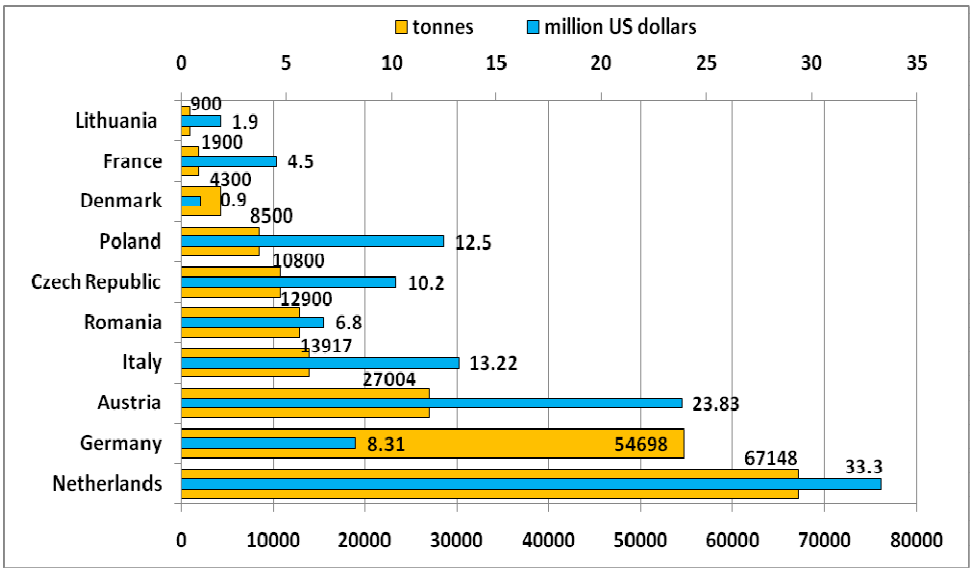


Source: compiled by the authors based on European Commission, DG Agriculture and Rural Development (2025).

The trend in Ukrainian imports mirrored similar patterns. The loss of organic farmland and the decline in organic production in Ukraine led to a 20.7% drop in export volumes in 2023 compared with 2022. However, the gradual growth in demand for organic produce in EU countries and incentives for organic producers in Ukraine contributed to the recovery of organic production and, consequently, the volume of domestic exports to the EU in 2024 increased by 17.4% (to 203.9 thousand tonnes). The top 10 EU countries importing Ukrainian organic products in 2024 are shown in Figure 4.

Figure 4

The top 10 countries importing Ukrainian organic produce in 2024



Source: compiled by the authors based on Organicinfo (n.d.-a).

An analysis of the export structure (Table 1) confirms the raw material-oriented nature of Ukraine's organic trade, which poses the main challenge to increasing economic efficiency (Smolii & Mostoviak, 2024; Tkalenko et al., 2021). However, in 2024 there was a decrease in the share of raw material exports to 79.6% compared to 81.4% in 2023, and an increase in the share of processed organic products with higher profitability (from 18.6% in 2023 to 20.4% in 2024).

In 2024, exports of Ukrainian organic produce rose by 18% compared with 2023, mainly due to an increase in exports of organic oilseeds and protein crops (+23%) and cereals (+8.3%), which propelled Ukraine to third place among countries exporting organic produce. In addition, there has been a 17.3% increase in exports of frozen berries (raspberries and blueberries), a 47.9% rise in vegetable oils, a 67.1% surge in margarine and other fats, and a 39.8% growth in products from the flour and cereal industry. This trend has emerged due to increased demand and interest from international partners not only in raw materials but also in finished products, which is gradually shaping a new image of Ukraine as a supplier of a diverse range of organic products.

Table 1

Composition of organic products exported from Ukraine to the EU in 2023–2024

Products	2023		2024	
	tonnes	%	tonnes	%
Cereals	77319	44.7	83728	41.2
Oilseeds and protein crops	63459	36.7	78069	38.4
Fruit and nuts	19202	11.1	22517	11.1
Vegetable oils (from oilseeds and palm oil)	3950	2.3	5842	2.9
Margarine, other vegetable oils and fats	2596	1.5	4337	2.1
Processed products from cereal grains and products of the flour and cereal industry	2675	1.5	3740	1.8
Semi-finished products from fruit, nuts and vegetables	3000	1.7	2887	1.4
Other livestock products	643	0.4	1922	0.9
Total	172844	100	203042	100

Source: compiled by the authors based on European Commission (2025).

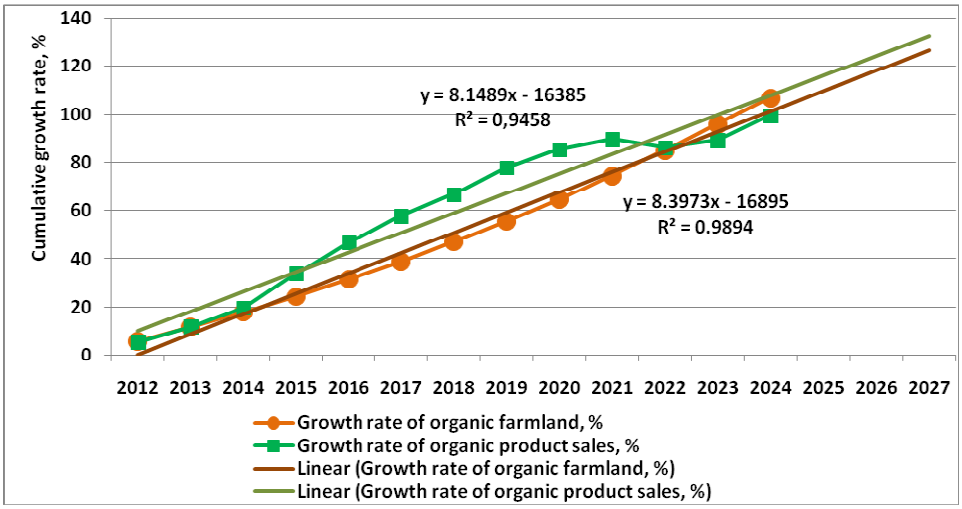
Ukraine's position in exports of organic products to EU countries in terms of total volume does not correspond to its position in terms of value (see Figure 4). Nevertheless, certain shifts are being observed in this sector; in particular, in recent years Ukraine has been increasingly expanding exports of products with higher value added. In 2024, the top 10 products, apart from frozen blueberries, included sunflower oil, millet, frozen raspberries, concentrated apple juice, honey, frozen strawberries, oat grains, buckwheat groats, and birch sap (AgroElita, 2025).

The EU organic market is currently experiencing a situation where aggregate demand for certain types of organic products is growing faster than supply. This is due to the fact that the rate of growth in organic farmland in the EU is lagging behind the rate of growth in organic sales (Figure 5).

An analysis of both graphs shows that the EU organic sector is mature and predictable. The high reliability coefficient of approximation suggests that these forecasts have a high probability of being realized (almost 95% and 99%, respectively), provided that current economic trends continue. For Ukrainian businesses, this means that the European market will remain buoyant.

Figure 5

Trends in the area of organic farmland and sales of organic produce in the EU for 2012–2024

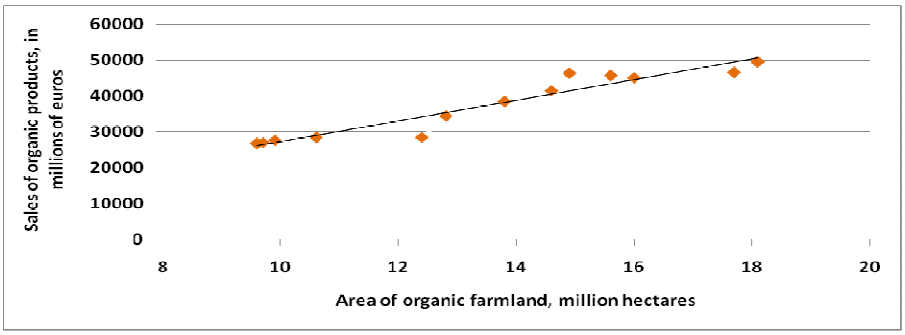


Source: made by the authors based on Willer et al. (2022, 2023, 2024, 2025), Ozbun (2025).

To illustrate the relationships between indicators, Figure 6 presents the correlation between organic product sales and the area of organic land.

Figure 6

Correlation between sales of organic products and the area of organic farmland in the EU, 2012–2024



Source: made by the authors.

The linear regression equation for organic product sales allows us to quantify this relationship:

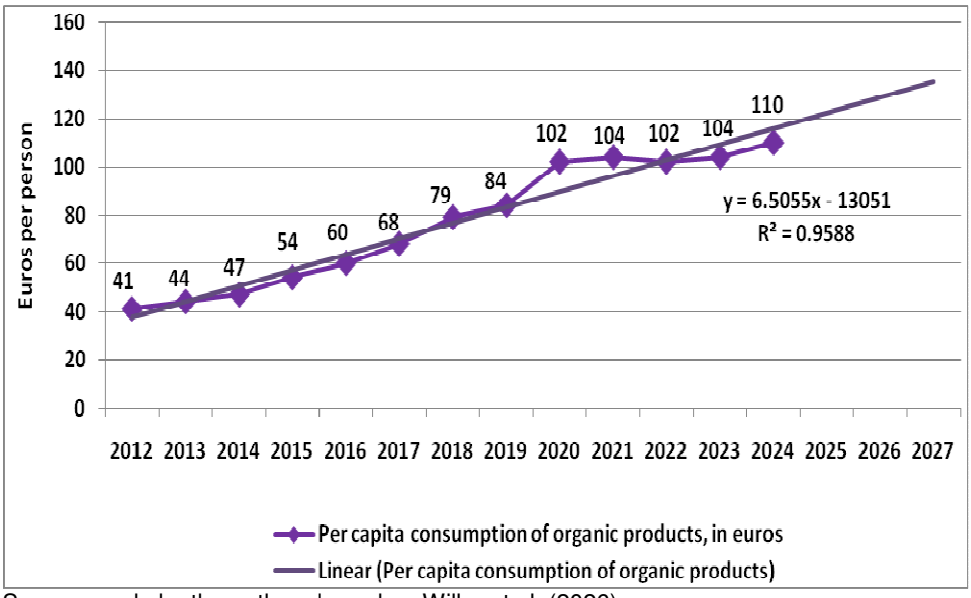
$$y = 2873.8x - 1513.8$$

The regression coefficient (b = 2,873.8) indicates that a 1 million hectare increase in organic farmland leads to an average rise of 2,873.8 million euros in organic product sales. This highlights the high return per hectare within the EU common market. The intercept (a = –1,513.8 million euros) is, in this context, a mathematical abstraction, but economically it may indicate the existence of an entry threshold – the sector requires a certain critical mass of land and infrastructure before significant revenue from sales begins to be generated.

Furthermore, consumption of organic products in value terms per capita in EU countries (Figure 7) shows a positive trend and increased 2.7-fold between 2012 and 2024 (from €41 to €110). In 2022, consumer spending on organic products fell due to rising inflation and the cost of agricultural products globally. The gap between supply and demand for organic products gradually narrowed during 2023–2024, whilst consumption forecasts and trends for such products indicate growing demand across all consumer categories in EU countries.

Figure 7

Trends in per capita consumption of organic products in the EU, 2012–2024



Source: made by the authors based on Willer et al. (2026).

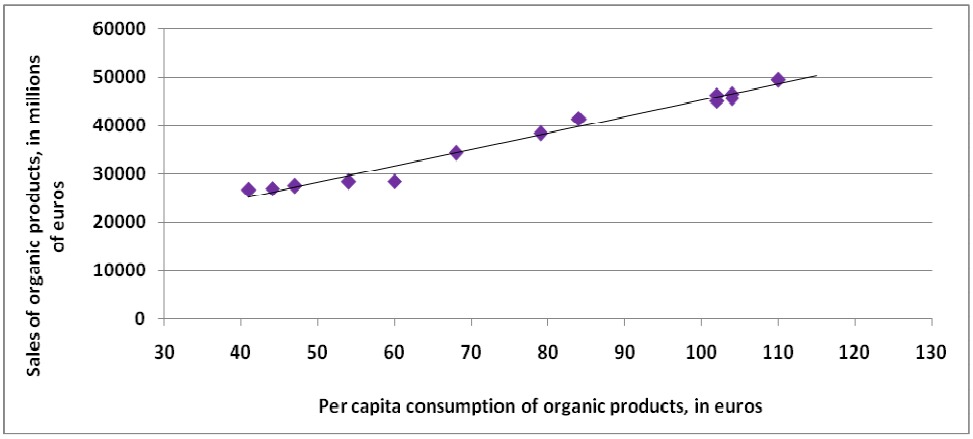
The correlation between sales and per capita consumption of organic products in the EU reflects a similar trend (Figure 8); accordingly, the linear regression equation takes the following form:

$$y = 339.8x + 11{,}214$$

This model quantifies how a change in an individual consumer's behaviour contributes to the financial performance of the EU's organic market. The regression coefficient (339.8) highlights the scale of the European market – even a slight shift in consumer priorities generates a significant increase in the sector's aggregate revenue. In this model, the intercept represents the hypothetical baseline market size (€11,214 million) that would exist under minimum average consumption levels. This indicates the presence of a stable core within the EU organic market, which has formed amid the green transition and possesses a high resilience threshold.

Figure 8

Correlation between organic product sales and per capita consumption in the EU, 2012–2024



Source: made by the authors.

The growth in domestic organic farmland within the EU and per capita consumption of organic produce will require Ukrainian exporters to offer higher quality and more processed products in order to remain competitive. Therefore, given its potential, Ukraine has the opportunity to capture a significant share of the European market by increasing production of high-margin organic produce.

Table 2 presents the results of a correlation analysis, which can be used to evaluate the strength and direction of the relationship between the indicators shown. Pearson's correlation coefficients indicate a high degree of harmonisation in the EU organic products market. Thus, the increase in land area under organic production in the EU occurs simultaneously with the growth in market demand (r = 0.959), meaning that production capacity responds clearly to signals from the organic sector. The high R-value confirms that the EU's green transition strategy and the F2F strategy are distinctly extensive in nature: more land leads to proportionally higher sales. Market growth in the EU is driven not only by the emergence of new consumers but also by an increase in individual consumers' spending on organic products (r = 0.989). The EU's agricultural policy on increasing organic farmland as part of the F2F strategy correlates clearly with changing dietary habits and rising living standards (r = 0.971), with consumers willing to pay for environmentally friendly products.

Table 2

Results of the correlation analysis

Indicators	Pearson's correlation coefficient (r)	Coefficient of determination (R^2)
Sales of organic produce – amount of organic farmland	0.959	0.919
Sales of organic products – per capita consumption of organic products	0.989	0.979
Amount of organic farmland – consumption of organic produce per person	0.971	0.942

Source: calculated by the authors.

The high values of the coefficients of determination confirm an almost linear relationship between the indicators under study, which points to the exceptional balance and transparency of the EU organic market. Indeed, 91.9% of the variation in sales volumes is explained by changes in land area, whilst other factors (marketing, the trend towards healthy eating, pricing policy) account for only 8.1%. Similarly, 97.9% of the variation in organic product sales in the EU is explained by changes in per capita consumption, with only 2.1% attributable to other factors (changes in population size, exports outside the EU, or statistical errors). Such a close correlation demonstrates that the European sector is developing systematically, making the market predictable for the strategic planning of Ukrainian exports.

In the context of the green transition, Ukraine's European integration not only creates opportunities but also imposes strict requirements on the production, packaging, sorting, storage, and transport of organic products, among other things. Despite their advantageous geographical proximity to the EU and a well-developed transport network, Ukrainian suppliers of organic products face difficulties that weaken their competitive position. Until 2022, seaports were the main logistics channel for Ukrainian organic exports, ensuring low transport costs. The full-scale invasion led to the blockage of sea routes and an infrastructure and logistics shock, forcing a reorientation of export flows towards land corridors through EU member states. The European rail network and motorways were not prepared for such a volume of Ukrainian agricultural exports, which resulted in:

- significant delays at border crossings due to differences in the track gauge between Ukraine's and the EU's railway infrastructure, as well as insufficient capacity for veterinary and phytosanitary checks;
- rising transport costs, as the cost of shipping 1 tonne of organic produce by land has increased two to fourfold compared with maritime transportation;
- a decline in the quality of organic products due to long waits at borders, which is unacceptable under Regulation (EU) 2018/848.

Regulatory and legislative barriers pose additional challenges, stemming from disparities between national and European organic legislation, complex and costly certification procedures for organic products intended for export to the European market, additional product inspections, and complicated customs procedures. In this context, the harmonisation of Ukrainian legislation with EU legislation is an essential prerequisite for the sale of Ukrainian products on the European market. As the EU has strict requirements for organic products and changes are periodically introduced, Ukraine must also continuously adapt its national standards to European ones in order to continue cooperation (Ignatenko, 2021; Smolii & Mostoviak, 2024). Furthermore, additional control measures are quite often applied to Ukrainian products. In particular, European importers require special checks for pesticide residues and carry out double quality control to avoid the risk of adulteration. Ukrainian organic products may undergo additional checks at EU border control points, which slows down the customs clearance process, leads to longer delays and increased costs.

To export to the EU, Ukrainian producers must undergo inspections in accordance with EU regulations and national standards; they are required to confirm the availability of all necessary electronic documents and certificates of inspection (COI) via the TRACES system, which requires financial resources, appropriate technical capacity and trained staff.

High competition in the EU organic market is also a barrier that complicates the situation for Ukrainian suppliers (Smolii & Mostoviak, 2024). European producers have advantages due to EU support programmes, subsidies, proximity to consumers, developed infrastructure and better cooperation with local retail chains. Ukrainian producers face difficulties in raising product awareness among

European consumers and strengthening their market positions. Price competition manifests itself in the fact that European producers set lower prices for their products thanks to state support, whereas cheaper Ukrainian organic products are sometimes perceived by European consumers as being of low quality.

A SWOT analysis was used to identify the challenges and prospects of Ukraine's integration into the EU organic market and to obtain a structured information framework (Table 3).

Table3

SWOT analysis of the Ukrainian organic sector in the context of European integration

Strengths		**Weaknesses**	
S1	A large land bank, fertile soils and favourable climatic conditions	W1	Exports are predominantly raw material-oriented
S2	An established export reputation	W2	Logistical risks and infrastructure gaps
S3	The availability of wild-growing produce (wild berries, mushrooms and medicinal herbs)	W3	Unstable, limited state support and subsidies
S4	Lower production costs compared to EU countries	W4	A shortage of domestic accredited bodies recognised by the EU at the level of national institutions
S5	A well-developed internal certification system	W5	A shortage of specialist knowledge and services
Opportunities		**Threats**	
O1	Growth and stable demand for organic products in the EU	T1	Environmental and radiation consequences of the war, energy instability
O2	The F2F strategy and raw material shortages in the EU	T2	Brain drain
O3	Harmonisation of legislation and simplification of export procedures	T3	Discrimination at borders (blockades) and logistical blackmail
O4	Bioenergy and circular production	T4	Regulatory divergence and increased scrutiny from the EU
O5	Investments in processing and grant support for Ukraine's recovery	T5	Competition from Latin American and African countries

Source: authors' own elaboration.

One of the strengths of Ukraine's organic market is the presence of large tracts of chornozem (black soil) suitable for organic farming without the need for lengthy reclamation; these soils have a high humus content, enabling high yields to be achieved without the intensive use of fertilisers permitted in organic farming. Ukraine is already a recognised brand in the German, Dutch and Swiss markets as a supplier of high-quality raw materials. Most organic farms have been operating to organic standards for years, which facilitates the transition to the new regulations. Compared to EU farmers, Ukrainian producers have an advantage in terms of operating costs, although this gap is narrowing. Ukraine has large, certified areas for harvesting wild berries, mushrooms and medical herbs in the Carpathians and Polissia, in contrast to EU countries, where few natural areas remain suitable for such certification and, as a result, our country is virtually a monopoly in the supply of wild blueberries, elderberries and birch sap.

By developing its domestic market, Ukraine is increasingly establishing itself on the international stage for organic produce, becoming one of the world leaders in terms of the amount of agricultural land allocated to its cultivation, and is constantly expanding the range of products on offer (Sychuk, 2024).

Ukraine currently holds one of the leading positions in the frozen berries and fruit sector. This has been facilitated by a shift in the role of domestic producers, who have moved from being mere suppliers of raw materials to a model of strategic partnership that ensures a high level of processing. In 2024, Ukraine set a new national record for exports of frozen berries and fruit, reaching a volume of 104,000 tonnes (Yahidnyk Journal, 2025). This result was achieved primarily thanks to raspberry exports, which amounted to over 65,000 tonnes – a 34% increase year-on-year – ensuring Ukraine's global leadership in terms of net exports. Overall, between 2022 and 2024, exports of frozen raspberries from Ukraine more than doubled, whilst exports from Serbia remained unchanged and Poland actually reduced theirs by 24% (East Fruit, 2025). Maintaining a leading position in the frozen raspberry export segment was facilitated, firstly, by improvements in the quality of the berries, an increase in production volumes and investment in further processing, which allowed for an increase in average export prices for frozen raspberries. Secondly, this was due to Ukrainian producers seeking new markets and diversifying their export supplies. In this context, the reinvestment of additional funds generated stimulated further expansion of berry production and processing.

The list of key Ukrainian export items as of 2025 also includes frozen blueberries and garden strawberries, as well as wild berries (blackberries, bilberries), which has helped to reduce the risk of price fluctuations for frozen raspberries. It is precisely this diversity that has established Ukraine's reputation as a reliable supplier of berries frozen using IQF technology, which fully meets the raw material needs of European manufacturers of yoghurts, smoothies, confectionery, dietary supplements, along with retailers. A promising area for domestic exports is the supply of stone fruits, namely cherries and plums, to the EU confectionery sector, displacing low-quality products from third countries from the market.

Meanwhile, one of the most dynamic segments of domestic processing is the freeze-dried berries and fruits segment. As demand for freeze-dried products in the EU is constantly growing, freeze-drying is now the driving force behind Ukraine's integration into the organic market. Other areas of integration include freeze-dried granules, powders and mixtures to meet the needs of the EU's pharmaceutical and confectionery sectors.

Ukraine's export profile is being shaped by the supply of organic and functional oils. Demand for refined oil in the EU is declining, but demand for cold-pressed oil is growing rapidly. It is precisely these products, as the foundation of healthy eating for the EU population and professional food preparation, that are highly profitable for Ukraine. Cold-pressed oil and blends of several types of oil are considered key products. Simultaneously, in the context of European integration processes, Ukrainian producers are focusing on products that meet the demand of specific market segments and are also used in pharmacology, cosmetology and the confectionery sector, in particular: hemp oil, walnut oil, wheat germ oil and pumpkin seed oil.

Organic animal feed is a key component of Ukraine's exports to the EU. The European livestock sector faces a chronic shortage of organic feed. Ukraine is uniquely positioned to address this shortage with minimal environmental risks, transitioning from a supplier of raw materials to a supplier of value-added products. For the European organic feed market, Ukraine is a key supplier of organic sunflower, soybean, rapeseed meal and oilcake. The export of these protein-rich products, which are free from GMOs and synthetic additives and offer high value-added, makes this sector extremely promising. The supply of organic dog and cat food could become an innovative area for Ukrainian exports to the EU in the future, as the market, whilst demonstrating high annual growth rates, is experiencing an acute shortage of these particular products.

The weaknesses of Ukraine's organic market are internal factors that hinder the sector's development and make it vulnerable to competition from EU countries. The key economic challenge of Ukraine's integration into the EU organic market lies in the "raw material trap". The Ukrainian organic sector functions as a supplier of resources for European processors. For example, organic soybeans grown in Ukraine are exported, processed into organic oil and meal in Germany and the Netherlands, packaged under a European brand and sold to consumers at a premium price, whilst Ukraine receives only revenue from the sale of raw materials. The reasons for this problem are a lack of processing capacity and the difficulty of accessing EU retail networks. Most organic operators lack the investment resources to build their own processing plants or modernise existing ones to meet organic standards. Furthermore, selling finished products in EU supermarkets requires significant marketing expenditure, logistical guarantees and high-quality packaging and branding, which is usually beyond the reach of most small and medium-sized enterprises. Therefore, shifting the export model from raw materials to finished products is a strategic imperative for ensuring the economic effectiveness

of European integration. This requires attracting targeted foreign investment in processing and creating tools to support national organic branding.

Logistical risks and the infrastructure gap in Ukraine's organic sector are also among the weaknesses of the European integration process. In the organic sector, the rule is: "You are not just selling a product; you are selling a certified supply chain". Any break in this chain negates the product's premium price. Ukraine lacks specialised terminals for organic produce, whereas the ports of Hamburg and Rotterdam have separate terminals dedicated to organic goods. The risk of organic produce being contaminated by GMO products or fumigated grain is extremely high. Moreover, a single mistake during transhipment means a consignment worth hundreds of thousands of euros loses its organic status and is sold at the price of ordinary feed. In Ukraine, logistics is built on a "giant-sized" model, featuring large railway hopper wagons and enormous barges. It is difficult for an organic farmer producing 20 tonnes of organic produce to find a certified carrier with a small tonnage capacity. However, in EU countries, a well-developed network of small distribution centres allows a farmer to send a single pallet of blueberries to the other end of the country overnight. In Ukraine, the delivery of small consignments often costs more than the produce itself.

In the supply chain, the cold chain and maintaining the correct temperature are of critical importance. The destruction of Ukraine's power grid due to war makes storage in refrigerators risky. Unlike in the EU, where warehouses are equipped with autonomous renewable energy sources and smart real-time temperature monitoring systems, Ukrainian producers face "temperature swings". Consequently, fresh Ukrainian organic produce on the shelves of European supermarkets has a shorter shelf life compared to Spanish or Italian produce.

In the EU, every carrier and warehouse understands the requirements of Regulation (EU) 2018/848 and is certified. In contrast, most logistics operators in Ukraine are not certified as part of the organic supply chain. As a result, producers have to bear logistics costs and purchase their own transport, which diverts capital away from production. Therefore, in the EU, logistics is a service, whereas in Ukraine, it is a burden on the producer.

Economic growth in Ukraine's organic sector is hampered by limited state support and insufficient funding, which are particularly acute for small and medium-sized enterprises, specifically:

1. The high cost of organic product certification – the process of international certification in accordance with EU standards represents a significant financial burden (3,000–10,000 euros per year). Annual certification requires ongoing operational costs, which act as a non-price barrier. In Europe, the fee for farm certification ranges from €250 to €750, depending on the type of activity, the size of the enterprise, and other factors. However, it should be noted that the average European farm operates on approximately 30-50 hectares of land, while in Ukraine, the average area of a certified farm is 2,000 hectares. Additionally, the farmer must cover

the cost of the foreign inspector's flight, their stay, and the inspection and certification process itself. Given these land areas, the cost of certification can significantly undermine a farmer's desire to engage in organic production, as in this case it can be as much as ten times higher than European rates. For smaller farms or when using the services of domestic organizations, the cost of certification may be somewhat lower (Federation of Organic Movement of Ukraine, n.d.).

2. Limited access to long-term financing – characterized by high risks, a lack of collateral, and inadequate government support. The ongoing war has increased investment risks in the agricultural sector, leading to stricter bank requirements and shorter loan terms. Organic operators often lack sufficient collateral to obtain the long-term loans needed to invest in expensive processing infrastructure (such as lines for producing organic oils or freezing berries). Unlike EU farmers, who receive direct subsidies under the Common Agricultural Policy (CAP), Ukrainian organic producers face limited and ad hoc state financial support.

The shortage of Ukrainian accredited bodies recognized by the EU is another of the most pressing "procedural" weaknesses. Although Ukraine has an organic law and accredited bodies (Organic Standard), producers are critically dependent on the recognition of domestic certificates abroad. To export to the EU, Ukrainian producers are often forced to turn to foreign regulatory bodies to have their goods accepted at customs. Domestic state institutions are not yet integrated into the European system to the extent that a Ukrainian certificate carries the same weight in court or during a supermarket inspection as a local European one. As a result, domestic manufacturers incur additional costs for dual certification and face the constant risk of heightened border controls applied to Ukrainian products.

A lack of expertise and services can result in additional yield losses of 20% to 40% for producers compared to those receiving professional support. Organic farming is a high-tech field based on biology and ecology. A severe shortage of specialists in organic plant protection creates significant management risks when scaling up the business, as developing phytosanitary control systems without the use of synthetic fungicides requires specific expert competencies. In addition, there is a lack of specialized services in mechanization due to a shortage of cultivators and robots for mechanical weed control; in biological products due to the unstable quality of the Ukrainian market for biofertilizers and plant protection products; and in consulting due to a shortage of service companies that can provide support from seed to shelf.

The opportunities for organic production in Ukraine in the context of European integration include:

- the EU's plan to increase the proportion of organic land to 25% by 2030 creates a significant shortfall in organic raw materials, which Ukraine could help to meet;
- the adoption of a Ukrainian law on organic products and its recognition by the EU will simplify trade and reduce bureaucratic burdens;

- attracting European grants and investment to set up production lines for organic jams, juices, freeze-dried fruit and baby food guarantees a shift from a price of US$1 per kg of raw material to US$5–10 per finished unit;
- integration of domestic organic farming with the production of bio-methane and organic fertilisers makes the farm energy-independent and allows for the sale of "green" gas to the EU, which is a highly profitable sector by 2026;
- the introduction of electronic transaction certificates (TRACES) boosts the confidence of European buyers;
- securing non-repayable funding for technological upgrades – from drones for organic spraying to automated sorting lines – enhances the efficiency of production processes.

An expert assessment of Ukraine's organic sector in the context of European integration, based on a SWOT analysis, is presented in Table 4.

Table 4

Calculation of the weighted integral assessment of Ukraine's organic sector

Elements of the SWOT matrix	Expert 1	Expert 2	Expert 3	Average expert rating	Weighting coefficient	Overall integral value
Strengths					**1**	**+8.76**
A large land bank, fertile soils and favourable climatic conditions	+10	+10	+10	+10	0.3	+3.0
An established export reputation	+8	+9	+8	+8.3	0.3	+2.49
The availability of wild-growing produce (wild berries, mushrooms and medicinal herbs)	+9	+9	+10	+9.3	0.1	+0.93
Lower production costs compared to EU countries	+9	+9	+8	+8.7	0.2	+1.74
A well-developed internal certification system	+6	+7	+5	+6	0.1	+0.6
Weaknesses					**1**	**-6.74**
Exports are predominantly raw material-oriented	-7	-8	-7	-7.3	0.2	-1.46
Logistical risks and infrastructure gaps	-8	-8	-7	-7.7	0.2	-1.54
Unstable, limited state support and subsidies	-8	-7	-8	-7.7	0.2	-1.54
A shortage of domestic accredited bodies recognised by the EU at the level of national institutions	-6	-5	-7	-6	0.2	-1.2
A shortage of specialist knowledge and services	-6	-4	-4	-5	0.2	-1.0

Elements of the SWOT matrix	Expert 1	Expert 2	Expert 3	Average expert rating	Weighting coefficient	Overall integral value
Opportunities					**1**	**+9.4**
Growth and stable demand for organic products in the EU	+10	+10	+10	+10	0.3	+3.0
The F2F strategy and raw material shortages in the EU	+9	+10	+10	+9.7	0.2	+1.94
Harmonisation of legislation and simplification of export procedures	+8	+9	+8	+8.3	0.2	+1.66
Bioenergy and circular production	+10	+10	+10	+10	0.1	+1.0
Investments in processing and grant support for Ukraine's recovery	+9	+9	+9	+9	0.2	+1.8
Threats					**1**	**-7.04**
Environmental and radiation consequences of the war, energy instability	-8	-8	-7	-7.7	0.3	-2.31
Brain drain	-8	-8	-8	-8	0.2	-1.6
Discrimination at borders (blockades) and logistical blackmail	-5	-6	-7	-6	0.1	-0.6
Regulatory divergence and increased scrutiny from the EU	-7	-8	-7	-7.3	0.1	-0.73
Competition from Latin American and African countries	-6	-7	-5	-6	0.3	-1.8
Overall integral value						**+4.38**

Source: authors' own elaboration.

In the context of European integration, the estimated overall integral value of Ukraine's organic produce market amounted to:

$$I = S + W + O + T = + 8.76 – 6.74 + 9.4 – 7.04 = +4.38$$

Consequently, positive developments are being observed in integration processes (+4.38), which, despite serious internal challenges, maintain a positive outlook for the development and integration of Ukraine's organic sector into the EU market in the context of the green transition.

According to the assessment of the organic market, Ukrainian producers would be well advised to focus on the "Strengths – Opportunities" field (+18.16), as it contains measures to improve integration into the EU organic market (Table 5).

Table5

SWOT analysis matrix of Ukraine's organic market in the context of European integration

	Strengths	Weaknesses
Opportunities	1. A large land bank and fertile soils will ensure the success of the F2F strategy (S1, O2)	1. The raw material-oriented nature of Ukrainian exports can be overcome through direct investment in processing (W1, O5)
	2. An established export reputation will help attract investment in Ukraine's processing and recovery sectors (S2, O5)	2. Promoting the F2F strategy will enable the creation of specialised services and expertise (W5, O2)
	3. Growing demand in the EU for organic products will contribute to the expansion and deepening of external ties and an increase in the share of organic exports (S2, S3, O1)	3. Growing demand in the EU for organic products will encourage producers to shift from selling raw materials to products with higher value added (Sl1, M1)
	4. Harmonisation of legislation with the EU and simplification of export conditions will help attract new organic producers (S4, O3)	4. The lack of state subsidies will be offset by grant support for Ukraine's recovery (Sl3, M5)
	5. The integration of domestic organic farming with the production of biomethane and organic fertilisers will enable the sale of "green" gas to the EU (S1, S2, O4)	5. The use of bioenergy and a closed-loop organic production cycle will offset logistical risks (W2, O4)
	6. Competitively priced Ukrainian organic products and a well-developed certification system will be advantageous in meeting European consumers' demand for organic products (S4, S5, O1)	6. The harmonisation of domestic legislation with EU standards will facilitate the emergence of accredited certification bodies recognised within the EU (W4, O3)
	Total: +18.16	**Total: +2.66**
Threats	1. The availability of fertile soils and lower production costs will give Ukraine a competitive advantage over other countries (S1, S2, S4, T5)	1. Discrimination at borders (blockades) and logistical blackmail will make the export of perishable organic produce virtually impossible (W1, T3)
	2. The potential of wild-growing crops will help to partially mitigate the threat of logistical blackmail (S3, T3)	2. The lack of domestic certificates recognised by the EU will exacerbate the pressure caused by the regulatory gap (W4, T4)
	3. The stable development of the domestic organic market will encourage the return of skilled workers from abroad (S2, T2)	3. The dominance of the raw materials model in organic exports and the limited state support for the organic market will create a threat of increased competition from other countries (W1, W3, T5)
	4. The creation of reliable buffer zones, made possible by the availability of large tracts of land, will prevent the drift of pesticides from neighbouring fields, thereby facilitating compliance with stricter EU controls (S1, T4).	4. Limited state support will lead to the risk of emigration of highly qualified specialists in the field of organic production (W3, T2)
	5. Developed foreign trade links and growth in export revenue will enable investment to overcome the negative consequences of the war (S2, T1)	5. The insufficient effectiveness of state instruments for protecting the interests of domestic exporters of organic products may make it impossible to counter discriminatory actions and logistical blackmail at the borders of EU countries (W3, T3)
	Total: +1.12	**Total: -8.93**

Source: authors' own elaboration.

The SWOT analysis carried out has shown that the "Weaknesses – Threats" quadrant represents a critical risk area, where the internal weaknesses of organic producers are compounded by destructive external threats. For this field, measures must be developed to ensure survival and protective transformation, the primary aim of which is to minimise losses and prevent producers from exiting the organic market, in particular:

1. Urgent logistical diversification is required to address dependence on road transport and the risks of border blockages. This requires a shift from road transport to multimodal schemes utilising rail container transport and the small ports of the Danube cluster (Izmail, Reni) through the creation or leasing of temporary storage facilities in the western regions of Ukraine to consolidate large consignments.

2. The introduction of mobile off-grid power systems to maintain the organic status and quality of products, particularly frozen goods, during power cuts. To this end, warehouses and processing facilities must be equipped with hybrid systems: solar panels + industrial batteries + diesel generators, using targeted energy efficiency grants under EBRD programmes.

3. Establishing organic hubs and export cooperatives to address staff shortages and infrastructure gaps by pooling the resources of organic producers. Their cooperation will reduce costs associated with hiring specialist consultants, certification and the use of primary processing lines (cleaning, sorting, packaging).

4. To avoid reputational damage and fines resulting from stricter EU controls, preventive laboratory testing must be ensured. Mandatory testing of every consignment in accredited Ukrainian or European laboratories prior to customs clearance will create an internal 'whitelist' of reliable suppliers. This, in turn, will reduce the likelihood of goods being returned due to the detection of pesticide residues or the impacts of environmental pollution.

As part of the green agenda for European integration, targeted state incentives for processing, attracting investment in organic production, and the effective use of post-war recovery mechanisms are essential. Great attention should be paid to the rational use of all available resources and, in particular, those directed to investment in new products (Yankovyiet al., 2022). Thanks to these measures, the share of exports of finished and semi-finished organic products would increase to 30–40% of the total volume, compared to the current 10–15%. Higher profitability and premium prices will enable Ukraine to meet or exceed the target of US$1 billion in exports by 2030, which will have a significant impact on the agri-food sector's foreign trade balance.

Discussion

The successful European integration of Ukraine's organic sector depends on the country's ability not only to adapt to EU regulatory standards, but also to

strategically reorient production towards high-profit segments, taking into account global trends in sustainable development and the green transition. By 2030, Ukraine must fully implement the EU legislative framework, in particular Regulation (EU) 2018/848, and ensure the stability of institutional oversight.

The F2F strategy, as part of the European Green Deal, is transforming EU requirements for importers by shifting the focus from mere compliance with standards to the integration of sustainability. Therefore, it is essential for Ukrainian manufacturers to comply with these requirements and take future trends into account, in particular:

1. Stricter environmental standards – in addition to complying with Regulation (EU) 2018/848, Ukrainian producers will be required to demonstrate minimal negative impact. This will entail stricter requirements for zero or minimal levels of pesticide and antibiotic residues, particularly for the export of organic livestock products to the EU market, which is the most demanding.

2. Implementation of digital traceability and transparency – the F2F strategy requires maximum transparency throughout supply chains. Ukrainian operators must invest in digital traceability systems that enable real-time tracking of products from the field to the borders of EU countries. This is not only a requirement but also a competitive advantage that will reduce the risk of fraud.

3. Compliance with carbon regulation requirements is the most far-reaching trend (Maksymova et al., 2023). Although the Carbon Border Adjustment Mechanism (CBAM) applies to industrial goods, it is expected that, in the medium term, the carbon footprint will become a non-price trade barrier for agri-food products as well. Ukrainian organic producers, who naturally contribute to carbon sequestration in the soil, must proactively implement systems to measure and certify their carbon footprint in order to access "green" financing and remain competitive.

In the face of global challenges, the Ukrainian organic sector is compelled to transform itself from a supplier of raw materials into a full-fledged participant in European value chains. A re-evaluation of the challenges and prospects of the organic market's European integration in the context of the green transition is essential for developing effective measures to maximise economic benefits and minimise the vulnerability of national organic producers to external shocks.

Conclusions

The results of the study revealed that, despite the challenges posed by the war, the domestic organic market has retained its potential for growth and remains integrated into the EU's economic area. The analysis revealed that raw materials dominate the structure of organic product exports. On the one hand, this has secured Ukraine a leading position among the top suppliers in the EU market;

on the other hand, it has resulted in producers missing out on economic benefits due to the sale of products with low value added. Global trends, increased demand for organic products among the EU population, and the interest of international partners in diversifying their procurement have become factors driving the transformation of exports, characterised by a reduction in the share of raw materials and an increase in the share of highly processed products.

The findings of the correlation analysis indicate a high degree of market balance for organic products in the EU. In particular, the expansion of organic farmland is largely in step with the growth in market demand, indicating that producers are responding promptly to market signals. Meanwhile, the driver of growth in the EU organic market is consumers' willingness to spend more on organic products.

The high values of the coefficients of determination confirm that the key factors are the expansion of production areas and rising consumer spending. This demonstrates that the organic produce market is developing in a systematic and orderly manner. For Ukrainian producers, this provides a solid foundation for developing effective export strategies based on clear forecasts.

It has been established that, thanks to the faster growth rates of Ukrainian organic farmlands compared to the EU and the existing gap between growing demand and limited supply of organic products in the EU, Ukraine has the opportunity to fill this segment by gradually increasing the production of high-profit organic products.

The results of the SWOT analysis yielded an overall integrated assessment of Ukraine's organic produce market, which stood at +4.38. This indicates that, even under challenging domestic conditions, the prospects for the growth of Ukraine's organic production within the context of European integration and the green transition are assessed as optimistic. The study confirms that maintaining these trends in the European integration process of the Ukrainian organic market will be achieved through the synergy of internal advantages and external opportunities. On this basis, effective strategies have been developed, the implementation of which will enable Ukraine to become a reliable supplier of high-quality organic products with high value added, and the EU to meet the needs of end consumers and various sectors of production.

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