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## FOOD SECURITY OF CHERNIHIV REGION: ESSENCE, STRUCTURE, ASSESSMENT

*The essence of the concept of «food security» is studied. Theoretical and practical approaches to ensuring food security are studied. The general situation of food security of Ukraine is considered, the structure and features of its provision are determined. The general state and main aspects of the problems of food security of the Chernihiv region are disclosed and the main directions of its formation are determined. The main orientation of the regional organization of production and improvement of the living standard of the population is proposed, taking into account economic, socio-demographic and natural-climatic factors. It is determined that the theoretical features and regional structure of the agricultural sector of both Ukraine as a whole and Chernihiv region continue to be formed under the influence of the economic situation in the country. A diagnostic assessment of food security in the Chernihiv region was carried out. An analysis of the indicators of sufficiency of consumption of products of different groups in 2023 in the Chernihiv region is carried out. In particular, attention is paid to the main indicators that indicate the level of food security in the region. Scientific approaches to the development of a mechanism for ensuring food security by supporting domestic production have been expanded, namely, the introduction and support of organic production. According to statistics, in 2022, the area of land certified as organic or in transition in our region amounted to 3045.8 hectares, which is 12% less than in 2021 (0.22% of all arable land in the region). Producers of organic products grew 2502.7 tons of grain crops, including rye, oats, triticum, mustard, barley, buckwheat, etc. It is proved that organic production is one of the main directions of development of food security in the Chernihiv region. In particular, the priority strategy for sustainable development of the Chernihiv region for the period up to 2027 is the development of organic farming and the production of environmentally friendly food, one of the directions is the start of specialization of the Chernihiv region.*

*Keywords: food security, security, region, regional structure, economic security, agricultural production, agro-industrial complex, agri-food production, organic production, environmentally friendly products, strategic development.*

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## ПРОДОВОЛЬЧА БЕЗПЕКА ЧЕРНІГІВСЬКОЇ ОБЛАСТІ: СУТНІСТЬ, СТРУКТУРА, ОЦІНКА

*Досліджено сутність поняття «продовольча безпека». Вивчаються теоретичні та практичні підходи до забезпечення продовольчої безпеки. Розглянуто загальний стан продовольчої безпеки України, визначено структуру та особливості її забезпечення. Розкрито загальний стан та основні аспекти проблем продовольчої безпеки Чернігівської області та визначено основні напрями її формування. Запропоновано основні напрями регіональної організації виробництва та підвищення рівня життя населення з урахуванням економічних, соціально-демографічних та природно-кліматичних факторів. Визначено, що теоретичні особливості та регіональна структура аграрного сектору як України в цілому, так і Чернігівської області продовжують формуватися під впливом економічної ситуації в країні. Проведено діагностичну оцінку продовольчої безпеки Чернігівської області. Проведено аналіз показників достатності споживання продуктів різних груп у 2023 році в Чернігівській області. Зокрема, приділено увагу основним показникам, які свідчать про рівень продовольчої безпеки регіону. Розширено наукові підходи до розробки механізму забезпечення продовольчої безпеки шляхом підтримки вітчизняного виробництва, а саме впровадження та підтримки органічного виробництва. Згідно зі статистичними даними, у 2022 році площа сертифікованих як органічних або перехідних земель у нашій області становила 3045,8 га, що на 12% менше порівняно з 2021 роком (0,22% від усіх орних земель області). Виробниками органічної продукції вирощено 2502,7 т зернових культур, серед яких жито, овес, триціль, гірчиця, ячмінь, гречка та ін. Доведено, що органічне виробництво є одним із основних напрямів розвитку продовольчої безпеки Чернігівської області. Зокрема, пріоритетною стратегією сталого розвитку Чернігівської області на період до 2027 року є розвиток органічного землеробства та виробництва екологічно чистих продуктів харчування.*

*Ключові слова: продовольча безпека, безпека, регіон, регіональна структура, економічна безпека, сільськогосподарське виробництво, агропромисловий комплекс, агропродовольче виробництво, органічне виробництво, екологічно чиста продукція, стратегічний розвиток.*

### STATEMENT OF THE PROBLEM IN GENERAL AND ITS CONNECTION WITH IMPORTANT SCIENTIFIC OR PRACTICAL TASKS

The modernization of the economic system in the country has acutely set a condition for the state to ensure national security in all its functional components, namely food security.

The need to ensure food security of both the state and the regions requires maintaining a certain level of food self-sufficiency, in such areas as agri-food production, food market, food consumption, nutrition of the

population, quality and safety of food, etc. Thus, the issue of formation of food security at the regional level as a supporting administrative link of the country today is of considerable scientific and practical interest [1].

### **ANALYSIS OF THE LATEST RESEARCH AND PUBLICATIONS**

The issues of formation of food security of both the state and the regions have attracted the attention of a number of domestic and foreign scientists. The main aspects of this problem are disclosed in the works of V. Andriychuk, Y. Bilyk, V. Bohachev, V. Balabanov, S. Kvasha, O. Kochetkov, T. Kovalchuk, O. Onyshchenko, E. Oleynikov, P. Rusnak, P. Sablyuk, A. Sukhorukov, O. Tsarenko, V. Shcharban, D. Shyfer, etc.

### **FORMULATION OF THE OBJECTIVES OF THE ARTICLE**

The purpose of this article is to analyze the dynamics of the main indicators that determine the state of food security and food security of the Chernihiv region.

### **RESEARCH METHODS**

The theoretical basis of this information and research is leading scientist's labor, materials, periodicals, Internet resources and legislative and regulatory acts of Ukraine. The study used methods of analysis and synthesis of abstraction, generalization and so logical.

### **STATEMENT OF THE MAIN MATERIAL**

Each territory, due to its natural, climatic, economic, geographical, and traditional prerequisites, has a certain potential for growing certain food crops, ensuring the efficient production of food products of a certain type. Therefore, on the basis of determining the effective specialization of a certain territory in the production of food products and ensuring proper interregional exchange of them, it is possible to achieve food security of the population of all regions. Berezin O.V. emphasizes that food security should be considered within each individual region through the regional characteristics of the territories, since each region of the country differs from the other in its inherent natural resources, material wealth, social living conditions, economic and environmental situation [1, p. 107].

The food security of the region of Ukraine, as a system of security of the food structure of the local demographic population of the population, which was formed from interrelated subsystems on functional, organizational, resource and technological grounds and aims at uninterrupted, sufficient and high-quality satisfaction of the physiological needs of the population with basic food products from its own, state and international sources, is interpreted by Zelenska O.O. [6, p.111].

Formation of food security of the region, which should be based on improvement of regional organization of production and improvement of living standards of the population, taking into account economic, socio-demographic and natural-climatic factors, requires solving the following most important tasks:

- generalization of theoretical and methodological approaches to the problem of food security formation at the regional level;
- study of the current state of food security in Chernihiv region and Ukraine, study of factors, trends and patterns that affect the state of food security;
- development of methodological and practical principles for the formation of food security in the context of economic transformation at the regional level;
- substantiation of the system of criteria for assessing food security, which would comprehensively characterize the state of food security;
- development of a food security forecast for the future, taking into account demographic, socio-economic and environmental factors.

According to the Law of Ukraine "On Food Security of Ukraine", food security is the protection of the vital interests of a person and a citizen, society and the state, in which the state guarantees the physical and economic availability and quality of vital food products to the population in accordance with scientifically based food packages, maintains the stability of food supply of the population and ensures food independence [1].

The current state of consumption of basic food products per capita both in Ukraine as a whole and in the Chernihiv region is characterized by a significant decrease in its volumes in accordance with the pre-war period (February 24, 2022), but it cannot be said that it is critical and poses a real threat to the health of the nation, food and national security of the country. It is more appropriate to say that it is satisfactory, but not sufficiently balanced in terms of the structure of consumption of certain foods.

Chernihiv region has significant potential in the field of agriculture, and is one of the most developed agrarian regions of Ukraine. Chernihiv region, occupying 5% of agricultural land in Ukraine, provides 4.6% of the country's agricultural production and 28% of the gross domestic product of the region.

The total area of agricultural land is 2060.4 thousand hectares. hectares or 64.6% of the region's lands.

In the structure of agricultural land, 71.7% is occupied by arable land and fallows, 1.2% by perennial plantations, 14.4% by hayfields and 12.7% by pastures.

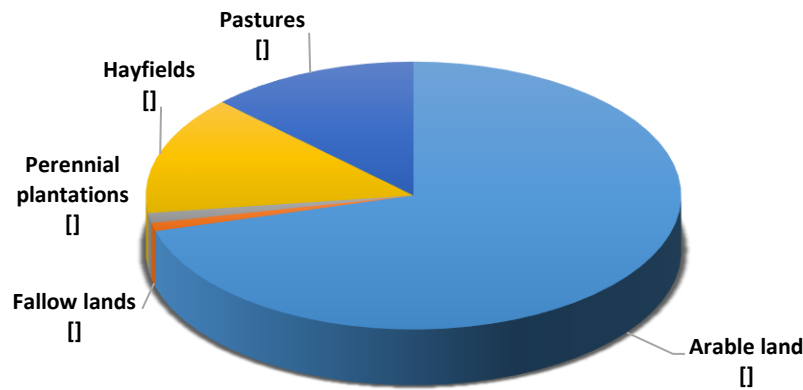


Fig. 1. Structure of agricultural land, %

The agricultural complex of the region includes 2031 agricultural enterprises of various forms of ownership and management, including 1057 farms, as well as 142.4 thousand private farms.

The main specialization of the region's crop production is the cultivation of grain and industrial crops, animal husbandry is dairy and beef cattle breeding and pork production.

Since 2010, there has been a tendency to increase production volumes in the region's agriculture. At the same time, the volume of agricultural production over the past nine years has increased by 1.8 times, including agricultural enterprises have increased production by 2.5 times, and households have decreased by 18.7%.

Although the share of private households in the total production of agricultural products is still quite significant, the role of agricultural enterprises is constantly growing. Agricultural enterprises produce the majority of agricultural products – it increased from 58.2% in 2010 to 82.4% in 2022.

In the gross production of agricultural products, crop production is 89.7%, livestock – 14.2%.

In agricultural enterprises, 92.9% of production is crop production and 7.7% of animal husbandry.

In 2010-2022, the structure of the crop sector of the region significantly increased the volume of agricultural production (from 67.0% in 2010 to 87.0% in 2022) [11].

The increase in the weight of the crop industry was the result of high and stable growth rates in the production of grain and industrial crops.

In 2022, grain production in the region increased by 3.3 times compared to 2010 and reached a historical maximum of 5.0 million tons, oilseeds – 6.9 times and amounted to 0.98 million tons. Tons.

The share of the region in the production of the main types of agricultural products in Ukraine in 2022 was: cereals – 6.9%, potatoes – 6.6%, oilseeds – 5.0%, vegetables – 3.0%, sugar beets – 2.2%, livestock production: milk – 5.4%, eggs – 1.9%, meat – 1.6%.

Due to its own production, the internal demand of the population of the region for potatoes, vegetables, milk and dairy products, oil, poultry eggs, fruits, berries and grapes is fully met - by 33.5%, sugar - by 79.2%.

Exports of agricultural products in 2021 amounted to 564.0 million tons. or 69.9% of the region's total exports; imports – 64.7 million tons; USD. or 16.1% of the region's total imports. The balance is positive and amounts to 499.9 million USD. USD. United States. The commodity structure was dominated by products of plant origin and ready-made food products [7].

At the beginning of 2021, 99.6 thousand hectares were kept in the agricultural enterprises of the region. heads of cattle, of which 42.7 thousand tons. Cows.

In order to produce high-quality dairy products that would meet the requirements of world standards, the construction and reconstruction of complexes with milking parlors is being carried out, new housing technologies are being introduced, including a feeding system. During 2015-2021, 33 livestock facilities were built/reconstructed in the field of animal husbandry for 9.4 thousand hectares. heads/places, 4 pig breeding facilities for 6.8 thousand hectares. heads/places and a poultry complex for 54 thousand tons. goals/seats.

In the Chernihiv region, active work is underway towards the development of organic production. In 2021, there are 14 producers of organic products in Chernihiv region. Basically, these are small farms that grow grain and industrial crops. One enterprise is engaged in the production of dairy products, one in poultry farming, one in the production of organic fruit and vegetable juices, two in the production of microbiological preparations for agricultural purposes, and two in the harvesting of wild berries and mushrooms.

In total, 4.1 thousand hectares are certified in the region. hectares of arable land. At the beginning of 2021, organic producers had 576 heads. Cattle and 4500 heads. Bird. In 2021, organics produced 4.4 thousand tons. tons of grain and industrial crops, 100 tons of berries and mushrooms, 562 tons of milk, 58 tons of meat.

The information base of the study was made up of official statistics on the volume of annual food consumption in the Chernihiv region (Table 1).

Table 1.

**Annual food consumption in Chernihiv region, kg per 1 person (eggs – pieces per 1 person)**

Products	Oct. 2021	Oct. 2022	Oct. 2023
Meat and fish, kg	57,6	54,1	56,2
Milk, l	212,9	180,2	200,1
Eggs, pcs	234	189	225
Bread products, kg	105,4	94,6	106,2
Cartoplya, kg	152	150	151
Sugar, kg	32,6	30,4	32,1
Oil, kg	10,3	9,7	10,0
Vegetables, kg	169,2	134,1	165,2
Fruits and berries, kg	36,1	30,1	35,2

It should be noted that in the studied area the consumption of meat and fish, milk, fruits and berries is less than the rational norms of nutrition. Due to the fact that it is healthier to consume more meat and fish, milk, eggs, oil, vegetables, fruits and berries and less consumption of bread products, potatoes and sugar. Compared to the national indicators, the indicators of the Chernihiv region are usually slightly higher than in Ukraine as a whole (see Figure 1). For example, Chernihiv region is ahead of the all-Ukrainian indicators for the consumption of meat and meat products (48.2 compared to 48 kg in 2023), vegetables and melons (135, against), potatoes (compared to) and palyanychi products (compared to 115 kg). 9 kg 120,1 kg 137 kg 128 kg 116,4 kg

There is no doubt that the region has every opportunity to significantly strengthen its position in terms of food supply and in the near future to overcome the third level of food supply (3500 Kcal per day per person).

To do this, agricultural producers need to pay attention to the production of meat and meat products, because for the first time in recent years (and until 2000 this was not discussed at all) the region produced less of this food product per capita than it consumed.

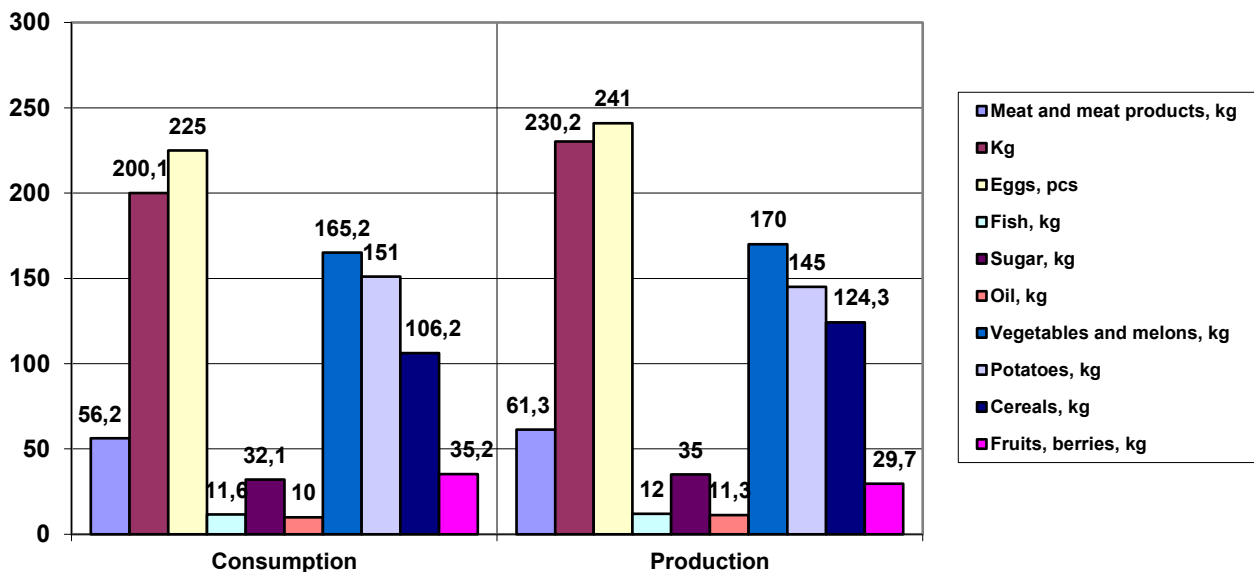


Fig. 1. Production and consumption of the main types of products per 1 person in Chernihiv region for 2023 [2]

The introduction and support of organic production is one of the priority areas in the Chernihiv region. In particular, the strategy for sustainable development of Chernihiv region for the period up to 2027 (approved by the decision of the twenty-first session of the Chernihiv Regional Council of this convocation on December 18, 2019 No. 4-21) defines the development of organic farming and production of organic food products as one of the areas of the region's specialization.

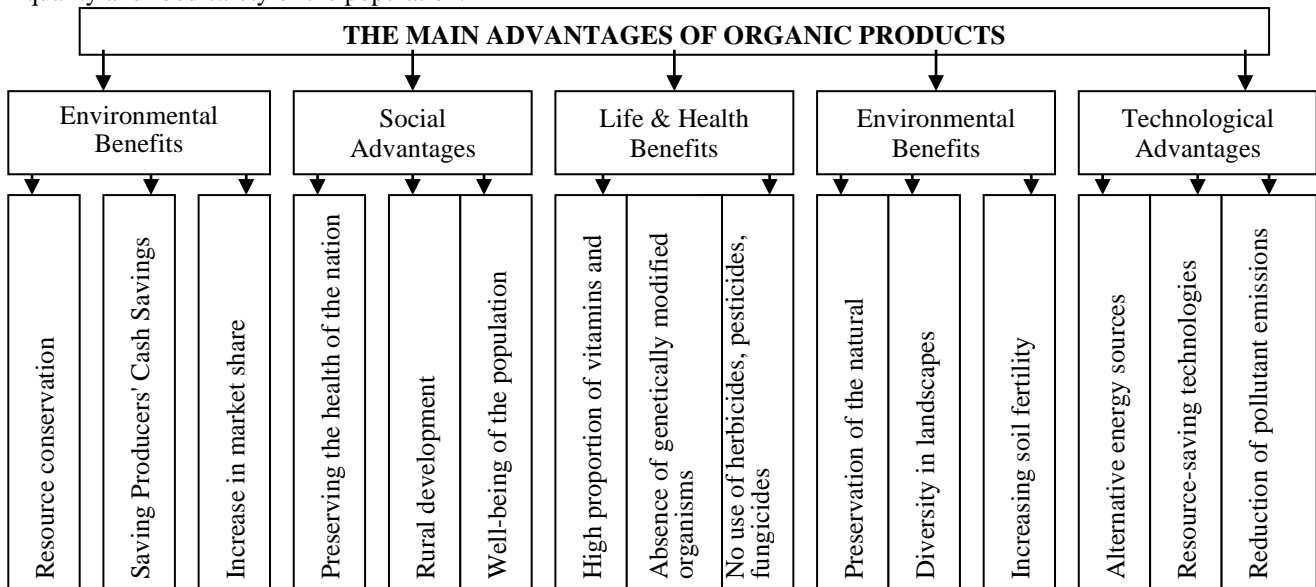
There are 11 operators of organic production in the Chernihiv region. According to operational data, in 2022, the area of land certified as organic or in transition in our region amounted to 3045.8 hectares, which is 12% less than in 2021 (0.22% of all arable land in the region). Producers of organic products grew 2502.7 tons of grain crops, including rye, oats, triticum, mustard, barley, buckwheat (farm "Makishinsky Garden", farm "Zoloty Parmen", PJSC "Etnoprodukt", farm "Agro-Lux") [2].

In addition, they keep 398 heads of cattle and produced more than 30 tons of organic meat and 524 tons of organic milk (PJSC "Etnoprodukt", FH "Agro-Lux" and LLC "UkrZalizBud"), produced 23773 liters of biological products of liquid form - biological products of solid form (Institute of Agricultural Microbiology of the Academy of Agrarian Sciences of Ukraine and LLC "Bio Terra Technology") [2]. 2350 kg

Thus, it is possible to highlight the main advantages of organic products, presented in Figure 2.

The social advantage of organic agriculture is that it has a high potential for ensuring the livelihood of the rural population and revitalizing the work of small farms. Along with the growth of the organic sector, the employment of the local population will also increase, since organic farming is less mechanized and usually requires more manual labor. As a result, organic production can become an effective tool for preserving traditional knowledge of farming in each region, as well as reducing the migration of the rural population to megacities.

The presence of advantages determines the rapid growth of organic agriculture. Thus, despite the existing problems of formation, the organic sector of the Chernihiv region is promising and very promising due to the presence of fertile chernozem soils and strong traditions of agricultural production in the studied region. Organic agricultural production has great potential for improving the economic, social and environmental situation both in the region and in Ukraine as a whole, it contributes to the integrated development of rural areas, improving the quality and food safety of the population.



Rice. 2. The main advantages of organic products [10]

### CONCLUSIONS FROM THIS STUDY AND PROSPECTS FOR FURTHER RESEARCH IN THIS DIRECTION

On the basis of the researched material, in our understanding, the food security of the Chernihiv region is an integral system that provides for the existence of supply and satisfaction of the demand of the population of the region for quality food products. Therefore, the food security of the region should be understood as a stable provision of the region's population with high-quality and affordable food products at a rational level under normal conditions, and in case of emergencies – at a minimum, based on the effective specialization of the region and interregional ties. To overcome the identified problems, it makes sense to direct further research efforts to develop mechanisms to support Ukraine's regional food security.

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