



KAPITEL 5 / CHAPTER 5⁵

PROBLEMS OF FOOD SUPPLY OF UKRAINE WITH PLANT PRODUCTS DURING THE WAR

DOI: 10.30890/2709-2313.2024-30-00-016

Introduction.

The war started by the Russian Federation against Ukraine caused not only economic losses for our country, but also a food crisis for many countries of the world. This is primarily due to the fact that Ukraine is one of the main suppliers of grain crops in the world, as well as an important exporter of food raw materials and food products to the international market. According to USDA data, before the war, Ukraine supplied 46% of the world's sunflower oil exports, 9% of wheat exports, 17% of barley exports, and 12% of corn exports on international markets [1]. All these problems have led to an increase in food prices. That is why consideration of issues related to the restoration of the agricultural sector of Ukraine's economy is an important and urgent task.

Review of recent research and publications. Domestic and foreign scientists were engaged in solving the problem of food security. Thus, in the work of O. Shevchenko, the issue of ecological and food security as components of ensuring the economic security of Ukraine is revealed in a strategic format [2].

The problems of ensuring food security of Ukraine in modern conditions are discussed in the article by D. Krylov [3].

Conceptual principles and rational approaches to the state management of food security are considered in the work of I. Stetsiv [4].

Food security and risks for agricultural production during the war in Ukraine are discussed in the article by V.O. Boyko [5].

However, the multifacetedness, complexity and dynamism of food security, new challenges of the time, require further scientific research.

We have researched the current state of food security and risks to agricultural production that arise during the war in Ukraine, as well as possible ways to solve existing problems.

⁵*Authors: Ternova Alla Stanislavivna, Vlasenko Iryna Georgievna, Sirenko Svitlana Oleksandrivna*



Presenting main material. During the years of Independence, Ukraine went through a difficult path from the formation and development of the economy to a large agrarian state. This is determined by such economic parameters as share in the structure of GDP, share in the structure of exports, share in employment, investments, gross value added, share in paid taxes, etc. In the entire recent history of the country, the agricultural sector has never had a negative balance of foreign economic payments.

However, in recent years, due to the covid pandemic in 2020 and the full-scale war started by the Russian Federation in 2022, agricultural production indices have decreased (Table 1).

Table 1 – Indices of agricultural products (% to the previous year)

Indicator	Years		
	2020	2021	2022
agricultural products	89,9	116,4	75,0
enterprises	88,0	122,3	72,0
economy of the population	93,6	105,6	81,4
crop production	87,9	122,6	72,0
enterprises	85,8	127,8	68,5
economy of the population	92,8	111,4	80,6
animal husbandry products	97,5	95,4	88,0
enterprises	99,3	98,0	91,8
economy of the population	95,6	92,4	83,6

Compiled on the basis of [6].

As can be seen from the data in the table, the situation with the production of agricultural products improved somewhat in 2021, especially in the field of crop production, however, with the beginning of the war, the indicators fell sharply.

The agricultural sector suffered significant losses as a result of the Russian Federation's full-scale war against Ukraine. The total amount of losses caused to the agricultural industry as a result of the large-scale Russian invasion of Ukraine reached \$6.6 billion as of September 15, 2022. USA [7].

At the same time, indirect losses in the agricultural economy of Ukraine due to a decrease in production, the blockade of ports and an increase in production costs are



estimated at 34.25 billion dollars. USA (in particular, in crop production due to a decrease in production - 11.2 billion US dollars; in livestock production - 348.7 million US dollars; losses due to a reduction in the production of winter crops are estimated at 3 billion US dollars; in perennial crops - at 322 million US dollars. USA; losses due to the violation of logistics amount to 18.5 billion US dollars) [7].

The total number of economic entities of the agro-industrial complex that suffered losses as a result of the armed aggression of the Russian Federation is 2,653 units. (arable land decreased by 1.9 million hectares, perennial plantations decreased by 9 thousand hectares). In addition, the territory of about 1 million hectares needs to be examined for the presence of explosive objects.

Crop production suffered significant losses. In particular, the loss of crop production volumes in natural quantities in 2022, compared to the previous year, is 35-40%, which is due to the reduction of sown areas (due to the temporary occupation of the territories of Ukraine) and lower crop yields compared to the previous year [8].

The occupiers stole more than 500,000 tons of grain from the temporarily occupied territories, illegally exported tens of thousands of tons of sunflower oil, hundreds of kilograms of vegetables [9].

In 2022, the structure of agricultural production was dominated by crop production (78.2%), while livestock production accounted for only 21.8% (Fig. 1).

As can be seen from the diagram (Fig. 1), in the total production of plant products, the largest share belonged to the production of grain and leguminous crops (32.3%), as well as technical crops (30%); potatoes, vegetable and melon crops accounted for 13%, and fruit, berries and grapes only 2.4%.

Considering the dynamics of plant and agricultural production indicators for 2020-2022, it can be established that there is an obvious reduction in the areas from which all agricultural crops are harvested (Table 2).

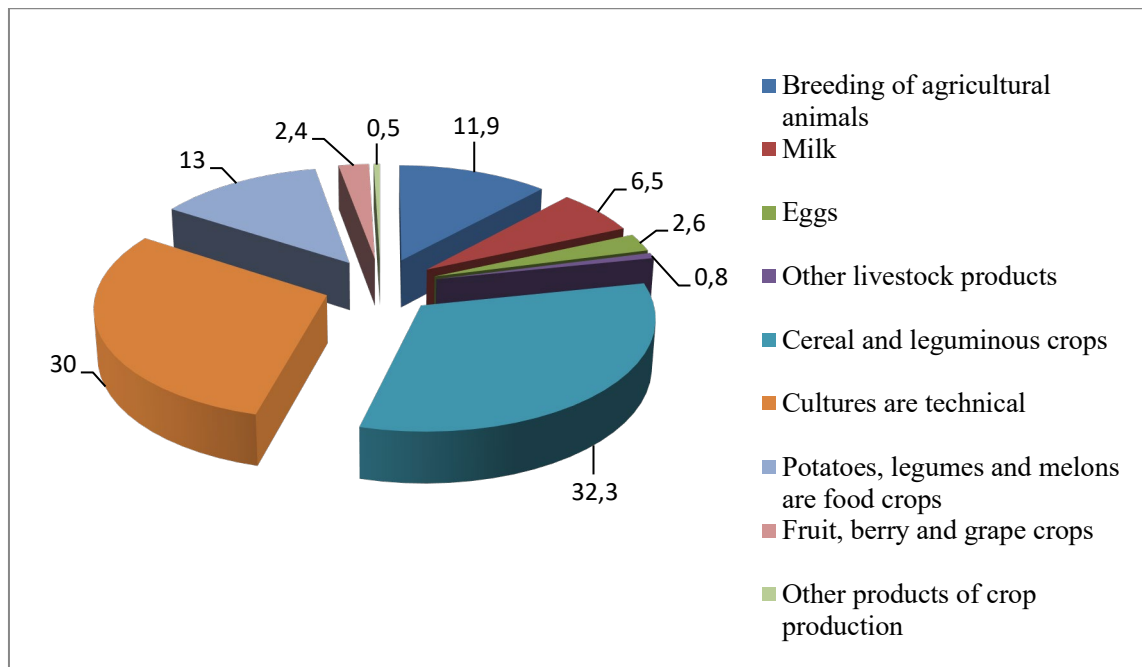


Figure 1 – Structure of agricultural production in 2022, %

Developed by the authors based on [6].

Table 2 – Dynamics of agricultural production indicators for 2020-2022

Indicator	Year	Agricultural products					
		Cereal and leguminous crops	Sunflower	Factory sugar beet	Potato	Vegetable crops	Fruit and berry crops (at fruit-
The area from which the harvest of agricultural crops was harvested, thousands of hectares	2020	15283	6481	220	1325	465	191
	2021	15948	6665	227	1283	461	191
	2022	11773	5238	184	1204	375	171
Production of agricultural crops, thousand T	2020	64933	13110	9150	20838	9653	2024
	2021	86010	16392	10854	21356	9935	2235
	2022	53864	11329	9941	20899	7512	1995
Yield of agricultural crops, tons per hectare	2020	42,5	20,2	416,2	157,2	207,4	105,6
	2021	53,9	24,6	479,1	166,4	215,4	117,3
	2022	45,8	21,6	541,2	173,5	200,3	116,1

Developed by the authors based on [6].



In 2022, the production of the main agricultural crops decreased significantly compared to the previous year (%):

cereals and legumes by 37.4;

sunflower by 30.9;

factory sugar beet by 8.4;

potatoes by 2.1;

vegetable crops by 24.4;

fruit and berry crops by 10.7.

During the same period, the productivity of the main agricultural crops in 2022 (percentage compared to the previous year) changed as follows (%):

grain and leguminous crops (decrease by 15.0);

sunflower (decrease by 12.2);

factory sugar beet (growth by 13.0);

potatoes (increase by 4.3);

vegetable crops (decrease by 7.0);

fruit and berry crops (decrease by 1.0) [6].

In 2022, more than 67 million tons of crops were harvested in Ukraine, which became one of the five best indicators in 30 years. As of January 12, 2023, grain and leguminous crops were harvested on an area of 10.9 million hectares (94%), 50.965 million tons of grain were threshed, in particular: wheat was threshed on 4.979 million hectares (100%), 20.2 million tons were threshed ; corn for grain was threshed on 3.6 million hectares (85%), 23.5 million tons were threshed. Sunflower was collected on an area of 4.8 million hectares (99%), 10.5 million tons of seeds were threshed; soybeans - on an area of 1.5 million hectares (100%), 3.7 million tons were threshed; rapeseed - on an area of 1.1 million hectares (100%), 3.2 million tons of seeds were threshed [10].

If we consider the main risks for the functioning of the agricultural sector of the economy of Ukraine in 2022 in the conditions of a full-scale war, the following can be identified:

1. Loss of production and resource potential of the agricultural sector. Agricultural



activities have become impossible on a large part of agricultural lands, as they are either occupied, under constant shelling, or mined (in 2022, compared to 2021, the total sown area decreased by 20%).

2. Reducing the amount of fertilizers and plant protection products, which reduces the yield of agricultural crops and worsens the quality of land. According to preliminary estimates, the internal consumption of nitrogen fertilizers for 2022 decreased by 40-55% - from 4.75 million tons to 2-2.9 million tons [11].

3. Significant deterioration of the quality of agricultural land in the territories where active hostilities took place. These lands have been adversely affected and in the future will require the allocation of substantial funds for their return to active agricultural use. The significant scale of wartime pollution will lead to the withdrawal from cultivation for an indefinite period of considerable land areas, which are used for the cultivation of food products. Currently, a third of Ukrainian lands have become a zone of risky agriculture [12].

4. Deterioration of the supply of agricultural enterprises with equipment - sale of combines in 7 months. In 2022, compared to the same period in 2021, it decreased by 2.4 times, tractors by half [8], which occurs against the background of significant physical losses of equipment as a result of hostilities or its theft by the occupiers. According to estimates, 84,200 units of machinery and equipment (11% available until February 24, 2022) are completely or partially damaged. The sale of harvesters in Ukraine decreased by more than 2 times [7].

5. Exit of individual agricultural producers from agrarian business or change of specialization due to significant economic losses. As a result of hostilities, some 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 the Food and Agriculture Organization of the United Nations (FAO) [10], more than 150,000 farmers/food workers have been directly affected by the war and/or forced to migrate. The prospect of resuming their economic activity on their own lands is uncertain, which may lead to their withdrawal from agrarian business or a change in specialization. Small-scale producers, who grew seasonal products, played an



important role in ensuring employment and income of the rural population, found themselves in a difficult situation [13].

6. Loss of a part of infrastructure facilities for storage and primary processing of agricultural products, difficulty in selling products to foreign markets. The enemy purposefully destroyed granaries, food warehouses, logistics infrastructure, and also made it difficult to export Ukrainian agricultural products, which reduced the income of agricultural producers, and in conditions of storage difficulties due to a lack of electricity, this could lead to a deterioration in quality and even to the loss of part of the harvest. As a result of the large-scale armed aggression of the Russian Federation, the Ukrainian Black Sea ports were blocked for a long time - the main export channel for domestic agricultural products (before the invasion of the Russian Federation, more than 90% of grain and oil crops were exported by sea).

At the same time, the Ukrainian agricultural sector demonstrated high resilience and adaptability to wartime risks:

collection for all groups of agricultural crops is 1.5-3 times higher than the needs of domestic consumption. As of February 26, 2023, grain and leguminous crops were harvested on an area of 11.1 million hectares (97.6%), 53.9 million tons of grain were threshed, in particular wheat - 20.2 million tons (at the same time, the domestic consumption of two types of wheat - fodder and food - is about 7.5-8 million tons per year). 5.8 million tons of barley were threshed (with annual consumption in Ukraine at the level of 2.5-3 million tons), buckwheat - 158.5 thousand tons (domestic consumption is 100-110 thousand tons);

there is no shortage of vegetable crops. As a result of the partial occupation of a number of regions, more than 40% of the commercial production of onions and about 30% of the commercial production of carrots were lost. As for other crops, such as potatoes, table beets and white cabbage, their production in the temporarily occupied territories is less important. At the same time, in order to avoid the risks of a shortage of basic vegetables, in the west and in the center of Ukraine, the planting area of "borscht set" vegetables has been increased in order to cover their shortage due to the temporary occupation of the southern territories and areas where hostilities are still



ongoing. Also, in many regions, the population was provided with free vegetable seeds; the citizens' demand for fruit and berry crops is fully satisfied, although 25% of the berry orchards and 20% of the orchards were lost as a result of the war. Ukraine will continue to be a net importer of fruits and berries [5]. 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 the population of our country in these products.

Under such conditions, the state agrarian policy should maximally stimulate ensuring the sustainability of agricultural production and maintaining the efficiency of the chain of production - processing - storage - supply of food products to the population.

Conclusion.

Currently, it is extremely important to increase the production of agricultural products, search for and create new (especially temporary) facilities for storage and primary processing of products, and involve all the possibilities of the public and private sectors for the supply of food products to their points of sale.

It is also important to create conditions for the population's self-sufficiency in food products. This can be facilitated by the development of horticulture and small-scale production of agricultural products by individual rural households.

A full-scale war on the territory of Ukraine has become a significant danger for food security and the security of the country as a whole, so finding effective ways to mitigate its negative consequences should be a priority issue for today.