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SUSTAINABLE AGRICULTURAL DEVELOPMENT OF UKRAINE WITHIN THE FRAMEWORK OF EUROPEAN INTEGRATION

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Abstract. *This article explores the transformation of Ukraine's agricultural sector in the context of European integration, emphasizing the shift toward sustainability and compliance with the EU environmental and agricultural standards. The research examines institutional, economic, and regulatory changes that underpin the process of making agriculture greener and adapting to EU market requirements. It emphasizes the gradual transition of the national agri-food system toward environmental sustainability, alignment with EU standards, and adaptation to the principles of the European Green Deal.*
The study analyses the dynamics of Ukraine's agricultural trade with the EU, highlighting key export trends that reflect the country's growing integration into the European market. Ukraine's agricultural trade is dominated by grain and oilseed exports, which form the largest share of national exports. In recent years, Ukraine has become one of the EU's leading suppliers of cereals, oilseeds, soybeans, and fruit. Notably, Ukraine ranks among the top five suppliers of organic products to the EU, accounting for 7,7% of total organic imports in 2024. The study identifies that the process of agricultural "greening" is becoming a fundamental component of Ukraine's integration strategy, aiming to improve product quality, ensure rational use of natural resources. Using the PESTLE analytical framework, the study identifies political, economic, social, technological, legal, and environmental factors influencing the sustainable development of Ukraine's agriculture. The results highlight both the opportunities – such as access to EU funding, cross-border cooperation, and technological modernisation – and the challenges, including war-related risks, inflation, and the need for extensive harmonisation of legislation. The study concludes that the integration process not only promotes ecological modernisation but also enhances Ukraine's competitiveness and resilience in the European agri-food system.

Keywords: *sustainable agriculture, European integration, Ukraine, agricultural policy, environmental standards, green transformation.*

Problem statement. Ukraine's integration into the European Union requires not only economic and institutional transformation but also deep adaptation to European environmental and agricultural standards. The EU's Common Agricultural Policy (CAP) prioritises environmental safety, sustainability, and the responsible use of natural resources. For Ukraine, aligning with these principles presents both challenges and opportunities. On one hand, compliance with strict EU requirements concerning chemical use, biodiversity protection, and sustainable production imposes additional obligations on producers. On the other hand, it opens access to one of the largest agricultural markets in the world and offers significant potential for investment and technological modernisation.

Analysis of recent research and publications. The transformation of Ukraine's agricultural sector within the framework of European integration has become an increasingly important subject in contemporary economic and environmental research. Scholars highlight that the integration process is not limited to trade liberalisation and institutional convergence but also involves the greening of agricultural policy and practice in line with the principles of the European Green Deal (EGD) and CAP.

The National Comprehensive Green Transition Assessment for Ukraine [1], released by the Stockholm Environment Institute, evaluates Ukraine's readiness for a green transition across 12 key sectors and frames the post-war recovery as a unique opportunity to "build back better" with sustainability as a foundation for economic competitiveness and resilience, aligning with European Union integration goals. The Food and Agriculture Organisation (FAO) [2] identifies sustainability as a growing priority in Ukraine's agricultural policy, linking it to the goals of the EGD and global commitments such as the Sustainable Development Goals. FAO's country analysis underlines the role of modern technologies, organic farming, and resource-efficient practices in improving environmental performance and productivity.

According to Trofimtseva, O. [3], integration into the EU market is reshaping Ukraine's agri-food policies, driving significant structural and institutional changes, relying on institutional reforms, rural modernisation, and compliance with EU environmental requirements. Studies of Ostapenko et al. [4] and Smolii & Mostoviak [5] provide evidence that organic production in Ukraine is expanding, supported by EU certification schemes, foreign investment, and growing domestic interest in sustainable farming.

The objective of this study is to examine the prospects of Ukraine's agricultural sector within the EU market and to identify the key trends and factors influencing its competitiveness.

The research applies a range of analytical methods, including historical and graphical analysis, systematisation, and PESTLE analysis, to evaluate the political, economic, social, technological, legal, and environmental aspects of Ukraine's agricultural transformation.

Main findings. Long-standing and fruitful trade relations have been established between Ukraine and the countries of the European Union. Ukrainian agricultural products constitute one of the main export categories in the country's foreign trade.

In Figure 1, it can be seen that during the analysed period, the share of agriculture in exports gradually increased from 25.88% in 2018 to 45.08% in 2023. The total value of agricultural goods exported to the European Union amounted to USD 5.2 billion in 2018 and USD 10.5 billion in 2023. In the first half of 2024, goods worth USD 5.2 billion were exported, which is comparable to the figure of the previous year [6].

According to the Ukrainian Classification of Goods for Foreign Economic Activity, agricultural products are divided into three sections: products of animal origin, products of plant origin, and fats and oils of plant or animal origin. The overall trend during the period

2018–2024 is shown in Figure 2. We can observe an overall trend of increasing agricultural product exports to the EU. The largest share in 2023 is represented by products of plant origin (66%), followed by fats and oils (28%), while products of animal origin account for a comparatively small portion throughout the study period (6%). In absolute terms, the highest export value was recorded in 2022 (USD 11.7 billion), which can be explained by the suspension of all customs duties on Ukrainian goods following the onset of the full-scale war.

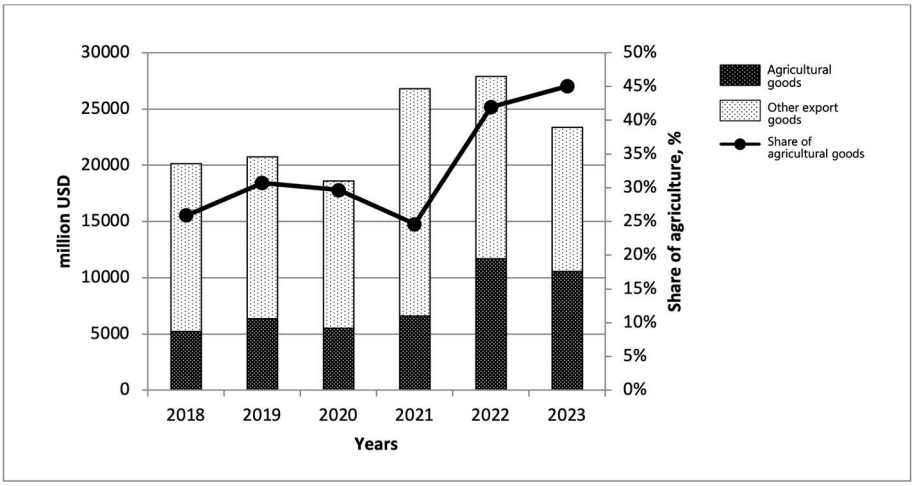

Fig. 1. Share of agriculture in Ukraine's exports to the EU

Source: compiled by the author based on [6]

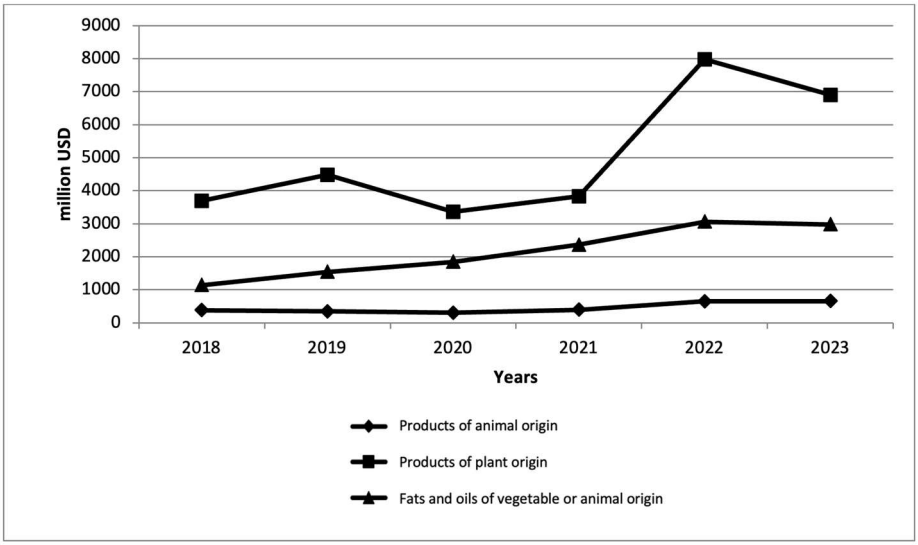

Fig. 2. Commodity structure of Ukrainian exports in 2018-2023

Source: based on [6]

A more detailed examination of the structure of products of animal origin shows that the main share was represented by meat and edible offal (55% in 2024). A significant portion consisted of milk and dairy products, eggs, and natural honey (41%). Compared to 2018, the structure of exports has remained largely unchanged.

Among products of plant origin, cereals accounted for the largest share in 2024, while oilseed crops and fruits also represented a significant portion. Other goods combined made up 6%. Throughout 2018–2024, these categories remained the main components of plant-based exports; however, their relative shares changed. In 2018, cereals accounted for 60% of exports of plant-origin products, whereas in the first half of 2024 their share increased to 71%. This growth occurred mainly due to a decrease in the share of oilseeds and oil-bearing fruits from 31% in 2018 to 23% in 2024 (Figure 3).

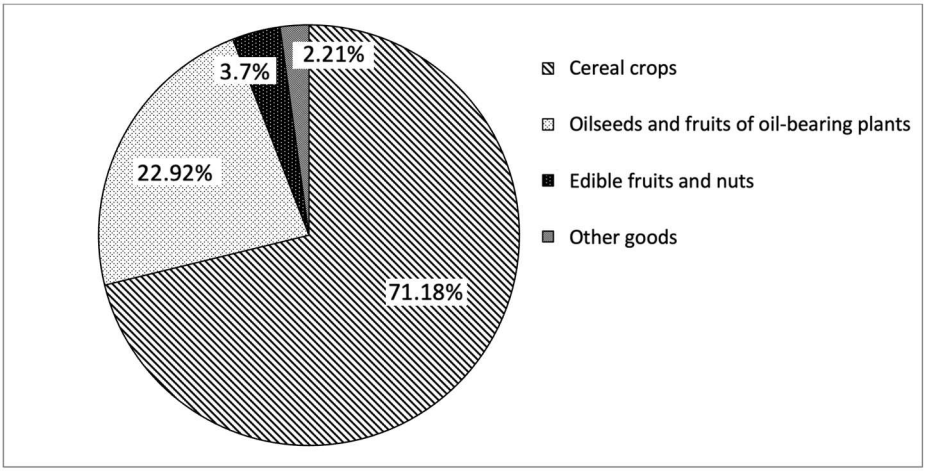

Fig. 3. Structure of plant products exports to EU countries in the first half of 2024

Source: based on [6]

An important aspect to consider is the European Parliament's review of agri-food trade between the EU and Ukraine. According to the report, 4.6% of all agricultural products imported by the EU originate from Ukraine. The EU exports 1.2% of its total goods to Ukraine, of which 12.4% constitute of agricultural products [7].

According to Eurostat, the European Union imported agricultural products worth €10 billion in 2023, representing a 26-fold increase compared to 2003 and a 1.7-fold increase compared to 2021 (an increase of €4.1 billion). The main products imported by EU countries were cereals, fats and oils of plant and animal origin, seeds and fruits of oil-bearing crops, and meat and meat by-products [8].

The largest importers in 2023 by product category were the Spain, Italy, the Netherlands, Portugal, Slovenia – cereals; Poland, Spain, Italy, the Netherlands, Bulgaria – fats and oils; Germany, Belgium, France, the Netherlands, Romania – seeds and fruits of oil-bearing crops; the Netherlands, Hungary, Slovakia, Poland, Romania – meat and meat by-products. Among EU countries, the largest importers of agricultural products were Spain, Poland, the Netherlands, Italy, and Germany. Looking at historical trends over the past ten years, the main importers were Spain (2013–2016, 2018, and 2023), Poland (2022), and the Netherlands (2017, 2019–2021). Overall, there is a clear trend of increasing trade starting from 2014, which can be explained by the signing of the Association Agreement with the EU (Figure 4).

Spain, the largest importer of agricultural products in the EU during the study period, mainly imports cereals (82% of agricultural product imports), as well as fats and oils of plant and animal origin (16%). A significant increase occurred between 2021 and 2023 (from €984 million to €2,575.46 million) [8].

Poland has historically been one of the major importers of Ukrainian agricultural products due to geographical proximity. Over the past 20 years, the volume of imports from Ukraine has gradually increased, peaking in 2022 (€2.3 billion), which is an exceptional figure that does not fully reflect the general trend. This anomaly can be explained by the onset of the full-scale war in Ukraine and the redirection of logistics routes, with Poland becoming the main transit country. In terms of structure, Poland mainly imports fats and oils (€602 million in 2023), cereals (€214 million), and oilseeds (€113 million).

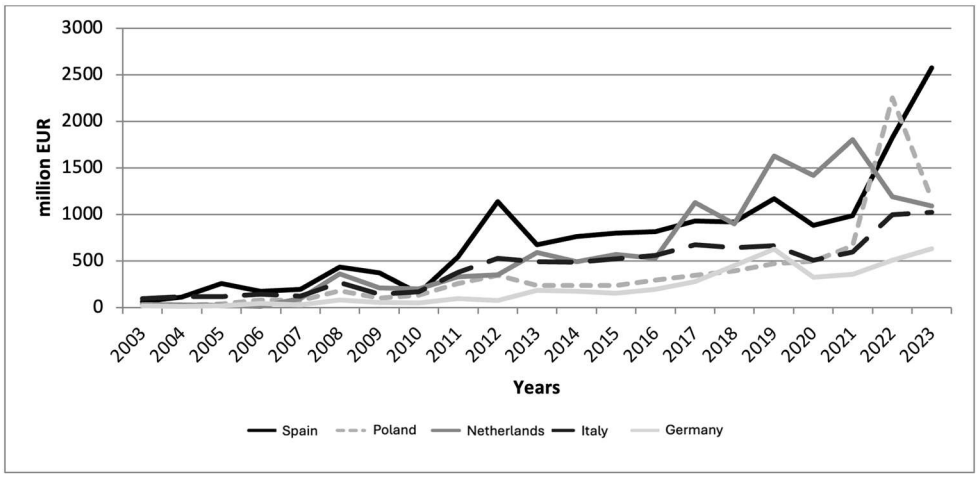

Fig. 4. Ukrainian agricultural products imports by the main EU importer countries

Source: compiled by the author based on [8]

Another large importer is the Netherlands. In the structure of imports, cereals and fats and oils hold a significant share (38% and 23%, respectively). A distinctive feature is the large share of meat and meat by-products (€254 million, or 23% of total imports), whereas until 2013 the Netherlands did not import these products from Ukraine at all. Italy and Germany also primarily import cereals (€629 million and €159 million, respectively), fats and oils of plant or animal origin (€254 million and €25 million), and oilseeds (€87 million and €368 million) [8].

The more recent data on trade between the EU and Ukraine show that trade volumes continue to grow. The main agricultural products exported by Ukraine include sunflower oil, maize, soybean oil, rapeseed, and timber [7].

Over the past seven years, the European Union has published an analytical report on the import of organic products from third countries. Based on the analytical brief on EU organic agri-food imports in 2024 [9], Ukraine was a major contributor to the overall growth in EU organic imports and saw significant gains in 2024. Ukraine was propelled up to the 3rd most important country of origin of organic products imported by the EU in 2024. Imports from Ukraine increased by 17.4% between 2023 and 2024.

Table 1

Volumes of organic exports from Ukraine to the EU in 2022-2024

Product Category	2022 Volume (t)	2023 Volume (t)	2024 Volume (t)	Change (2023 vs. 2024) (%)
Total Export Volume	219,125	173,72	203,897	17.4
Cereals	150,713	77,319	83,728	8.3
Oilseeds and protein crops	32,596	63,459	78,069	23
Fruit and nuts	15,315	19,202	22,517	17.3
Vegetable oils (oilseeds and palm)	2,827	3,95	5,842	47.9
Margarine and other oils and fats (vegetable)	2,752	2,596	4,337	67.1
Cereal preparations and milling products	6,366	2,675	3,74	39.8
Preparations of fruit, nuts and vegetables	5,827	3	2,887	-3.7
Other animal products	664	643	1,922	199.1

Source: compiled based on [9, 10]

The volume rose from 173,720 tonnes in 2023 to 203,897 tonnes in 2024. Ukraine accounted for a 7.7% share of the total organic import volume in the EU in 2024. This growth was primarily driven by higher imports of organic oilseeds (+23%) and cereals (+8%). Ukraine is a leading exporter of several categories of organic products: cereals other than wheat and rice, oilseeds other than soybeans, soybeans, fruits other than citrus and tropical, and oilcake (Table 1). The main competitors for Ukraine in this market are Ecuador, China, the Dominican Republic, Peru, and Turkey [10].

The greening of agriculture is aimed at improving the quality of products consumed by the population and enhancing living conditions. From an economic perspective, it represents an opportunity to attract substantial funding from the European Union, which is interested in expanding its food market.

The next analytical method applied is the PESTLE framework – a tool for analysing the external business environment in terms of several key factors: political, economic, social, technological, legal, and environmental. This analysis will help assess which factors positively or negatively influence the greening of agriculture in accordance with EU standards (Table 2).

Table 2

PESTLE Analysis of the Ukrainian Agricultural Sector in the Context of European Integration

Political	**Economic**
Threat from russia and belarus Border blockades Budget subsidies EU legislation	Development of cross-border cooperation Inflation Access to the EU market Investments
Social	**Technological**
Consumer preferences Educational programs	Innovation Digitalization
Legal	**Environmental**
EU regulations Certification	Sustainable development Environmental impact

Source: compiled by the author

1. Political aspects assess the impact of government policies, political stability or instability, and decisions that affect the development of alliances, initiatives, and associations:

- The threat from russia and belarus currently makes it impossible to implement many processes that could support agricultural greening. However, even after the end of hostilities, this threat will likely persist.

- The border blockades imposed by neighbouring countries have created new challenges for Ukrainian agriculture, as even transit operations through EU member states have become significantly complicated.

- Budget subsidies – the government may provide financial support to encourage environmentally friendly innovations and practices in agriculture.

- EU legislation – Ukraine must adapt its legal framework to comply with EU directives in the fields of agriculture and environmental standards.

2. Economic aspects focus on key economic indicators that may influence the development of the sector:

- Cross-border cooperation promotes more intensive greening of agriculture in line with EU standards due to profit incentives.

- Inflation in Ukraine rose sharply from 9.4% in 2021 to 20.2% in 2022 due to russia's full-scale invasion. For comparison, the EU average in the same year was 8.8% [11].

- Market access – entering the EU market requires high product standards, which may increase costs but also expand market opportunities.

- Investments – significant opportunities exist to attract EU funding for eco-innovation development.

3. Social aspects examine cultural characteristics, levels of education, educational innovations, and social trends affecting development:

- Consumer preferences – growing demand for organic and environmentally friendly products in the EU.

- Educational programs are needed to raise awareness and train farmers in sustainable agricultural practices.

4. Technological aspects include the impact of scientific research, new technologies, and automation:

- Innovation - adoption of advanced technologies in eco-friendly agriculture, such as precision farming.

- Digitalisation – using IT solutions for more efficient resource management and environmental impact monitoring.

5. Legal aspects consider laws that may hinder sector development, including labour relations and data protection:

- EU regulations – strict EU standards may require substantial legal reforms in Ukraine.

- Certification – obtaining EU certificates is necessary for exporting agricultural products.

5. Environmental aspects include factors related to ecology, climate change, and related decision-making:

- Sustainable development is closely linked with the greening of agriculture, focusing on balanced natural resource use, ecological stability, and improved quality of life.

- Environmental impact reduction includes practices promoting more sustainable agricultural systems that aim to minimise harm to natural resources and ensure long-term land productivity.

In summary, there are the following economic and environmental benefits for Ukraine in the process of integration into the European agricultural market. Adopting EU environmental standards allows Ukrainian businesses to gain access to the single European

market. Specifically, the adoption of the EGD [12] prioritises environmentally friendly products. This promotes the expansion of trade opportunities and better integration into global value chains. The implementation of environmentally sound production practices and resource-efficient methods can help Ukrainian enterprises save costs. Such practices reduce production expenses and enhance economic resilience and competitiveness in both domestic and foreign markets. Adherence to EU environmental requirements stimulates the adoption of new technologies and the development of "green" industries, creating new jobs in sectors such as renewable energy, waste management, and organic agriculture. This aligns with current global and state strategic goals regarding economic decarbonization and the country's recovery following the cessation of military hostilities. The transition to sustainable agricultural practices reduces dependence on limited natural resources, strengthens Ukraine's economic potential, and improves its position for sustainable growth in line with the climate neutrality objectives of the EGD.

Conclusions. Over the past 10 years, the volume of agricultural exports has been steadily increasing. The main drivers of this growth were the European integration process (the Association Agreement and the Deep and Comprehensive Free Trade Agreement) and the implementation of preferential trade measures during the war period. Ukraine mainly exports crop products (cereals, seeds, and fruits of oil-bearing crops), with the EU import share for some of these products exceeding 50%. The main trading partners are Spain, Poland, the Netherlands, Germany, and Italy, which together account for 58% of the EU's total imports of Ukrainian agricultural products. Plant-based products (especially cereals, oilseeds, and vegetable oil) remain the core of Ukraine's exports, while the country also strengthens its position in the organic product market. Ukraine consistently ranks among the top five exporters to the EU, accounting for 7% of total organic imports in 2023.

The PESTLE analysis highlights that the key drivers of agricultural greening include increased EU investment opportunities, growing consumer demand for sustainable food, technological innovation, and legal harmonisation with EU environmental regulations. However, persistent challenges such as war-related risks, logistical barriers, and institutional weaknesses continue to slow progress.

Overall, the adaptation of Ukraine's agricultural sector to EU standards offers substantial long-term benefits. It will enhance environmental performance, improve product quality, and strengthen competitiveness in international markets. By integrating sustainability into production systems and adopting European regulatory practices, Ukraine can position itself as a reliable and environmentally responsible trading partner within the European Union.

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СТАЛИЙ РОЗВИТОК СІЛЬСЬКОГО ГОСПОДАРСТВА УКРАЇНИ В КОНТЕКСТІ ЄВРОПЕЙСЬКОЇ ІНТЕГРАЦІЇ

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Анотація. У статті досліджено трансформацію аграрного сектору України в контексті європейської інтеграції. Особливу увагу присвячено переходу до сталого розвитку та відповідності екологічним і аграрним стандартам ЄС. У роботі розглянуто інституційні, економічні та нормативно-правові зміни, що лежать в основі процесу «озеленення» сільського господарства та адаптації до вимог ринку ЄС. Висвітлено процес переходу національної агропродовольчої системи до екологічної сталості, гармонізації зі стандартами ЄС і впровадження принципів Європейського зеленого курсу.

У дослідженні проаналізовано динаміку аграроторгівлі України з ЄС, виокремлено ключові експортні тенденції, які відображають посилення інтеграції країни до європейського ринку. Зовнішня торгівля України аграрною продукцією переважно зосереджена на експорті зернових та олійних культур, які становлять найбільшу частку національного експорту. В останні роки Україна стала одним із провідних постачальників зернових, олійних культур, сої та фруктів до ЄС. Водночас країна входить до п'ятірки найбільших постачальників органічної продукції до ЄС, забезпечивши 7,7% загального обсягу імпорту органічних товарів у 2024 році.

Визначено, що процес «озеленення» аграрного сектору стає ключовим елементом інтеграційної стратегії України, спрямованої на підвищення якості продукції та раціональне використання природних ресурсів. Використовуючи аналітичну модель PESTLE, визначено політичні, економічні, соціальні, технологічні, правові та екологічні чинники, що впливають на сталий розвиток сільського господарства України. Результати дослідження висвітлюють як можливості – доступ до фінансування ЄС, транскордонну співпрацю, технологічну модернізацію, – так і виклики, що стоять перед українським агросектором, – ризики, пов'язані з війною, інфляцією та необхідністю глибокої гармонізації законодавства. Зроблено висновок, що процес європейської інтеграції не лише сприяє екологічній модернізації, а й підвищує конкурентоспроможність і стійкість України в європейській агропродовольчій системі.

Ключові слова: стале сільське господарство, європейська інтеграція, Україна, аграрна політика, екологічні стандарти, зелена трансформація.

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