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2. Transformation of the economic development of the agricultural sector of Ukraine under the conditions of European integration

Ukraine has a developed food complex, which is able not only to fully provide the country's population with food products, but also to form an active position of the country on the international markets of a number of key agro-food products. Thanks to traditionally strong food exports, Ukraine is one of the guarantors of food security in the world. Before the full-scale war, in terms of export volume, Ukraine was among the five largest grain exporters in the world, exported $\frac{3}{4}$ of what it produced, domestic consumption of grain was only 20-25%. Ukraine supplied 10% of world exports of wheat, more than 14% of corn and more than 47% of sunflower oil [18]. Currently, thanks to the help of partners, Ukraine remains a key supplier on the world markets of grain and sunflower oil, with a share of more than 10% of international trade. In 2023, 16.1 million tons of wheat were exported to 65 countries, 26.2 million tons of corn to 80 countries, and 5.7 million tons of sunflower oil to 130 countries [19].

At the same time, the military actions taking place in Ukraine as a result of the large-scale aggression of the Russian Federation on February 24, 2022, led to the deterioration of food security in Ukraine, which is caused, in particular, by broken logistics chains, destroyed infrastructure, farms and productions, a decrease in the amount of food produced at working enterprises. As of June 2023, the amount of direct damage caused to the agro-industrial complex of Ukraine is 8.7 billion dollars. USA (losses related to the destruction and damage of agricultural machinery amount to more than 4.7 billion US dollars; losses due to the destruction and theft of manufactured products are estimated at 1.9 billion US dollars). Indirect losses of the agro-industrial complex are estimated at 40.3 billion dollars. USA [20].

The agricultural sector in Ukraine grew steadily before the start of hostilities, the annual increase in the volume of agricultural production reached 4-5%, the share of agricultural production in GDP was 10.4-12.4%, and together with the processing of agricultural products – 14-16% [21]. The country was one of the leaders in the world

production of some types of food, a leader in international trade in sunflower oil (first place in the world), rapeseed and barley (third and fourth places, respectively) and other products. Trade in agricultural products brought Ukraine 27.8 billion dollars in 2020. USA, which is 41% of all exports. Even in war conditions, Ukraine became the world's ninth largest producer of wheat by the end of 2022 [22]. Due to a full-scale war in 2022, the performance of the year deteriorated in all sectors of the national economy. The agrarian industry was particularly hard hit. According to the calculations of analysts of the KSE Agrocenter and the Ministry of Agrarian Policy, the total direct and indirect losses in agriculture exceeded 40 billion dollars. USA [23]. The most significant problem for the further activities of agrarians is the increase in the gap between world and domestic prices. If before the start of the war this gap was about 40 dollars. USD per ton, now about USD 150. US per ton for grain. This leads to additional costs for manufacturers, which include logistics costs, insurance and all risks that are now borne only by the Ukrainian side [24].

According to FAO estimates, rural households in Ukraine suffered about 2.25 billion dollars as a result of the war. US losses. Of them, about 1.26 billion dollars. In the United States, losses were incurred in the field of crop production and 0.98 billion dollars. USA - animal husbandry. In Ukraine, 25% of agricultural households stopped or reduced the volume of production due to the war, in the frontline regions – 38% [25].

In such conditions, the Ukrainian agricultural sector demonstrated high resilience and adaptability to wartime risks. In conditions of war:

- *harvest for all groups of agricultural crops is 1.5–3 times higher than domestic consumption needs.* By the end of December 2023, farmers threshed 79.2 million tons, in particular grain and leguminous crops - 58.4 million tons, oil crops - 20.8 million tons. 11.9 million tons of sugar beets were dug up [26]. This happened thanks to the high yield of grain crops (up to 55 t/ha). According to UKAB estimates, in 2023, the production of grain crops in Ukraine was 10% higher than in 2022, and oilseeds - by 18%. Sugar beet production increased by 29% compared to 2022 [27]. At present,

harvesting of crops (corn) is still in progress, on January 11, 2024, corn has been threshed by 90% of the forecast. According to the improved forecast of the Ministry of Agrarian Policy, in 2023, thanks to the higher than expected harvests of late crops, farmers will be able to harvest 81.3 million tons of grain and oil crops, of which 59.7 million tons are grain and 21.6 million tons are oil crops;

- *the needs of the domestic market of meat and meat products are fully met.* In general, the consumption of pork, beef and poultry increased from 54.1 kg in 2022 to 54.7 kg per person in 2023. On average, Ukrainians in 2023 consumed 27 kg of poultry and 7.4 kg of beef per person, in 2022 these indicators were 26.2 kg and 7 kg, respectively. At the same time, pork consumption decreased, in 2023 Ukrainians consumed 19.8 kg of pork per year, while in 2022 - 20.3 kg. Production also increased accordingly: poultry meat was produced by 32,000 tons (1,285,000 tons), beef by 4,000 tons (272,000 tons). Increasing own production made it possible to reduce the import of all three types of meat by 52 thousand tons - to 108 thousand tons;

- *the domestic dairy industry in agricultural enterprises is gradually being restored.* Milk production in enterprises in January - December 2023 has already reached the pre-war level and amounted to 2 million 807 thousand tons (2 million 767.7 thousand tons in 2021), which is 6% more than in 2022. [28];

- *the production of vegetables is increasing.* In 2023, onions and carrots were sown in Ukraine by 8.1% and 6.1% more, respectively, compared to 2022. The total area for planting cabbage increased by 1.7%. The area of potato crops increased by 2%, table beet – by 7% [29]. As of the beginning of November 2023, Ukrainian farmers harvested almost 29 million tons of vegetables, the most potatoes - 21.2 million tons, as well as: tomatoes - 1.4 million tons, cabbage - 1.3 million tons, onions - 877 thousand tons, carrots - 810 thousand tons, beets - 766 thousand tons, cucumbers - 681 thousand tons, other vegetables - 1.3 million tons [30]. The supply of vegetables increased sharply in the third quarter of 2023 due to extremely favorable weather conditions and increased production in certain regions. This made it possible to fully compensate for the consequences for vegetable growing from adverse security

conditions in the southern regions and the destruction of the Kakhovskaya HPP [31]. Under the influence of a good harvest and thanks to the increase in production volumes, vegetable prices in 2023 remained lower than in 2022. In particular, the price of borscht set (potatoes, onions, carrots, cabbage and beets) decreased by 11% for the year. The biggest decrease in prices occurred for onions and carrots: by 48% and 33%, respectively. Potato prices have increased significantly, but they remain among the lowest in Europe [32];

- *citizens' demand for fruit and berry crops is fully satisfied*, although 25% of berry orchards and 20% of garden areas were lost as a result of the war [33]. Vinnytsia, Chernivtsi, Khmelnytskyi, Dnipropetrovsk, Lviv and Poltava regions, which are the largest producers of fruits and berries, are quite capable of meeting the needs of these products. To develop the horticulture industry in Ukraine, the government provides grant support to producers of agricultural products for the creation and development of horticulture, berry growing, and viticulture, in particular, in 2023, grants were issued for planting new gardens with an area of more than 2,000 hectares;

- *the volumes of export of agricultural products are gradually being restored*. In 2023, according to preliminary estimates, 67.5 million tons of agro-industrial products of various types were exported, which is 15% higher than in 2022. At the same time, the export turnover in 2023 amounted to 21.9 billion dollars. USA, which is 8% less than the figure for 2022 due to a drop in prices for almost all types of agricultural products compared to the previous year and expensive export logistics [34].

Along with the above, the main challenges and limitations for the agricultural sector of Ukraine in the conditions of a full-scale war are as follows:

- shortage of financial resources for stable economic activities of agricultural producers, in particular due to the increase in the cost of production. In 2022, 21% of enterprises in the agriculture, forestry, and fishing industry suffered a net loss (in 2021 – 11%). The level of profitability of all activities in 2022 was 14.1% (in 2021 – 37.8%). And the volume of capital investments in agriculture, forestry and fisheries in 2022 amounted to UAH 51,439 million, which is 26.1% less than in 2021.

According to the study "Ukraine: the impact of the war on the profitability of agricultural production" [31], according to the results of 2023, the losses of the agricultural sector from the cultivation of grain and oil crops are predicted to decrease, but the production of three of the five main crops will remain unprofitable. From July to October 2023, the level of profitability of the production of grain and oil crops in Ukraine decreased. Due to the drop in prices, sunflower turned from a profitable crop into an unprofitable one. The unprofitability of wheat production increased, despite the increase in yield, due to a decrease in purchase prices. Farm losses from corn production have more than doubled as a result of a drop in prices both on the domestic market of Ukraine and in the nearest ports, as well as an increase in logistics costs. The least profitable crop among the main types of grain and oil crops in October 2023 was barley. The lowest profitability of the production of grain and oil crops has small farms and front-line medium-sized farms. Compared to medium-sized farms, small farms have 5–10% higher production costs for all types of grain and oil crops, in particular for the purchase of seeds, plant protection products and fertilizers;

- simplification of agricultural production processes, reduction of fertilizers and plant protection products, which reduces the yield of agricultural crops and worsens the quality of land. The lack of financing and the need for significant savings caused a decrease in the amount of applied fertilizers by 50–60% [32]. According to the survey of the Ministry of Agrarian Policy in the summer of 2023, the issue of fertilizer use remains one of the most sensitive for farmers. Large and medium-sized manufacturers are ready to use them in full. In particular, fertilizers are expected to be applied at a level that is half the agronomic need (47%). The level of expected use of plant protection products for the winter crop in 2024 is predicted to be 56% of the need. Only 10% of respondents are ready to use fertilizers at the level of 100% of the need, protection means - 18% [33];

- strengthening of crisis phenomena in animal husbandry, in particular in the meat and dairy industry. As of January 2024, the number of cattle in all categories of farms in Ukraine was estimated at 2233.60 thousand heads, which is 3.3% less than the

figure for January 2023, including 1290 cows. 20 thousand heads (- 4.9%). About 29% of animals are kept on agricultural enterprises, and 71% - on households[34]. Over the past year, the number of cattle at enterprises decreased by 29.5 thousand heads (-3.2%), and the number of cows decreased by 20.7 thousand heads (-5.5%). In households, the number of cattle decreased by 44,000 heads (-3.3%), and the number of cows decreased by 41,900 heads (-4.6%) over the last year. The most vulnerable to the challenges of war are households, where the number of animals decreases every month. Agricultural enterprises turned out to be more resistant to the challenges of wartime. This is facilitated, among other things, by the possibility of relocating livestock farms to safer places, as evidenced by the increase in livestock in relatively safe regions of Ukraine. Since households are the main keepers of cattle, particularly cows, this has led to a general decline in milk production. In 2023, farms of all categories produced about 7,412,000 tons of raw milk, which is 5% less than in 2022. In particular, the reduction in milk production in households in 2023 was 11% compared to the previous year. Despite the fact that agricultural enterprises increased the volume of milk production in 2023, so far they are not able to completely cover this fall;

- shortage of labor resources in agricultural production. As a result of hostilities, part of the workers of agricultural enterprises and farmers were forced not only to stop economic activity in the agricultural sector, but also to leave their own homes. According to FAO, more than 150,000 farmers/food workers have been directly affected by the war and/or forced to migrate. Small-scale producers, who grew seasonal produce, played an important role in ensuring employment and income of the rural population, found themselves in a difficult situation. The forced displacement of the population, the conscription of men into the Armed Forces lead to a shortage of labor and an increase in the workload of women [35]. According to the survey of the "Swinemakers of Ukraine" association, 26% of farms that took part in the survey have an insufficient number of the main production staff of pig farms (technologists, veterinarians, operators, managers of production sites), the same number feel a shortage of auxiliary workers - fitters, electricians, etc. 48% of respondents note a lack

of personnel not so much in animal husbandry as in related agrarian areas of activity: drivers, tractor drivers, mechanics, agronomists, etc. [36];

- destruction of the infrastructure of production, processing and storage of agricultural products and food products. The enemy purposefully destroys granaries, food warehouses, logistics infrastructure, and also complicates the export supply of Ukrainian grain, which reduces the income of agricultural producers, and in conditions of difficulties in storing crops due to a lack of electricity in the autumn-winter period of 2022-2023, this led to the deterioration of agricultural products and even loss of its part. Currently, the total capacity of destroyed granaries reaches 8.2 million tons, and the capacity of damaged granaries is 3.25 million tons of simultaneous storage capacity [37];

- environmental challenges. Due to hostilities and mining of the territory in 2022, agricultural producers could not use up to 30% of the fields for sowing (which reached 5 million hectares); in 2023, 25% of the areas were unsuitable for use [38]. The destruction of the Kakhovskaya HPP also caused significant losses to land resources and the agricultural sector.

In general, the agricultural sector in the conditions of a full-scale war in 2023 has demonstrated an adequate capacity to produce agricultural raw materials and supply food products to domestic and foreign markets. At the same time, the production of agricultural products took place with significant financial losses due to the low price of grain and oil crops on the domestic market, difficult exports, limited opportunities for the restoration of the material and technical base, infrastructure facilities and the return to cultivation of lands affected by the war. Catastrophic consequences were caused by the Russian Federation's destruction of the Kakhovskaya HPP and the related impossibility of carrying out agricultural activities on the lands that were flooded. The forced change in the structure of planted areas in favor of increasing the production of more profitable oilseed crops made it possible to partially cover the costs of agricultural producers, and the overall increase in the volume of production of plant products occurred mainly due to favorable weather conditions. At the same time, most of the

livestock industries remain in a state of crisis (this is especially true of the meat and dairy industry) primarily due to a decrease in production in households.

The European integration of Ukraine requires increasing the competitiveness of the Ukrainian agrarian sector of the economy, namely adaptation to standards of product quality and safety, and business management, as well as improvement of production processes and management practices.

Research and development of strategies to ensure the anti-crisis development of the agricultural sector of Ukraine in the conditions of integration into the EU is of great importance both for the economic condition of the country as a whole, and for ensuring the sustainable development of rural areas and the harmonious implementation of European standards and practices.

In the context of modern challenges and dangers, anti-crisis management becomes a key element of strategic management of an enterprise, aimed at ensuring stability and stability of its financial and economic activity, agricultural enterprises are no exception. During the conduct of economic activity, certain difficulties may arise in the general cycle of financial and economic activity of the enterprise, which may lead to negative results, namely, from a decrease in profits to bankruptcy and liquidation of the economy. If such challenges are projected onto the economic sector, such processes can create problems of economic security in the sector or the national economy as a whole.

Let's reveal the main characteristics of the concept of "economic security". Economic security in the agricultural sector means the ability of the agricultural economy or the agricultural sector as a whole to function optimally in the conditions of ensuring economic stability, competitiveness and sustainable development. It provides for the creation of conditions for the effective use of resources, ensuring the profitability of agricultural enterprises, the development of sales markets, and promoting the preservation of natural resources and environmental sustainability.

An important component of ensuring economic development in crisis conditions is anti-crisis management, which is represented by a system of developed and

recommended measures, methods and procedures that will stabilize financial and economic activity in the context of increasing the level of economic security.

The goal of anti-crisis management is to analyze and eliminate the expected and actual causes of the crisis, factors, symptoms and consequences, i.e. all manifestations of imbalance that threaten the emergence and further development of the crisis. The main goal of such management is to achieve successful results, both planned and accidental, through effective organization, which is achieved through the proper management of human resources and communications in the management environment.

Today, war is the main factor affecting agriculture. The key point is the reduction of sown areas - the war forced farmers to sow less, which led to a decrease in the total volume of production. Large areas of agricultural land are contaminated by mines and ammunition, making them unsuitable for cultivation. Also, one of the main factors is damage to the infrastructure as a result of hostilities.

Due to the blockade of the Black Sea ports and the occupation of Crimea, Ukraine lost the opportunity to export a significant part of the grown products. Equally important is the fact that the war made it difficult to transport agricultural products, both in Ukraine and abroad.

The war also caused a sharp increase in the prices of diesel fuel, fertilizers and other resources necessary for farming.

The factors listed above have significantly reduced the incomes of Ukrainian farmers and agricultural companies, which may lead, in turn, to a food crisis.

In the framework of anti-crisis management, such functions as planning, organization, motivation, control and definition of goals are defined. The principles of anti-crisis management determine the rules of behavior of both business entities and state bodies and institutions that develop and perform various tasks to ensure economic development in conditions of integration, increase the potential of management and improve the interaction of the object of management with its environment. Successful management of the quality and competitiveness of agricultural products requires the

implementation of a system of total quality management (Total Quality Management) in the agricultural industry as a basic prerequisite.

Undoubtedly, the agricultural sector plays a key role in the life of any country, because it guarantees food security, contributes to the creation of jobs and the development of rural areas. However, for Ukraine, the role of the agricultural sector goes far beyond the simple provision of basic needs. In the most difficult times for the economy, it is the agricultural sector that becomes the driving force, generating a significant share of GDP and export earnings. It is important to emphasize that Ukraine plays a significant role in ensuring global food security, so the transition to new models of agricultural management must be smooth, carefully thought out and balanced in order not only to preserve, but also to increase the gains of the agricultural sector.

The transformation of the economic development of the agricultural sector involves a number of measures and strategies aimed at ensuring the sustainable functioning of agricultural enterprises and increasing their efficiency in conditions of economic difficulties, Fig. 1.

The process of integration into the European Union requires Ukraine to reform various areas in order to meet European standards. This challenge concerns the agricultural sector primarily in terms of compliance with the standards of the green economy, quality, safety and environmental friendliness of products, as it plays an important role in the country's economy, ensuring food security, jobs and the development of rural areas.

This will be especially noticeable when fulfilling the conditions of the "EU Common Agricultural Policy", which is a set of policies and actions of the EU member states in the field of agriculture and animal husbandry.

Implementation of the "Common Agrarian Policy of the EU" is a difficult but important step for Ukraine on the way to integration with the EU. This will require significant efforts on the part of the government and the agricultural sector, but could provide Ukraine with significant economic and social benefits. Beginning in 2023, this policy became mandatory.

During the integration process, the European Commission monitors Ukraine's progress in the harmonization of legislation and evaluates our achievements from 2016 to the first quarter of 2022 on a 5-point scale as follows: agriculture and the development of rural areas, as well as fishing, are evaluated at one, food safety at three, veterinary medicine and phytosanitary control.

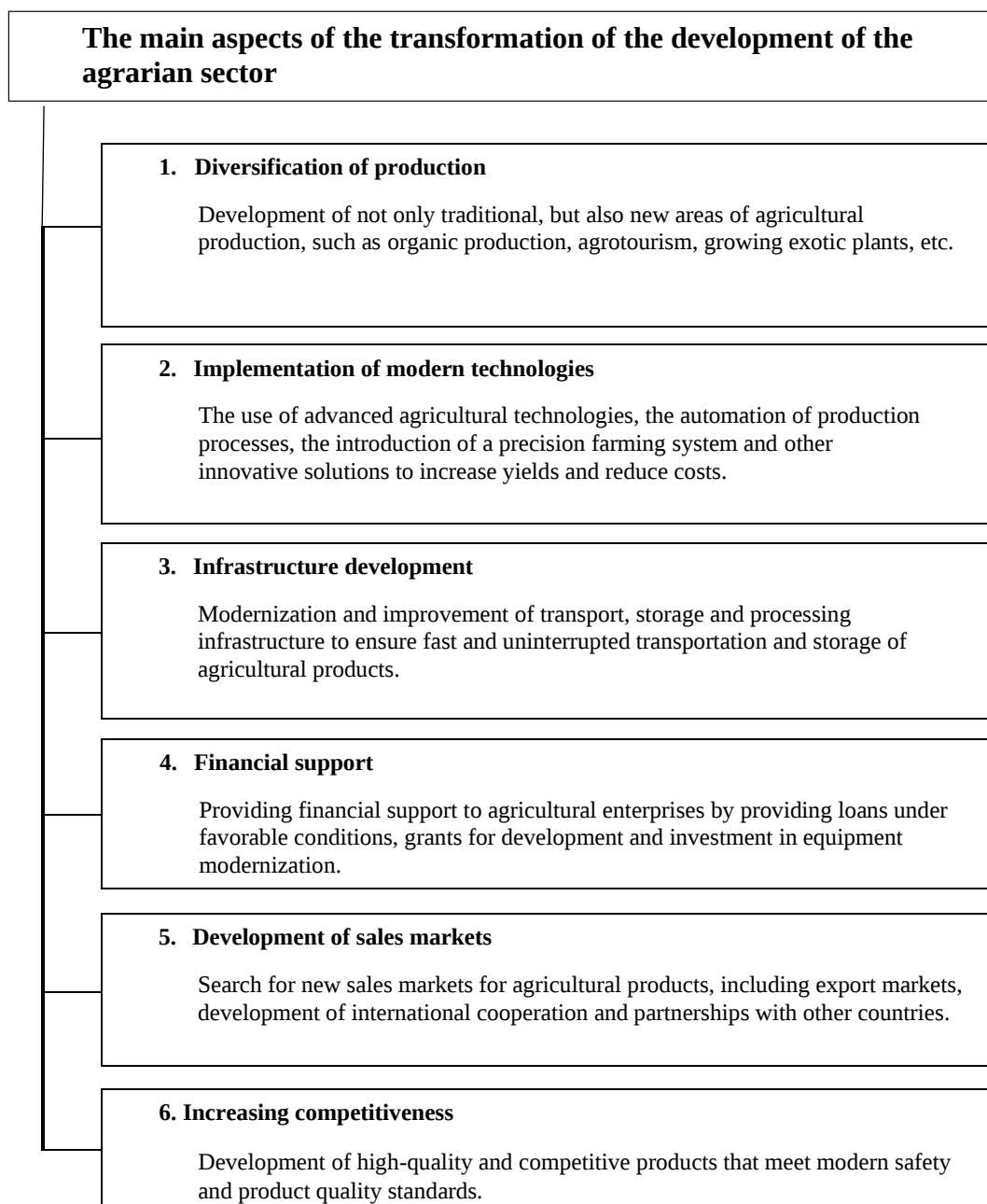


Fig. 1. The main aspects of the transformation of the development of the agrarian sector

It is important to understand that the agricultural sector of Ukraine is a powerful export engine that stabilizes our country's economy in difficult times and affects global food security. Therefore, the transition to European standards should be balanced, with compliance and stability of legislative norms.

Let's consider the main changes necessary for the agricultural sector of Ukraine to join the European Union:

1. Improvement of the regulatory framework:

- harmonization of Ukrainian legislation with European standards. The Ukrainian system of monitoring and ensuring the quality of food products is somewhat different from the European one: the From Farm to Fork system has been operating in the European Union for a long time (the Ukrainian counterpart would be "from the fork to the table") - a strategic initiative of the EU to improve the quality, sustainability and safety of food products [26]. Such a system will make it possible to better control the quality of products throughout the chain of its production, promote the introduction of more "green" production methods, improve consumer information, etc.;
- reation of favorable conditions for conducting business in the agricultural sector;
- increasing the competitiveness of Ukrainian agricultural products. In this aspect, it is necessary to observe the social and environmental standards operating in the EU and relating to labor protection issues, animal welfare standards, the use of pesticides and other agrochemicals, etc. For example, chlorpyrifos is still used in Ukraine: in the European Union, the use of this insecticide has been officially prohibited since January 1, 2020. The ban on the use of chlorpyrifos will lead to an increase in the cost of production, and such an opportunity will appear only after the end. However, it will be necessary to update it in accordance with European rules.

2. Support of agricultural producers:

- the provision of financial assistance for the modernization and development of farms is now complicated by the general challenge of survival and recovery after the end of the war. However, the gradual implementation of European norms and standards in production will contribute to the stable post-war recovery of the sector and, as a result, will increase its competitiveness;

- implementation of education and consulting programs for farmers;

- creation of cooperatives and other forms of association of farmers.

3. Development of rural infrastructure:

- construction and modernization of roads, bridges, elevators and other objects of social infrastructure;

- ensuring access to quality education, medicine and other social services for residents of rural areas.

4. Increase in the export of Ukrainian agricultural products:

- expansion of sales markets for Ukrainian products;

- creation of a brand of Ukrainian agricultural products on the world market;

- support for the participation of Ukrainian farmers in international exhibitions and forums.

The agricultural sector of Ukraine has a very significant production potential, which significantly exceeds the needs of the domestic market. This sector of the economy can become a driving force for the development of the country's national economy, its integration into the European Union and the global economic space. The increase in the incomes of the rural population, which is involved in the agrarian economy and makes up more than a third of the country's population, will lead to an increase in demand for goods and services, which in turn will stimulate the development of other sectors of the economy.

2014 was a significant year for Ukraine's foreign trade in the context of European integration ties. It was then that the Association Agreement between Ukraine and the European Union was signed, which opened up new opportunities for economic

cooperation. One of the key points of the Agreement was the introduction of the "autonomous preferential trade regime" from April 23, 2014. This regime provided for the abolition or reduction of customs duties on a wide range of goods exports, as well as the establishment of quotas for the export of agricultural products exported to EU countries. A simplified trade procedure was also foreseen, which stimulated the export activity of Ukrainian enterprises, including agricultural producers. Since the start of the full-scale invasion, the European Union has temporarily lifted import duties and quotas on Ukrainian agricultural products to support Ukraine's economy amid the war and Russia's blockade of seaports.

As a result of these changes, trade between Ukraine and the European Union has improved significantly and reached a record amount of 12.9 billion dollars in 2022 from the export of agricultural products to the EU, which is 3.22 times more than in 2016, 4 billion dollars, Fig. 2.

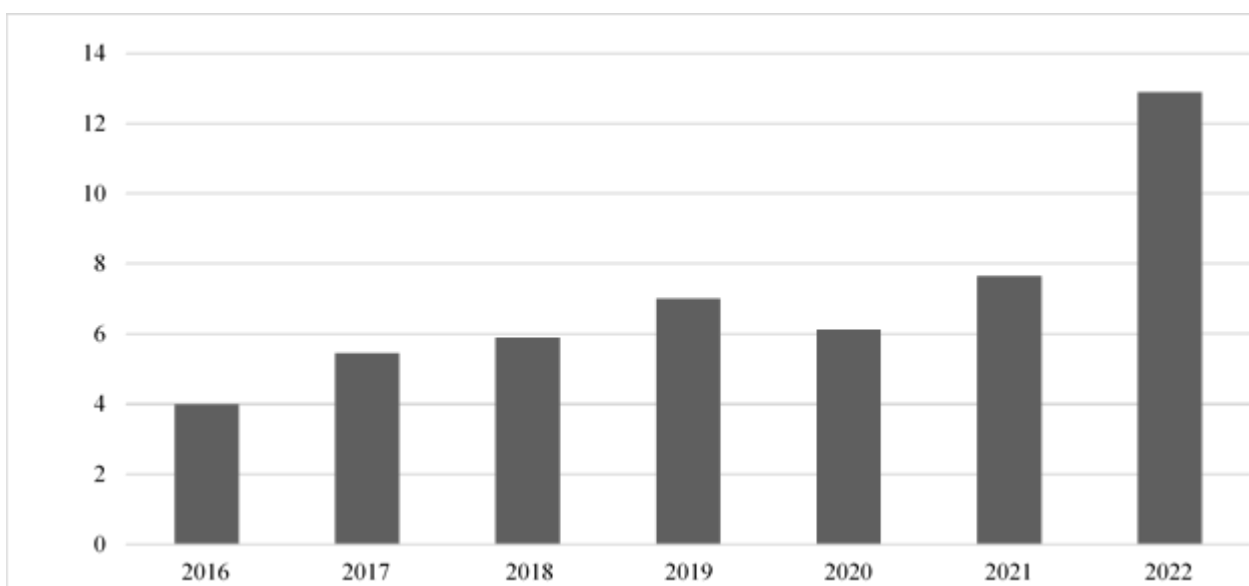


Fig. 2. Dynamics of export of agricultural products to the EU for the period 2016–2022, billion dollars. [43]

The agro-industrial complex occupies one of the first places in terms of the share of the GDP of Ukraine. According to the data of the National Bank of Ukraine, there is a decrease in the share of agro-industrial complex in the total GDP of the country.

According to these indicators, it can be concluded that the share of agriculture in the GDP of Ukraine during 2019–2022 showed unstable dynamics with seasonal fluctuations. The highest values of the share were observed in the third quarters of each year, because most agricultural crops in Ukraine are harvested at that time. This leads to an increase in the volume of agricultural products, which, in turn, leads to an increase in the share of agriculture in GDP. Also, a factor affecting this indicator is the increase in prices for agricultural products, which leads to an increase in the income of agricultural enterprises.

It is equally important to note that the influence of these factors may vary depending on specific conditions. For example, in 2021, the increase in the share of agriculture in GDP was influenced not only by seasonality, but also by the rise in world food prices.

The products of the agro-industrial complex have a significant impact on the foreign trade of Ukraine, occupying a stable leadership among other sectors and being characterized by high competitiveness. Ukraine has long been famous for its fertile lands and rich harvests. And today, agriculture remains one of the key branches of the Ukrainian economy.

The products of Ukrainian farmers, in particular wheat, corn, barley and rapeseed, are in high demand on world markets. It is exported to more than 170 countries of the world, which makes Ukraine one of the leaders in this field. Grain crops traditionally play the most important role in the structure of agricultural exports, Fig. 3. Their cultivation for sale brings significant income to the state and contributes to the development of rural areas.

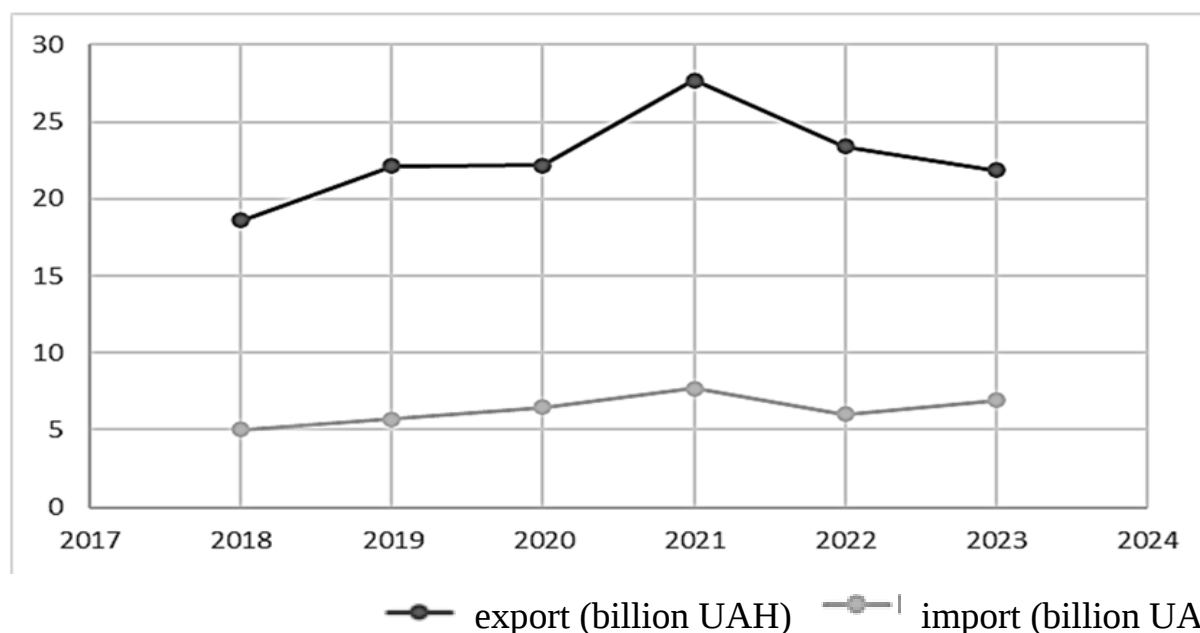


Fig. 3. Dynamics of export and import of agricultural products in the GDP of Ukraine in the period 2018–2023, billion UAH [21]

Exports of agricultural products from Ukraine increased significantly in 2021. According to the State Statistics Service of Ukraine, the export of agricultural products from Ukraine in 2021 amounted to 27.7 billion dollars. USA, which is 22% more than in 2020.

However, the export of agricultural products from Ukraine decreased in 2022 to 23.2 billion dollars. USA, which is 16% less than in 2021. This decrease was due to the war in Ukraine, which led to the blockade of Ukrainian ports and disruption of supply chains.

In 2022, due to the preferential regime with the EU, Ukraine was able to increase the volume of exports of agricultural products by 67.5%.

The largest export goods in 2023 were grain crops, oil crops and livestock products. The export of grain crops in 2023 amounted to 10.2 billion dollars. USA, export of oil crops – 7.8 billion dollars. the USA, and the export of livestock products – 5.2 billion dollars. USA.

The Ukrainian agricultural sector suffered significant losses due to the war. Ukraine's introduction of a licensing system for exports to five EU countries partially helped to solve the problem, but Poland, Slovakia and Hungary still do not lift the ban

on the import of agricultural products. The Council of the EU has extended the duty-free trade regime for Ukrainian agricultural products until June 2024. Importers expect a steady flow of agricultural products from Ukraine in 2024, but logistical difficulties and Russian attacks on infrastructure are holding back exports.

In the conditions of war, the agricultural sector of Ukraine receives assistance mostly only through a favorable tax policy, which is an indirect form of subsidizing the industry due to the lack of financing opportunities in the State Budget of Ukraine. Unlike other industries, agricultural production and its results are highly dependent on natural and climatic conditions. Therefore, one of the important areas of development of agricultural production is the reduction of risks associated with natural and climatic conditions and ensuring the further development of the agricultural sector by improving farm protection systems.

Ukraine provides government support to the agricultural sector through the implementation of various programs, including the funding of scientific research, both fundamental and applied, supporting agribusiness through lowering interest rates on loans and promoting the development of crop, livestock, poultry and fish farming. In 2022, a total of 30,396 agricultural producers received loans in the amount of UAH 57.174 billion. Of these, up to June 1, loans in the amount of UAH 38.551 million were issued for crop rotation. In general, 80% of loans in the amount of UAH 25.6 billion were issued under the portfolio guarantee program [45].

The European Union provided €50 million in direct grants to small farmers, while Canada and Japan invested more than \$60 million in temporary grain storage equipment. FAO held tenders and purchased 7 million bags to store 7 million tons of grain.

At the same time, the military actions taking place in Ukraine as a result of the large-scale aggression of the Russian Federation on February 24, 2022, led to the deterioration of food security in Ukraine, which is caused, in particular, by broken logistics chains, destroyed infrastructure, farms and productions, a decrease in the amount of food produced at working enterprises. As of June 2023, the amount of direct

damage caused to the agro-industrial complex of Ukraine is 8.7 billion dollars. USA (losses related to the destruction and damage of agricultural machinery amount to more than 4.7 billion US dollars; losses due to the destruction and theft of manufactured products are estimated at 1.9 billion US dollars). Indirect losses of the agro-industrial complex are estimated at 40.3 billion dollars. USA [46].

According to FAO estimates, the war in Ukraine has resulted in losses estimated at approximately US\$2.25 billion for agricultural holdings. Of these, approximately USD 1.26 billion in losses are attributed to crop production, and USD 0.98 billion to livestock. In connection with the war, 25% of agricultural farms in Ukraine stopped or reduced production, and in the regions close to the front line, this figure reaches 38% [47].

Therefore, joining the EU is a challenge and an opportunity for the Ukrainian agricultural sector. Thanks to comprehensive reforms and support from the state, Ukrainian farmers will be able to become competitive on the European and world markets. It is important to remember that the transition to European standards is a long-term process that will require significant efforts on the part of the state, farmers and society. Successful implementation of reforms in the agricultural sector will be a key factor for Ukraine's successful accession to the European Union. The opening of the European market for Ukrainian agricultural products will give a powerful impetus to the development of the agricultural sector and the economy of Ukraine as a whole.

The development strategy of the agrarian sector of the Ukrainian economy is closely related to the transfer of its industries and enterprises to a high-tech industrial basis - the transition to the active use of intellectual components with effective production management. Therefore, a decisive condition for the sustainable functioning of the industry is to provide its enterprises with a full-fledged high-tech potential and transfer their activities to an exclusively intensive, innovative and investment development path. Therefore, the issue of solving the problem of the formation of investment and innovation systems of the agricultural sector of the economy, the transition to the innovative direction of development and the significant

improvement of the quality characteristics of the resource potential, the need for which is constantly growing, are gaining special relevance.

The key directions of ensuring the functioning of the agricultural sector in the conditions of a full-scale war should be aimed at preserving the efficiency of the chain "production - processing - storage - supply of food products to the population." Increasing the production of agricultural products, finding and creating new (including temporary) facilities for storage and primary processing of products, and attracting all the possibilities of the state and private sector to supply food products to their points of sale are extremely important. In the conditions of post-war recovery, it is necessary to ensure the diversification of the development of agricultural production on the basis of increasing the capitalization and investment attractiveness of agricultural enterprises, the formation of market institutions, which will provide for the improvement of the efficiency of the resources used in agriculture, the strengthening of the food security of the state, the development of versatility, the increase in the export of goods with a higher added value, ensuring comfortable living conditions in the village. There is a need to form a new post-war model of the development of the agricultural sector with a balance of its economic and ecological components, which will meet the goals of sustainable development.

The primary task of the state agrarian policy in 2024 is the restoration of agricultural production in the de-occupied territories, which is dictated by the need to ensure the food needs of the population as soon as possible, opportunities for self-employment, therefore, the creation of conditions for the return of people to communities where basic security has been restored. Accordingly, the first tasks are the demining of agricultural lands, infrastructure facilities of the agrarian sector and the territories of private farms, determining the damage caused and starting the reclamation of lands affected by hostilities. Measures regarding the humanitarian demining of agricultural lands should be supplemented by systematic steps to rehabilitate such lands from military pollution, in particular, the phasing of appropriate and acceptable changes in their intended use in agricultural production.

It is necessary to promote equal development of all organizational and legal forms of management. State policy on stimulating inclusive and multi-system development in the agricultural sector of Ukraine should be based primarily on solving the issue of further functioning of small-scale farming in the countryside. This requires institutional and financial support for medium and small producers of agricultural products. Farming and personal peasant holdings can be considered as points of economic growth, which ensure the livelihood of a significant part of rural areas and integrate around them small holdings of the population.

It is necessary to expand the range of export of agricultural products. First of all, this concerns the increase in the share of ready-made food products and semi-finished products in the structure of domestic exports. For this purpose, it is expedient to increase the volumes of processing of agricultural raw materials in Ukraine, attracting investments in the creation of processing enterprises. In addition, it is necessary to support business entities that try to produce and export agricultural products that Ukraine did not export before, but for which there is a demand in the world (this applies to both non-traditional for Ukraine types of crop production and ready-to-consume "niche" products and organic products). It is necessary to support the exit of small and medium-sized producers of agricultural products to export markets, to attract them to participate in international projects, to create joint enterprises. Increasing the share of agricultural products that are processed on the territory of Ukraine and exported as ready-made food products will make it possible to reduce the potential for conflict with partner countries, which primarily regulate the import of agricultural raw materials. The repositioning of Ukraine in the global food system means its transition from the position of an exporter of raw materials to a supplier of high-quality and safe products with a greater content of added value.

Diversification of the spheres and types of official employment of the population, the spread of non-agricultural activities in rural areas are needed to reduce poverty and increase the income of the rural population. This requires the creation of conditions for the spread in Ukraine of the latest world trends in the development of

the rural economy: support for small-scale production of agricultural products with high added value; formation of short consumer chains; promotion of small-scale industrial production and production of energy from renewable sources in rural areas; expansion of the production of construction materials, the sphere of production and consumer services, inclusive forms of tourism and recreation, etc. This requires accelerating the pace of restoration of road and transport infrastructure in the countryside, forming modern telecommunication networks and digital infrastructure.

It is worth noting that the restoration of war-affected territories should take into account climate risks in order to reduce the vulnerability and increase the resilience of all key socio-economic sectors and natural components to climate change. It should be a green recovery with mandatory consideration of forecast trends of climate change, assessments of risks and vulnerability of socio-economic sectors and natural components to climate change and inclusion of adaptation to climate change in the tasks of regional development strategies, development strategies of territorial communities and action plans for their implementation, as well as to programs of economic and social development of regions, districts, cities [39].

At the same time, the production and processing of agricultural products should develop according to the principle of a circular economy. Agricultural enterprises and farms have every opportunity to become full-cycle enterprises with waste-free and regenerative production, which involves the full processing of product residues, the use of environmentally friendly innovative technologies, the effective use of soils depending on their quality characteristics and for their intended purpose with the implementation of precision agriculture technologies. In particular, waste from crop and livestock farming can be used locally in local small-scale bioenergy projects or as fertilizers. An important part is the development of a network of enterprises for the processing and disposal of livestock by-products (for example, veterinary plants), which should safely dispose of such waste and reduce the risks of environmental pollution.

The restoration of the agrarian sector on modern foundations will be a driving force for the significant activation of the development of adjacent sectors of the economy, which include processing of agricultural products and the food industry, production of fertilizers, agricultural machinery, bioenergy, segments of the IT industry involved in the digitalization of agricultural production and logistics. It is important to inform potential investors about the investment opportunities and attractiveness of these industries, as well as monitoring and determining the needs of agricultural enterprises, including the goods and services of related industries. The formation of agro-food clusters, the attraction of investments in the horizontal diversification of agribusiness, and the creation of conditions for the localization of related industries on the territory of Ukraine will serve to optimize intersectoral interaction.

The European perspective of Ukraine's further development is one of the country's political priorities today. In this context, further development of agrarian policy should be oriented towards European standards and requirements.

The path of Ukraine's accession to the European Union (EU) is a complex and multi-stage process that includes a number of reforms in various areas to meet European standards and norms. This will especially apply to the agricultural sector.

In general, the agricultural sector is important for every country, as it ensures internal food security, jobs and the development of rural areas. However, in the case of Ukraine, this sector of our economy is a GDP and export-generating "locomotive" in the most difficult economic times, and also affects world food security, and therefore the transition should be smooth and thoughtful [48].

Speaking directly about EU standards, the transition of the Ukrainian agricultural sector will require complex changes. The main directions in which adaptation will take place:

Legislation and regulatory framework. Ukrainian laws and regulations governing the work of the sector must meet European standards for quality, food safety, animal husbandry, environmental protection, etc. We have been on this path for a long

time, starting with the process of adapting legislation in accordance with the Association Agreement between Ukraine and the EU. In some ways we have already made progress, in some ways we are lagging behind, but we will have to catch up quickly and, it seems, "in batches".

Quality and safety of food products. Here we can also add the issue of sustainability of production. The Ukrainian system of monitoring and ensuring the quality of food products is somewhat different from the European one: the From Farm to Fork system (the Ukrainian equivalent would be "from the farm to the table") has been operating in the EU for a long time - a strategic initiative of the EU to improve the quality, sustainability and safety of food products. This system makes it possible to better control the quality of products throughout the chain of its production, promotes the introduction of more "green" production methods, improves consumer information, etc. Accordingly, our internal system, which in some points is even stricter than the European one, should still be updated in accordance with the existing systems in the EU.

Social and environmental standards. The last in this list, but not the last in importance, are the social and environmental standards operating in the EU and relating to issues of labor protection, animal welfare standards, the use of pesticides and other agrochemicals, etc. A clear example can be the use of chlorpyrifos: in the EU, the use of this insecticide has been officially prohibited since January 1, 2020, while its use is still allowed in Ukraine. The ban on the use of chlorpyrifos in Ukraine will lead to an increase in the price of production, and it is hypothetically possible after the end of the war and certain transitional periods. However, it will be necessary to update it in accordance with European rules.

The realism of transitional processes depends on many factors — both compliance with the transition plans defined and agreed upon during the negotiations with the EU, and the efforts made by the Ukrainian government, agricultural enterprises and society as a whole. In addition to time, such a transition will require considerable effort and investment. Of course, for now the question of investment is

losing ground to the general challenge of surviving and rebuilding after the end of the war. At the same time, the gradual introduction of European norms and standards in production, on the contrary, will contribute to the stable post-war recovery of the sector and, as a result, will lead to an increase in its competitiveness. It is quite difficult to talk about time limits today, since they will depend on the terms of the end of the war, and on the available financial resources for the sector, and on the speed of adaptation of legislation and the introduction of necessary changes.

However, it can be said unequivocally that in order to survive European integration, Ukrainian farmers must first of all survive the war. Joining the EU should be an additional push for the Ukrainian agricultural industry not just for reconstruction, but for significant modernization and improvement of all spheres of production. Along with tougher competition from the agricultural sector of the European Union, European integration will also bring the opportunity for Ukrainian farmers to expand sales markets, access to new research, technologies and investments.

Of course, you always approach the new with caution. However, first of all, the EU has been with us since 2014, and we have been moving to European standards, albeit gradually, and secondly, the more you learn about the "new", the less scary it becomes. Therefore, Ukrainian farmers need to start familiarizing themselves with business practices in European countries, their requirements for product quality, labeling, packaging, and process management in general.

Preparation for European integration requires time, effort and a responsible approach. Successful integration can bring many benefits to the Ukrainian agricultural sector — not just restore it, but really modernize it and create new opportunities for development.