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ASSESSMENT OF THE WAR IMPACT ON ENSURING NATIONAL FOOD SECURITY

ABSTRACT

In the modern conditions of society development, which are characterized by the increase not only of internal problems of the state but also of external extraordinary challenges, the importance of issues of diagnosing the impact of war on the agricultural development of Ukraine in the direction of ensuring the national food security is growing. The article is aimed at assessing the war's impact on the agriculture development of Ukraine, diagnosing development prospects of food security in a war period; providing proposals and recommendations, post-war recovery measures in order to ensure an appropriate level of food security and solve current food crisis situations in a war and post-war period, which are actual and important issue that needs an urgent solution. In the direction of achieving the main purpose, in the research have been applied several general and special scientific methods, namely: the methods of scientific abstraction, analytical diagnostics, statistical and comparative analysis, the method of end-to-end analytics, and regulatory and index criteria etc.

The article examines and presents the regional distribution of losses to Ukrainian agriculture in a war period, the structure of agricultural losses from the war by main categories and its detailed description; the structure of indirect financial losses in agriculture from the impact of war and its detailed description, that declared the existence of urgent need for the full restoration of the potential of the industry and requires significant financial and investment resources; recommendations for reconstruction of agricultural resources provision and development of international trade activity in a war and post-war period.

The article has defined the key features of food safety regulation at the state level, which made it possible to prove the existence of significant deficiencies in the work of state risk management, and mechanisms for ensuring the country's food and environmental safety. Actual problems of food security ensuring the conditions of the war in Ukraine are identified. The results of a detailed analysis of the state and trends of agricultural sector development in the conditions of the war proved the existence of risk situations that can cause unforeseen and irreversible consequences in the near future.

Keywords: assessment, agricultural sector, financial losses, national food security, war and post-war period, food safety, international trade relationship, agricultural product consumption

JEL Classification: F13, F22, Q14, Q17, Q18

INTRODUCTION

The genesis of the formation of Ukrainian statehood in recent decades has faced extraordinary challenges and obstacles, that directly and indirectly affect the level of development of the national economy and one of its key components of national food security. The sudden onset of full-scale war in 2022 had a significant impact on the aggravation of obstacles to the way to the development of international trade and ensuring the appropriate level of food security in the country. The instability of international trade development can impact catastrophically on the livelihood and working capacity of the population as a whole, as well as the development of the agricultural sector - in particular.

Recently, foreign and national media and various scientific research began to pay more and more attention to the issue of the full-scale invasion's impact on the state of food security and international trade of agricultural products.

In addition, the war will reduce the food supply in many countries in the Middle East and North Africa. They import more than 90% of all food, and the closest suppliers for them are Russia and Ukraine. World Bank and EBRD experts note that Turkey, Egypt, India, Thailand, Georgia, Armenia, South Africa, Lebanon and even Sri Lanka can become "victims" of Russian aggression against Ukraine [10].

Ukraine was, is and will remain a classic net exporter on the world market of agricultural products, however, for the rapid recovery of the economy, the implementation of national mechanisms to support the agricultural sector would bring a powerful return. Given the seriousness of the circumstances, FAO experts have already published a USD 115 million Rapid Response Plan, which includes a number of measures to support the Ukrainian agricultural sector until the end of 2022 [3].

LITERATURE REVIEW

Ensuring the appropriate level of national food security determines the general directions of diagnosing development prospects of food security in a war period; the state's internal and external trade policy, social stability of the population, providing proposals and recommendations for the agriculture development of Ukraine in the direction of ensuring food security and solving demographic problems of social development in the long run. Many authors have monitored and synthesized a lot of experience in achieving the problem decision of food supply and, at the same time – ensuring the country's food security and safety level through its own production, export and import operations. Structural changes in the market situation, which are the consequences of Ukraine's free access to the markets of European countries, lead to an increase in the level of competition between domestic producers of agricultural products.

The issue of food security and the state of international trade has a global meaning and is characterized by extreme urgency; therefore, this research topic has gained wide discussion among scientists' circles of world organizations specializing in food safety in aspects of the development of international trade in agricultural products. Considerable attention among scientists and researchers was assigned to the issue of solving the investigated problem in the conditions of the war in Ukraine.

Famous domestic scientists, such as Artemenko L. et al. (2023), examined and determined the main structural changes in the state of food security in the conditions of extraordinary challenges caused by the dire consequences of a full-scale military invasion and identified the main directions of state regulation of the national food market. Actual problems of legal security and state management of national food security are highlighted in the scientific works of O. M. Batygin et al. (2013). Researching the priority directions for increasing the level of foreign trade turnover, especially regarding agrarian and agricultural sectors in the conditions of challenges that arose from the beginning of a full-scale invasion of the territory states dedicated to the scientific work of Sobkevich O. V. et al. (2023).

The problems of establishing and regulating international trade relations and finding ways to optimize the level of global food security, as well as researching mechanisms for ensuring the food security of foreign countries, were solved in the works of such foreign scientists as S. Ahmed et al. (2017); S. Boqvist et al. (2018); M. Ghani et al. (2016); L.K. Johnson et al. (2018); A. Jurgilevich, A. et al. (2016); L. Manning et al. (2016); O. Zghurska et al. (2023); O. Yerankin (2023) and others.

Noting the significant contribution of well-known domestic and foreign scientists to the study of issues of ensuring food security and finding effective directions for international trade development, it is worth noting the research of a crucial importance topic - the analysis of the impact of war on food security and the state of international trade in agricultural products in Ukraine under the condition's active military operations on the national territory.

AIMS AND OBJECTIVES

The article is aimed at evaluating the impact of the war on ensuring food security in Ukraine in the direction of sustainable development of agriculture in the war and post-war periods; provision of proposals and recommendations regarding post-war recovery measures in order to ensure an adequate level of food security and to resolve current food crisis situations in the war and post-war periods.

METHODS

To solve the defining problems, general and special scientific methods have been used and applied in scientific research. The method of end-to-end analytics made it possible to process and investigate a significant number of works by well-known scientists in the field of state regulation of ensuring the appropriate level of food security, in particular: state food programs and tools for supporting the functioning and agricultural sector development, laws and other documents. The application of the regulatory method made it possible to determine the key elements of the legal basis for regulating national food security.

Using statistical and comparative methods of analysis, problems and trends in the development of the agricultural sector were assessed. The dialectical evaluation method was used to identify the main principles and concepts of the formation and development of international trade relationships on a global scale; to determine the key elements of the legal framework for ensuring national food security. System analysis and synthesis method was used for the purpose of providing proposals for the exit of the agricultural sector from the crisis caused by the consequences of military actions on the territory of Ukraine.

For defining the level of damage coefficients for each type of damaged asset, the "information from the survey conducted for the World Bank's Ukraine Rapid Damage and Needs Assessment by IPSOS has been applied in the research. Data from various sources and satellite data were used to evaluate the damage to soil and farmland as of February 24, 2023. Using data from the State Statistics Service of Ukraine (SSSU) and the Ministry of Agrarian Policy and Food of Ukraine (MAPF), the decrease in annual crop production was estimated" [29].

The use of the index-criterion method made it possible to analyze the indicators of the global index of food security for Ukraine, and the level of its independence in order to take into account the risks that directly and indirectly affect the functioning of the national agricultural sector during the war period. The generalization method made it possible to accumulate the entire complex of scientific results into a single concept that reflects the relevance of the topic, to determine the importance of the effects of military actions on the state of national food security, as well as promising directions for the development of international trade.

RESULTS

Food security is a component of national security, applied in the National Security Strategy of Ukraine adopted by the President's decree dated September 14, 2020 No. 392 (Presidential decree of Ukraine of February 16, 2022 No. 56/2022 About the decision of the National Security and Defense Council of Ukraine of December 30, 2021 "About the Strategy of ensuring state security"), provided that to guarantee the prosperity and security of citizens, resources are needed, which in the case involvement and effective use of external sources ensure sustainable and dynamic economic growth. For this, it is necessary in particular, to reform land relations, providing for implementation measures to organize the accounting of land resources, to ensure ecologically oriented development of the agricultural sector.

A key feature of food security regulation at the state level is guaranteeing the population's unhindered access to obtaining the required amount of food products, in accordance with the norms established by the Ministry of Health.

Global climate change, the consequences of the Covid-19 pandemic, as well as a full-scale military invasion, had a negative impact on the indicators of the Global Food Security Index (in 2023, Ukraine is in the ranking was on 26th place and 71st among countries of Europe and according to the World rating - among 113 countries of the world in terms of food security assessment indicators) (Figure 1).

The analysis of indicators of the food security index showed that Ukraine ranks 65th globally rating according to the "Food Supply" indicator due to the negative impact of factors on such indicators as: price growth, growth in the share of product costs food; inadequate government funding of food security programs and others. The low level of the indicator of economic and physical availability, caused by political instability in the country and the consequences of a full-scale invasion, which led to the destruction of logistics infrastructure and disruption of food supply chains. It is worth noting that the low value of the sustainability indicator and sustainability of natural resources in 2023 is caused by the presence of significant deficiencies in the work of state risk regulation mechanisms for ensuring the food and environmental security of the country.

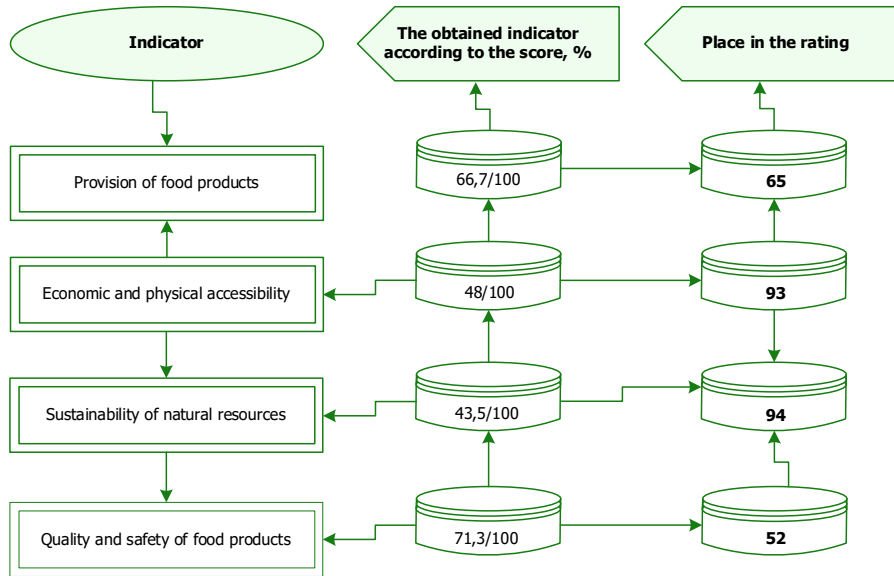


Figure 1. Indicators of the Global Index of Food Security for Ukraine, 2023. (Source: compiled by the authors based on EFSA (European Food Safety Authority))

Before the beginning of the full-scale military invasion, the agricultural sector of the economy accounted for about 20 per cent of the domestic economy of the gross product of Ukraine in general and more than 40% of total revenues from export activity. 15% of the total population of Ukraine was employed in the agricultural sector, and the domestic market by more than 80 per cent was filled with food products of domestic production. At the same time, in 2021, about 61 ml. tons of grain, oilseeds and vegetable oils, which is equivalent annual needs of about 400 million people [3; 10].

“It is worth mentioning that all regions of Ukraine (excluding Autonomous Republic of Crimea, which is not included in the estimates), have borne agricultural losses due to the war. The losses range from USD 45.0 million in Zakarpattya Oblast to USD 3.0 billion in Kharkiv Oblast with the latter making up more than 10% of Ukraine’s agricultural losses. Zaporizhya Oblast, which is partially under occupation and highly affected by missile attacks, ranks second in losses, accounting for USD 2.5 billion. It is followed by Kherson and Vinnytsia Oblasts at USD 2.1 billion and USD 2.0 billion respectively” [29] (Figure 2).

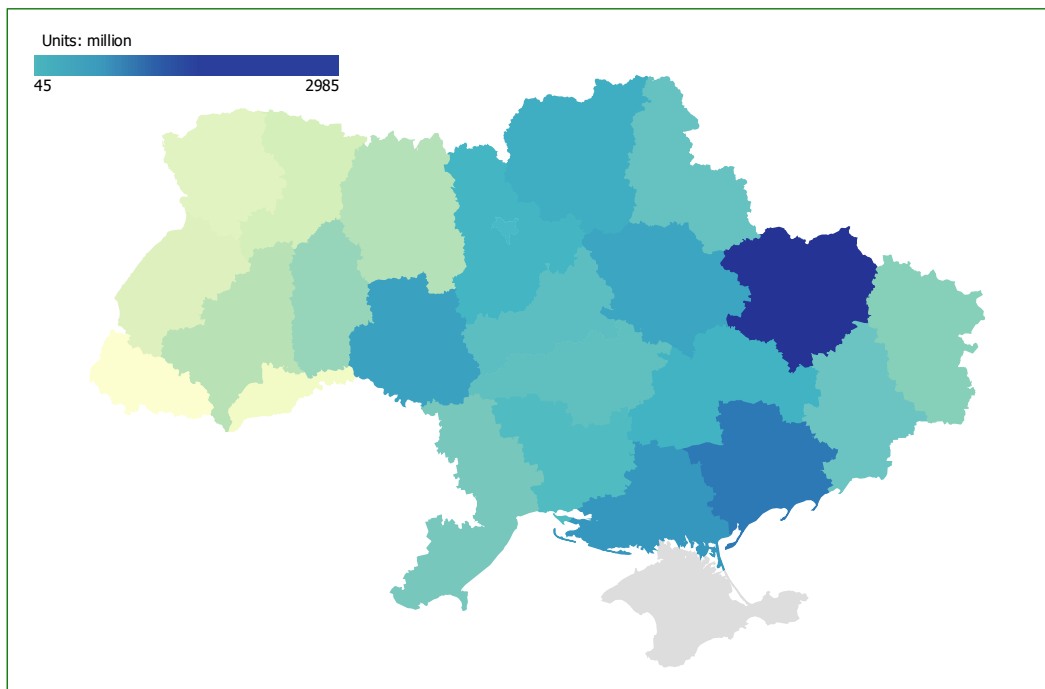


Figure 2. Regional distribution of financial losses of national agriculture. (Source: own estimates based on the results of the IPSOS survey [29])

Financial losses are estimated in the form of monetary value of destroyed or partially damaged physical assets, material values and goods and material stocks as a result of a full-scale invasion of the territory of Ukraine. The total cost is estimated at USD 8.7 billion by such main categories as: agricultural machinery and equipment; storage facilities; crop production, animal husbandry, beekeeping, fishing and aquaculture (Figure 3).

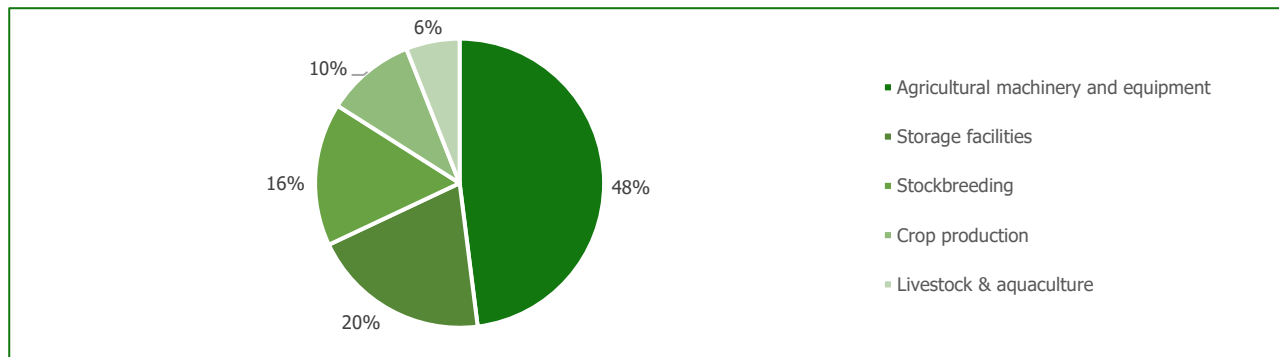


Figure 3. The structure of agricultural losses from the war by main categories, 2023. (Source: own estimates based on the data of the State Statistic Service of Ukraine and on the results of the IPSOS survey [29])

Part of the production potential was lost due to armed aggression as in the field of direct production of agricultural products, as well as in the field of its processing, steel chains were partially or completely destroyed product promotion (Table 1).

Table 1. Description of the structure of financial losses in agriculture from the war in agriculture by main categories, 2023. (Source: own calculations based on the data of the State Statistic Service of Ukraine and on the results of the IPSOS survey [28-29])

The structure of financial losses in agriculture	Indicator value	Description of the structure of financial losses
Agricultural machinery and equipment	USD 4.7 billion	Tractors - USD 2.0 billion, - seeders (excluding fertilizer seeders) -USD 646.9 million, harrows at USD 442.1 million
Storage facilities	USD 1.3 billion	Storage facilities for grains, food or other agricultural commodities - USD 1.3 billion
Stockbreeding	USD 2 billion	Poultry - USD 433.1 million, milk - USD 556.4 million, eggs - USD 267.8 million, pigs - USD 229.3 million, cattle - USD 485.5 million
Crop production	USD 489.8 million	Stone fruits - USD 232.1 million, pome fruits - USD 206.7 million, berries - USD 51.0 million
Livestock & aquaculture	USD 277.6 million	The damages to livestock and bees - USD 265.6 million, the fisheries and aquaculture - USD 12.0 million

It is worth emphasizing that in addition to financial losses due to damage and destruction of physical assets, agricultural commodity producers faced problems of indirect losses caused by a lack of income due to the reduction of production volumes, a decrease in actual prices and an increase in the cost of production. Taking into account the fact that, in contrast to losses that are localized territorially in the zone of direct military operations, farmers throughout Ukraine suffer losses from indirect losses. According to the IPSOS survey (Global Market Research Company), total estimated indirect losses in 2023 are USD 69.8 billion, up 22% from the previous year (Figure 4).

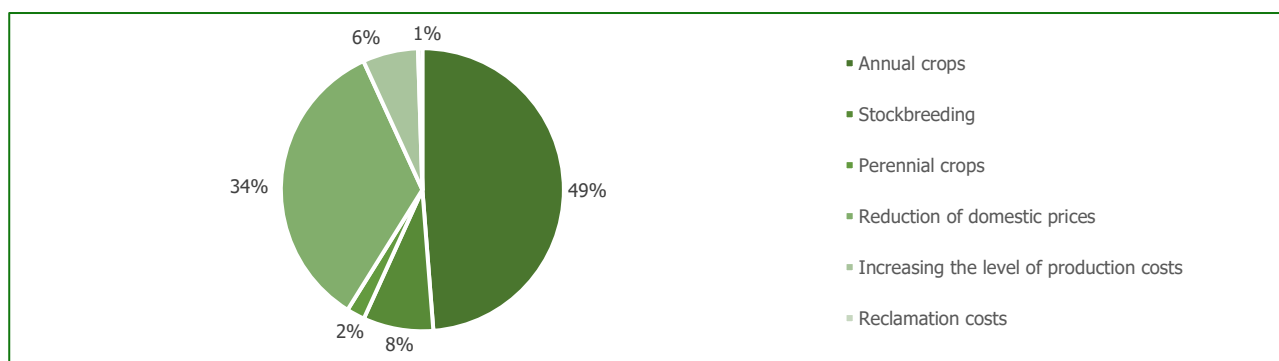


Figure 4. The structure of indirect financial losses in agriculture from the impact of war. (Source: own estimates based on the data of the State Statistic Service of Ukraine and the results of the IPSOS survey [28-29])

In addition, as a result of the war and related indirect financial losses in agriculture (Table 2), the structure of food consumption by the population underwent significant changes, both in terms of types of food products and their consumption volumes and in terms of the geographical principle. As a result of population migration, there was a decrease in the domestic consumption fund, which increased competitiveness in all segments of the domestic consumer market.

Table 2. Description of the structure of indirect financial losses in agriculture from the impact of war, 2023. (Source: own calculations based on the data of the State Statistic Service of Ukraine and on the results of the IPSOS survey)

The structure of agricultural losses	Indicator value	Description of the structure of financial indirect losses
Losses due to reduced production of annual crops	USD 34.3 billion	48.6 million tons for cereals and 8.7 million tons for sunflower. 100% - decrease in production caused by a reduction in cultivated areas, 70% - decrease in production caused by a yield decrease
Losses due to a decrease in domestic prices due to interruptions in exports	USD 24.1 billion	Price declines resulted in losses totalling USD 24.1 billion, or nearly 35% of all indirect losses
Losses due to reduced production in stock-breeding	USD 5,6 billion	Annual milk production decreased by 1.3 million tons due to herd reduction, and additional productivity declines led to a further decrease in annual milk production by 1.4 million tons
Losses due to increased production costs	USD 4.4 billion	In 2022, losses amounted to USD 844 million, while due to the increase in the cost of production factors in 2023 - in USD 3.2 billion. As factor prices fell in 2023 but remained higher than pre-invasion levels, indirect net income was an additional USD 1.2 billion
Losses due to reduced production - perennial crops	USD 769 million	The total estimate of losses from the three-year decline in the yield of berry crops and the five-year decline in the yield of grain and stonecrops is USD 769 million, while the annual reduction in the harvest of perennial crops is estimated at 458 thousand tons
Losses due to remediation costs	USD 329 million	In 2022, approximately 836,000 hectares of agricultural land were damaged, resulting in losses of USD 184 million due to the need for reclamation. As of October 2023, 1.5 million hectares of agricultural land were damaged, which is 3.6% of all agricultural land in Ukraine

In today's conditions in Ukraine, there is a decrease in the consumption capacity of the population. According to the statistical data, in 2021 (the latest available data) average monthly consumer aggregate expenditures of households in general the cost structure was 50.1% (52.7% in 2020). In the structure of household monetary expenditure on food in 2021, as in previous years, the main costs were meat and meat products - 23.2%, bread and bread products and milk and dairy products 17.2% and 13.7% respectively.

It should be noted that the inflation rate on the consumer side market in 2022 was 26.6%, and the product price index for food and soft drinks was 34.4%. Compared to 2021 and 2022, consumer prices for bread and bread products increased by 30.3%, meat and meat products by 24.6%, fish and fish products by 45.8%, milk by 18.7%, eggs - by 76.6%, sunflower oil by 14.5%, fruits for 73.8%, for vegetables for 51.8%, for sugar - by 31% (Table 3).

In January - November 2023, inflation rates in the consumer market of Ukraine slowed down and amounted to 4.4%. At the same time, the price index for bread for the specified period accounted for 6.7%, for milk 7.3%, for cheese and soft cheese 5.9%, for oil 7% [2; 3; 29].

In 2023, prices continued to rise in Ukraine on food products compared to other groups of consumer goods, at the same time, there is an upward trend in food rations in the population of food products of the high-price segment. Thus, the consequence of armed aggression is a significant deterioration indicator of the availability of food products for the population and general indicators of food security in Ukraine.

The situation in the market of agricultural products and consumer goods of the food market stimulates the development of negative macroeconomic processes in the country. At the same time, Ukraine remains one of the largest exporters of agricultural products in the world.

Table 3. Analysis of agricultural products consumption per person in 2023. (Source: calculated by the authors based on the data of the State Statistics Service of Ukraine)

Type of agricultural products (per person)	Consumption of the main types of agricultural products per person, kilograms	Share of imports (percentage of volume food consumption fund), %
crops cultures	>100	1.6
sunflower oil	7.4	0.4
sugar	27.7	1
all kinds of meat	54.5	5.6
eggs, pieces	253	2
milk	203. 6	6.1

In accordance with the development trends of the domestic agro-industry production potential of the complex in the medium term of agricultural products in Ukraine can be up to 200 million tons, and grain and oil crops up to 150 million tons, which will make it possible to almost double to increase the volume of export deliveries, ready-made food products. In addition, increasing the production of plant products in Ukraine will stimulate the development of the livestock industry and related industries' production of fodder and other food products (proteins, special fats, gluten, dairy products, meat products, etc).

It is worth noting that most of the problems are in the food security system and the development of international trade relations on a global scale is associated with a decrease in the number of manufactured agricultural products and an increase its the cost price products (production, processing, transportation and storage). According to the regional analysis of the state of self-sufficiency regions with food, a large part of the region does not have the appropriate capabilities or capacities to provide independent needs of the own population with meat and milk, vegetables.

Reliable supply of the country's population with food and preservation of resource opportunities for achieving such a goal in the future for generations is of strategic importance since it depends on not only food but also the national security of Ukraine. Extraordinary challenges and risks that can significantly reduce the level of ensuring food security and the state of international trade in agricultural products are presented in Figure 5.

The results of a detailed analysis of the state and trends of agricultural sector development in the conditions of the war declared the existence of risk situations that can cause unforeseen and irreversible consequences in the near future, namely [22; 23]:

- increased risks of loss of income, reduction of production and increase in prices for food for consumers in less favourable for agricultural production areas (mountainous, peripheral, with low soil quality, etc.), in the territories of active hostilities;
- impossibility of conducting agricultural activities in temporarily occupied territories;
- incompleteness of the reform in the field of land relations and cooperation, limited control over using land and water resources, plant protection products and agrochemicals;
- difficult conditions for the restoration of agricultural activity in de-occupied areas territories due to mining and pollution of agricultural lands, damage to production and warehouse premises, equipment and equipment;
- restrictions on the export of agricultural products due to the blockade of Black Sea ports, destruction of port and other logistics infrastructure, increase in the value of logistics costs, storage and products transportation;
- limited financial resources for effective implementation of state measures agrarian policy and increasing the number of producers of agricultural products covered by state support programs, lack of defined strategic goals for agriculture and rural areas development;
- decrease in purchase prices for the main types of agricultural products on the domestic market and income from foreign trade operations;
- increase in prices of fertilizers, seeds and plant protection products, on electricity (limited access to electricity supply), fuel and other necessary resources;
- the low level of productivity and the level of income of a significant part of producers of agricultural products;
- low competitiveness and limited access to the international sales market of agricultural products;

- ineffective system of knowledge exchange, innovation, training and insufficient research aimed at the development and modernization of the agricultural sector, low-level digitization in agriculture and rural areas;
- decrease in the level of employment, deterioration of the demographic situation in rural areas, inefficiency of measures for the young farmer's development, promoting sustainable business development in rural areas;
- irrigation and drainage systems destruction, especially due to detonation by the Russian Federation of the Kakhovka hydroelectric power station dams, increasing the deficit of natural moisture supply due to global climatic changes;
- loss of biodiversity increased negative impact on ecosystems, and low effectiveness of measures to preserve the natural environment and landscapes.

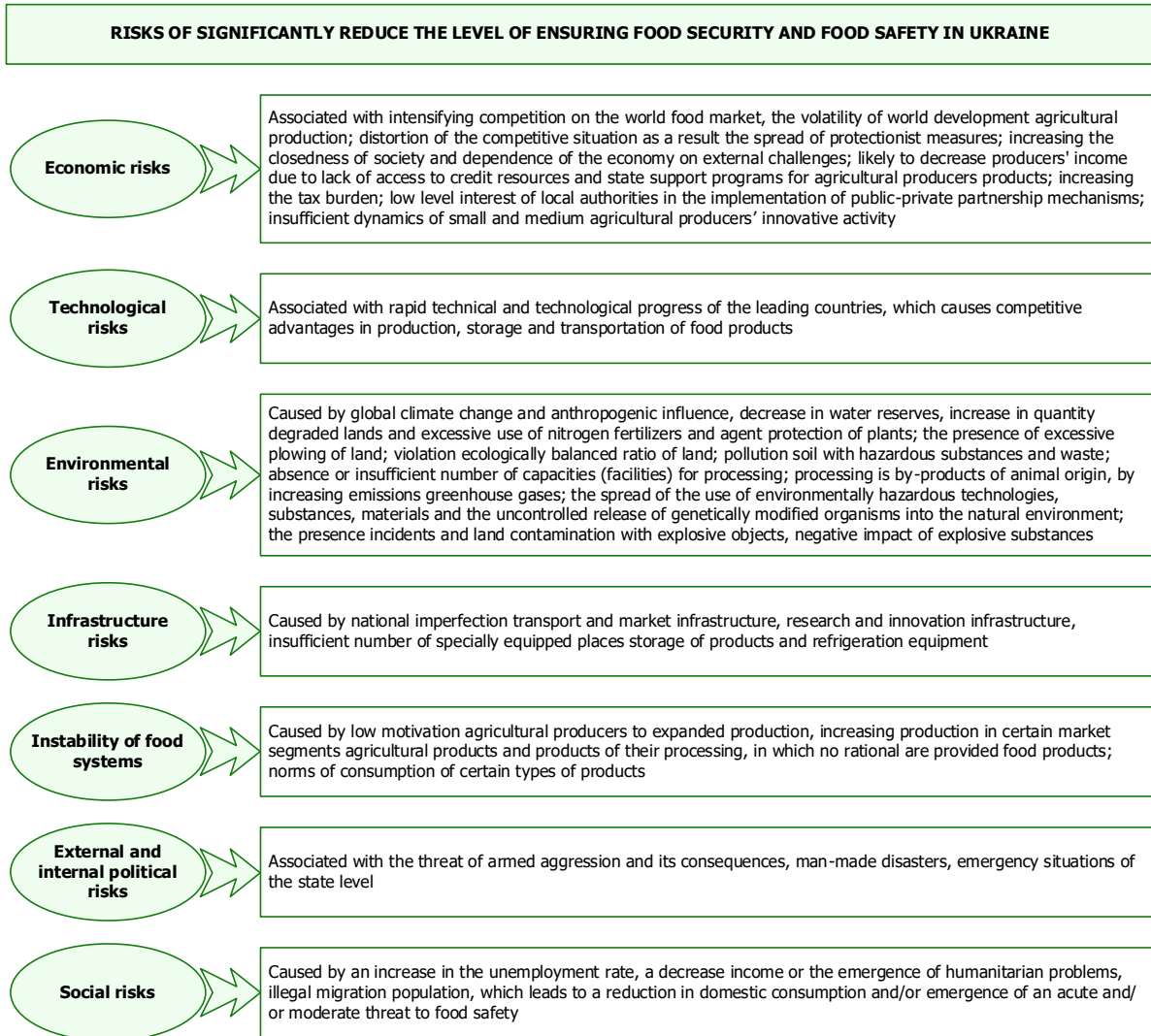
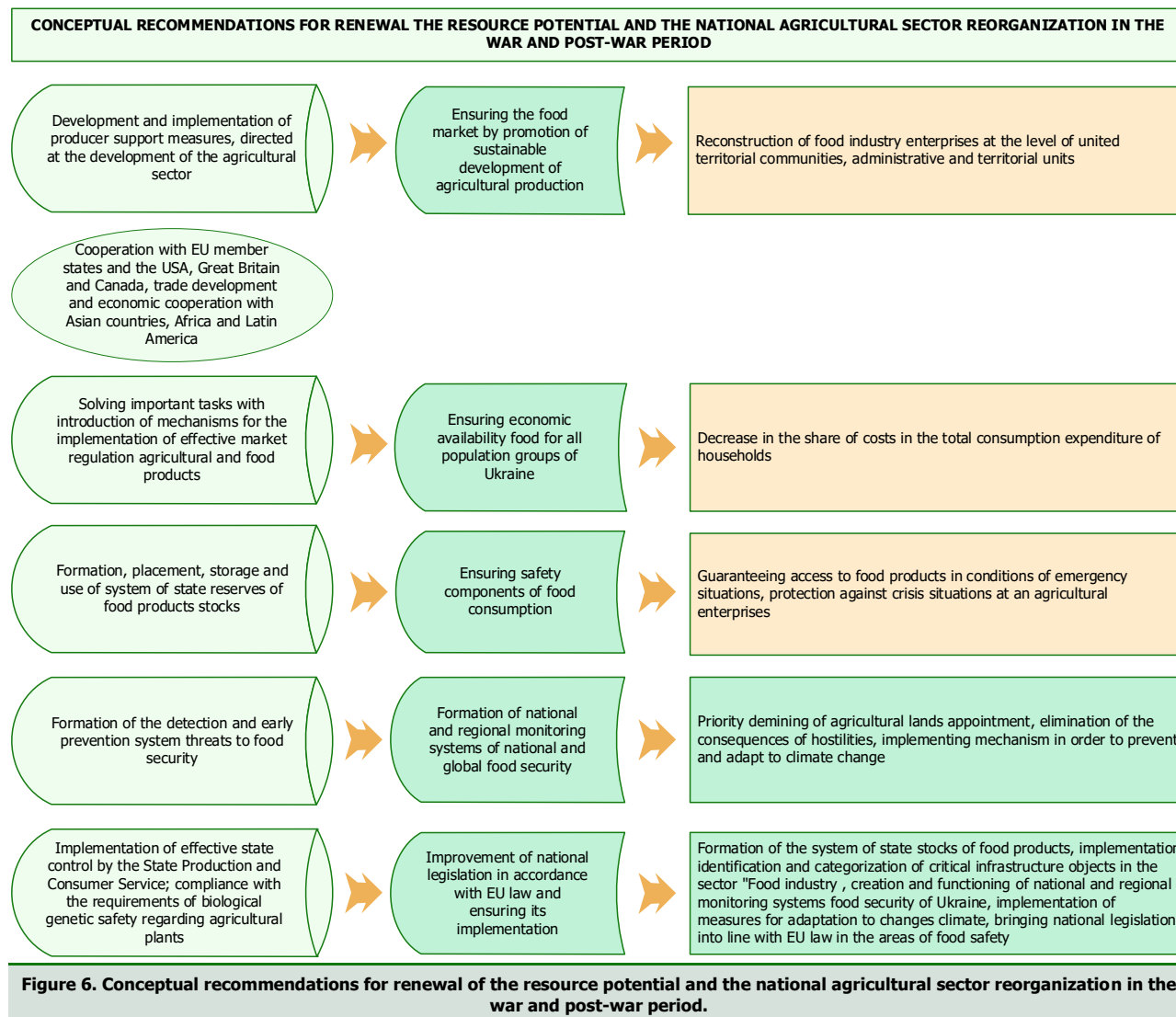


Figure 5. Risks of significantly reduce the level of ensuring food security and food safety in Ukraine.

The indicated negative phenomena without proper measures to improve the state agrarian system politicians make sustainable development and recovery of production impossible, negatively affect the population's well-being and the environment, and may also pose risks to ensuring food and environmental security. Identified problems require the involvement of everyone to solve the problem of state regulation together with international organizations [30; 31].

In order to ensure the national interests in the conditions of sustainable development, civil and digital society, observance of constitutional rights and freedoms of person and citizen and in support of those declared by the resolution of the General Assembly of the United Nations on September 25 No. 70/1 of 2015, global goals of sustainable development by 2030, headlined in the National Report "Goals of Sustainable Development: Ukraine", Decree of the President of Ukraine dated of 30 September 2019 No. 722, have been decreed to ensure compliance with the Sustainable Development Goals of Ukraine e for the period until 2030 [22]. It also should be noted that the general state of food security and the state of

development of international trade cooperation, require developing a set of post-war reconstruction measures and direction, as it is shown in Figure 6.



Summarizing the above, it is worth emphasizing that, despite the emergence of extraordinary challenges both at the national level (economic crisis, rising unemployment, demographic crisis, global warming) and on a global scale (the instability of the political situation, the critical issues which are co-related with the global economic crisis), Ukraine still to be one of the leading agricultural countries in the world, capable of to provide food for hundreds of millions of people on our planet. Full restoration of the functioning of the agricultural sector will make it possible to ensure not only food that is resistant to threats and challenges security of Ukraine but will also positively affect the state of food systems development of many countries.

DISCUSSION

The war has unsettled global food and energy markets, exposing them to heightened risks, including tighter availabilities due to disruptions in exports from the Russian Federation and Ukraine, unmet import demand, and higher international prices. The 2023 edition of The State of Food Security and Nutrition in the World (SOFI) revealed that progress in fighting hunger has been undermined by higher food, energy and agricultural input prices magnified by the war in Ukraine. The report projected that around 23 million more people will face chronic hunger in 2030 compared to a scenario in which the war had not occurred.

Considering the scale of damages and losses for agricultural producers in Ukraine, the full recovery of the industry potential requires significant financial and investment resources. It is worth highlighting key categories of needs - needs for reconstruction and needs for restoration and development. It is worth highlighting key categories of needs - needs for reconstruction and needs for restoration and development. Reconstruction needs are aimed at replacing damaged assets, while recovery needs reflect the resources needed to restore the agro-industrial sector by addressing the critical challenges arising from a full-scale invasion, taking into account the improvement of environmental and sustainable agricultural production, the intensive development of value-added production and support main service institutions.

Based on the research, solutions to the listed problems can be suggested. One such solution is an improvement in decision-making by policymakers and private parties to minimize war-induced losses by forecasting food production. Carefully selected structural components of the national program of balanced production of food (e.g., increasing the level of income, providing cheap food, increasing the supply of food, using special tools) can allow for solutions for the tasks at the local level and impact sustainable agricultural development, which can influence on national food security.

Reconstruction needs to determine the resources needed to replace damaged assets, which are critical to the long-term revival of agricultural production. Critically important priorities are assessed based on consultations with the Ministry of Agrarian Policy and Food of Ukraine, other ministries and departments, as well as statistics of allocated donor support for the agriculture of Ukraine for the 2024-2025 calendar years. According to experts, the needs for reconstruction and restoration of agriculture are estimated at USD 56.1 billion.

Recovery needs fall into three categories: immediate manufacturing recovery support (USD 6.1 billion), long-term recovery support (USD 35.5 billion), and public institution support (USD 5.0 billion), "totalling USD 46.7 billion over the next 10 years. In 2024, the absolute priority is to support immediate production recovery, with USD 402 million of the USD 435 million in 2024 needs allocated to this category. Most of the support, which represents 55% of all needs in the category "Support for immediate recovery of production" [29], goes to the interest rate compensation program, which is aimed at solving liquidity problems among agricultural producers [25; 26].

The need to remediate damaged agricultural land is estimated at USD 1.05 billion over the next 10 years, significantly more than losses in this category. There are several main reasons for this. "First, the amount of damaged agricultural land is likely to increase by the end of the war. Also, since the cost of reclamation is calculated on the basis of the resolution - the actual costs of reclamation may also be much higher. Support for long-term recovery includes investment grant programs, a significant portion of which is earmarked to promote climate-smart technologies for the crop (USD 15.0 billion) and livestock (USD 9.0 billion)" [29].

Despite the assumption that there is enough food on the global level, higher food prices could become a problem and put food availability under some pressure for the part of the population that has a low income, spends a large part of their food on cereals, and is highly dependent on imports of Ukrainian cereals.

Unfortunately, the full-scale invasion of the Russian Federation increased the burden on "key agricultural state institutions. Challenges related to European integration also require additional resources and increased capacity of state institutions. The list of such institutions includes, in particular, the Ministry of Agrarian Policy and Food of Ukraine, State Production and Consumer Service, laboratories, research and educational institutions, as well as initiatives aimed at supporting political dialogue and strengthening of Ukrainian state institutions" [29]. Thus, the total requirement in this category is USD 5.02 billion, of which USD 20 million is allocated for 2024, of which USD 18.25 million has already been earmarked by donors.

CONCLUSIONS

The results of scientific research obtained in accordance with the set goal of scientific research regarding the problem of the war impact on the agriculture development of Ukraine, diagnosing development prospects of food security in a war period; providing proposals and recommendations, post-war recovery measures, proved that in recent years, for the first time in many years, Ukraine has experienced large-scale and dangerous threats challenges and risks. As of today, destruction is taking place in elements of the socio-economic system states: economy, industry, agrarian sector, social sphere, and ecology. That is why the creation of a national system of mechanisms, which will include priority one's directions of recovery and food supply in terms of solving the current food crisis situations, post-war recovery, improve the effectiveness of food security, which are actual and important issue that needs an urgent solution.

In order to manage the consequences of the conditions of war and for post-war recovery, priority directions for the regulation of the state of food security and the development of international trade are ensured, taking into account the important problems that exist in the agrarian sphere.

Based on the main scientific approaches of food security formation and on the declared result of the diagnosis of the general state of food security and the state of international trade cooperation development, the scientific article has proposed a set of post-war reconstruction measures aimed at restoration of the resource potential of Ukraine to ensure as domestic needs, and agricultural export supplies products and food products, restoration of balance internal market environment, as well as the adoption of measures with ensuring the safety component of food security in case martial law or emergency situations.

The basis of the prospects for further research is investigating the needs of the Ukrainian agricultural sector for restoration and reconstruction, which should be determined as a balanced approach to supporting basic agricultural production and processing. So, nowadays, a current topic is the call for increased value addition in Ukrainian agricultural production and exports. It is believed that instead of exporting raw materials (grains and oilseeds), it would be better to develop, for example, livestock production on this basis and export high-value-added dairy and meat products. However, when Ukraine becomes a member of the European Union (EU), it will be subject to EU regulations on animal welfare, transport of live animals, slaughterhouse standards, food safety rules, etc. This will increase the production costs of Ukrainian agro-processors and may reduce or negate some of Ukraine's obvious comparative advantages. It is supposed that in the near future, the EU will be the main source of donor funding for Ukraine's reconstruction and recovery, with which other global donors such as the World Bank and the EBRD will coordinate their assistance. It should be taken into account that in the EU, agriculture is subject to extensive EU-wide regulation of markets and standards in the areas of agricultural activities, food safety, environmental protection and animal welfare. It can therefore be assumed that a significant part of donor funding will be directed towards rebuilding the Ukrainian agricultural sector in line with these European standards. Accordingly, the prospect of EU accession is expected to facilitate reconstruction and recovery, creating more attractive conditions for foreign investment in Ukraine in order to ensure the effective development of agriculture in Ukraine in the war and post-war period.

The results obtained and represented in an article can be used in further research, programs, recommendations and strategies of legislative and executive authorities for developing priority directions in order to regulate and ensure an appropriate level of food security and for the effective development of international trade, taking into account the important problems that exist in the agrarian sphere in a war and post-war period.

ADDITIONAL INFORMATION

AUTHOR CONTRIBUTIONS

All authors have contributed equally.

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The Authors declare that there is no conflict of interest.

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ОЦІНКА ВПЛИВУ ВІЙНИ НА ЗАБЕЗПЕЧЕННЯ НАЦІОНАЛЬНОЇ ПРОДОВОЛЬНОЇ БЕЗПЕКИ

У сучасних умовах, що характеризуються нарощуванням не лише внутрішніх проблем державного розвитку, а й зовнішніх надзвичайних викликів, актуальність питань діагностики впливу війни на розвиток сільського господарства України в напрямі забезпечення національної продовольчої безпеки, невинно зростає. Дослідження спрямоване на оцінку впливу війни на розвиток сільського господарства України, діагностику перспектив розвитку продовольчої безпеки у воєнний період; надання пропозицій і рекомендацій щодо заходів післявоєнного відновлення з метою забезпечення належного рівня продовольчої безпеки та розв'язання поточних продовольчих проблем у воєнний та післявоєнний період, які залишаються актуальними та важливими питаннями в умовах сьогодення. Для досягнення поставленої мети використаний широкий спектр методів дослідження, основними з яких були: методи узагальнення та синтезу, наукової абстракції, аналітичної діагностики, статистичного та порівняльного методів аналізу, метод наскрізної аналітики, нормативні та індексно-критеріальний.

Досліджено стан регіонального розподілу втрат сільського господарства України у воєнний період, структуру втрат сільського господарства від війни за основними категоріями та їх детальну характеристику; структуру непрямих фінансових втрат у сільському господарстві від впливу війни та їх детальну характеристику, що тим самим задекларувало наявність гострої необхідності повного відновлення потенціалу галузі й потребу в значних фінансових та інвестиційних ресурсах.

Визначено ключові особливості регулювання продовольчої безпеки на державному рівні, що дозволило задекларувати наявність суттєвих недоліків у роботі державного управління ризиками, механізмами забезпечення продовольчої та екологічної безпеки країни. Визначено актуальні проблеми забезпечення продовольчої безпеки в умовах війни в Україні. Результати детального аналізу стану й тенденцій розвитку аграрного сектора в умовах війни довели наявність ризикових ситуацій, які можуть спричинити непередбачені та незворотні наслідки найближчим часом. Подано рекомендації щодо відбудови сільськогосподарського ресурсозабезпечення та розвитку міжнародної торгівлі у воєнний і післявоєнний періоди. Отримані результати можуть бути використані в подальших дослідженнях, програмах, рекомендаціях і стратегіях органів законодавчої та виконавчої влади для розробки пріоритетних напрямів регулювання та забезпечення належного рівня продовольчої безпеки й ефективного розвитку міжнародної торгівлі на довгострокову перспективу, враховуючи наявність важливих проблем, які існують в аграрній галузі у воєнний і післявоєнний період.

Ключові слова: оцінка, аграрний сектор, фінансові втрати, національна продовольча безпека, війна та післявоєнний період, харчова безпека, міжнародні торгові відносини, споживання сільськогосподарської продукції

JEL Класифікація: F13, F22, Q14, Q17, Q18