



UDC 631.4:355.4(477)(043)

ADAPTATION OF AGRICULTURAL PRODUCTION TO WARTIME REALITIES: PRESERVATION OF ECONOMIC SECURITY OF UKRAINE

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Summary. *The article examines the problems and challenges of the production and sale of agricultural products that Ukrainian farmers faced during the martial law. The need for agricultural enterprises to respond to unforeseen actions, while avoiding a complete structural restructuring or destruction of the system, has been determined. What exactly is determined by the flexibility of such enterprises? The priority ways of responding to problems with exports are outlined: increasing the volume of domestic consumption, attracting investments, expanding sales markets, using state support. Import problems that appeared with the outbreak of the war in Ukraine were identified. The main ones are the decrease in the number of countries that are ready to export their vegetable products to Ukraine due to the deterioration of the political and economic situation; an increase in the cost of transporting vegetable products due to an increase in the risks and costs of transportation through the conflict zone; deterioration of the quality of vegetable products due to difficult storage and transportation conditions; an increase in the cost of vegetable products due to an increase in the costs of its cultivation and processing in exporting countries; a decrease in the volume of imports due to a decrease in the demand for vegetable products in Ukraine. The indicated areas of the flexibility of agricultural production in the conditions of martial law: the ability to quickly change the types and volumes of cultivated crops in accordance with market conditions and changes in consumer preferences; the ability to quickly change the volume and range of products produced, the ability to effectively use resources such as water, fertilizers, energy and labor through the introduction of resource-saving technologies; the ability of enterprises to adapt their workforce to changing production requirements and conditions; ability to effectively manage finances, including budgeting, financial analysis and risk management to ensure financial sustainability and flexibility in production. Therefore, the flexibility of production in combination with the principles of universality, adaptability and adaptability is a key aspect in overcoming food security in modern conditions.*

Key words: *flexibility, economic security, production system, agricultural products, export, import, southern region of Ukraine, directions of flexibility, risks, martial law.*

https://doi.org/10.33108/galicianvisnyk_tntu2024.03.020

Received 09.03.2024

УДК 631.4:355.4(477)(043)

АДАПТАЦІЯ СІЛЬСЬКОГОСПОДАРСЬКОГО ВИРОБНИЦТВА ДО ВОЄННИХ РЕАЛІЙ: ЗБЕРЕЖЕННЯ ЕКОНОМІЧНОЇ БЕЗПЕКИ УКРАЇНИ

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Резюме. *Розглянуто проблеми та виклики виробництва й реалізації сільськогосподарської продукції, з якими зіткнулися українські аграрії під час воєнного стану. Визначено необхідність реагування сільськогосподарських підприємств на непередбачені дії, уникаючи при цьому повної структурної перебудови чи руйнування системи, що саме й визначається гнучкістю таких підприємств. Окреслено пріоритетні шляхи реагування на проблеми з експортом: збільшення обсягів внутрішнього споживання, залучення інвестицій, розширення ринків збуту, використання державної підтримки. Визначено проблеми*

імпорту, які виникли з початком війни в Україні. Основними серед них є зменшення кількості країн, що готові експортувати свою овочеву продукцію до України через погіршення політичної та економічної ситуації; зростання вартості транспортування овочевої продукції через збільшення ризиків та витрат на перевезення через зону конфлікту; погіршення якості овочевої продукції через складні умови зберігання й транспортування; зростання вартості овочевої продукції через збільшення витрат на її вирощування та переробку в країнах-експортерах; зменшення обсягу імпорту через зниження попиту на овочеву продукцію в Україні. Зазначені напрямки гнучкості сільськогосподарського виробництва в умовах воєнного стану: можливість оперативно змінювати види та обсяги вирощуваних культур відповідно до кон'юнктури ринку та зміни споживчих уподобань; здатність швидко змінювати обсяги та асортимент продукції, що виробляється, можливість ефективного використання таких ресурсів, як вода, добрива, енергія та праця за рахунок упровадження ресурсозберігаючих технологій; здатність підприємств адаптувати свою робочу силу до мінливих вимог і умов виробництва; здатність ефективно управляти фінансами, включаючи бюджетування, фінансовий аналіз та управління ризиками для забезпечення фінансової стійкості та гнучкості виробництва. Тому гнучкість виробництва в поєднанні з принципами універсальності, пристосованості й адаптивності є ключовим аспектом у подоланні продовольчої безпеки в сучасних умовах.

Ключові слова: гнучкість, економічна безпека, система виробництва, сільськогосподарська продукція, експорт, імпорт, південний регіон України, напрямки гнучкості, ризики, воєнний стан.

https://doi.org/10.33108/galicianvisnyk_tntu2024.03.020

Отримано 09.03.2024

Introduction. Ukraine's entry into the world economic space requires the transfer of agricultural production to a new high-quality development model and the creation of a modern technological policy that will fully ensure the competitiveness of enterprises and individual industries in general.

Russia's invasion of Ukraine exposed and exacerbated tensions in global agricultural markets that arose during the Covid-19 pandemic. The critical need to create sustainable food markets has become apparent. According to the World Bank in April 2022, the war in Ukraine has changed global patterns of trade, production and consumption in a way that will keep prices at historically high levels until the end of 2024, exacerbating food insecurity and inflation. These challenges create not only difficulties but also open up new opportunities for the Ukrainian agricultural sector. And this is exactly what agrarians should pay special attention to [1, p. 54].

Review of the latest research and literature. Many domestic and foreign researchers paid attention to the study of the economic security of the agricultural sector of Ukraine. Thus, M. V. Negrei and O. V. Trofimtseva highlighted the study of Ukraine's economic security under martial law in their works [1], Demkiv O. I. [6], Gvozdyova O. [10], Petrenko O. P., Shevchenko A. A. [2], Halytskyi O. M., Communishina S. A. [12], Shabatura T. S. Heine V. L. [11], Polishchuk V. S. [5] and other.

The agricultural sector is an important component of the economy of Ukraine and has a decisive influence on the socio-economic development of the regions and the general standard of living of the population. [2, p. 187]. In a contemporary globalized world, assuring food security in the conditions of developing a food self-sufficient economic structure represents not only a challenge in terms of the changing agricultural paradigm, but also an important instrument in assuring, in a long-term manner, societal resilience. [3, p. 476]. However, a number of authors indicate that: «The war in Ukraine has shown that worldwide food security can be easily shaken» [3, p. 455]. Therefore, the ability to quickly reorient the production of agricultural products, change logistics and search for new product sales markets are new challenges that have arisen before agricultural production and shape the economic security of Ukraine.

The main purpose of the article. The purpose of the study is to reveal the challenges of modern production of agricultural products in Ukraine, opportunities for changing production directions and product sales markets for the economic security of the state in wartime.

Task setting. The task of the research is to determine the possibilities of adaptation of agricultural production to the realities of war.

The methodological basis of the research, which takes place in the study of the process of formation of economic security opportunities in Ukraine during martial law, is the general economic principles and methods of the systemic approach. The study of the influence of factors on economic security was carried out on the basis of a systematic approach to statistical research.

In the research process, the following methods were used: synthesis (to adapt the production of agricultural products in the conditions of martial law), economic-statistical (when identifying trends in the dynamics of the export of the main agricultural crops), abstract-logical (for the formulation of theoretical generalizations, systematization and theoretical justification of the need for rapid transformation production, while ensuring the economic stability of the state and formulating conclusions), tabular and graphic (to display analytical information).

Statements of main issues of the study. Problems with the export of agricultural products in the conditions of martial law brought serious consequences for the agricultural sector of Ukraine, which is one of the key sectors of the country's economy. If there are problems with exports, farmers should look for other ways to sell their products and reduce losses. Based on modern requirements, it can be said that the formation of the company's strategic policy, including the competitiveness of individual branches, is vital for any agricultural enterprise. Such problems require the flexibility of agricultural production, which can be an important factor in the economic security of Ukraine in the conditions of martial law. In such conditions, drastic changes in the country's economy are possible, which may become a challenge for the agricultural sector. That is why the market economy requires managers of agricultural enterprises to strategically direct their activities, namely to take into account all external and internal factors influencing the enterprise. We believe that in the conditions of martial law, all business entities should finally understand that for a powerful agrarian country, it is not possible to continue to function according to the «old» scenarios and approaches. Among the principles of production organization, scientists single out the principle of flexibility.

Flexibility is the ability to respond to unforeseen actions, while avoiding a complete structural restructuring or destruction of the system. Many scholars understand the concept of flexibility in different ways, often not only using different terms to denote one type of flexibility, but also using the same definitions for different types.

For many years, flexibility has traditionally been considered as one of the characteristics of technical development, which should be understood as a process of constant and irreversible improvement of the parameters of all components of equipment, technological processes, methods and methods of production organization both individually and as a whole [6, p. 164].

In our opinion, the flexibility of agricultural production can become an important factor in the formation of the economic security of Ukraine in the conditions of martial law. After all, in modern conditions, there are already noticeable changes in the country's economy, which have already become a challenge for the agricultural sector. This means that farmers must quickly respond to changes in market demand and changes in production. Within the framework of the concept of «technical development», flexibility is defined, for example, as the possibility of reorientation of the production system without fundamentally changing the material and technical base. In other words, the flexibility of the production system is the possibility and speed of its reorientation as a reaction to changes. The criteria of production flexibility should include the following: repetition of the production process, versatility in the use of resources without modification, adaptability and adaptability.

According to the Ministry of Agrarian Policy and Food of Ukraine, changes in the structure of product exports are presented in Table 1.

Table 1. The structure of the export of the main agricultural crops, thousand tons

Culture	2020–2021 year	2021–2022 year	2022–2023 year	2022–2023 year by 2020–2021 year	
				Thousand tons	%
Cereals and legumes together	44718	46168	42477	-2241	94,9
Wheat	16639	18532	14571	-2068	87,5
Barley	4230	5676	2474	-1756	58,4
Corn	23077	21495	17,9	-23059,1	0,07
Sunflower	13110	16392	10473	-2637	79,8
Soy	1460	1390	2400	940	164,3
Wheat flour	126,9	68,6	125,1	-1,8	98,5
Flour from the grain of other cereals	1,2	1,5	5,0	3,8	B 4 t.

Source: compiled by the authors.

From the data in the table, it can be seen that in 2022 there was a reduction in the export of products. At the beginning of the year, in January–February 2022, Ukraine's exports increased by 34%, showing positive growth dynamics compared to the same period last year. However, already in March, there was a sharp collapse, when deliveries abroad fell by 50%. A gradual recovery of exports began in May, with the lifting of the blockade of Ukrainian ports providing the most favorable results in recent months. In total, Ukraine exported goods worth 33 billion US dollars, which is 31.5% less than in the same period of 2021.

If we compare this year's data of customs statistics on the export of grain crops with last year's, then in 2021 the total value of export of grain crops was 12.3 billion US dollars. That is, in 2022, for ten months, the value of the export of grain crops was 57.7% of the level of 2021.

Among niche grain crops, grain sorghum – 58.2 thousand tons – and buckwheat, millet and other grain crops – 51.2 thousand tons, and rye – 46.4 thousand tons were exported the most. They also exported grain processing products. However, the export of wheat flour turned out to be insignificant and amounted to only 45.2 thousand tons. This sales direction is a potentially underutilized domestic agribusiness, with the export price of 1 ton of wheat flour totaling around \$319.4.

The analysis of the main commodity positions of export showed that the highest price was in the group of buckwheat, millet and other grain crops – 315.19 dollars/ton, and wheat – 251.65 dollars/ton. The lowest export price of barley was \$213.11/t.

In general, despite the logistics crisis and other troubles, the situation with the export of grain crops was largely stabilized. At the same time, in the long term, efforts should be made to diversify the directions of use and sale of grain crops in order to avoid similar situations and their negative consequences in the future.

The main ways of responding to export problems are presented in Figure 1.

With the outbreak of the war in Ukraine, the state of export of vegetable products underwent certain changes. On the one hand, the demand for Ukrainian vegetables on foreign markets increased, as competition from exporting countries supplying their products to EU and CIS countries was reduced. On the other hand, the war led to difficulties in the transportation and storage of vegetables, which negatively affected the quality of products and their competitiveness.

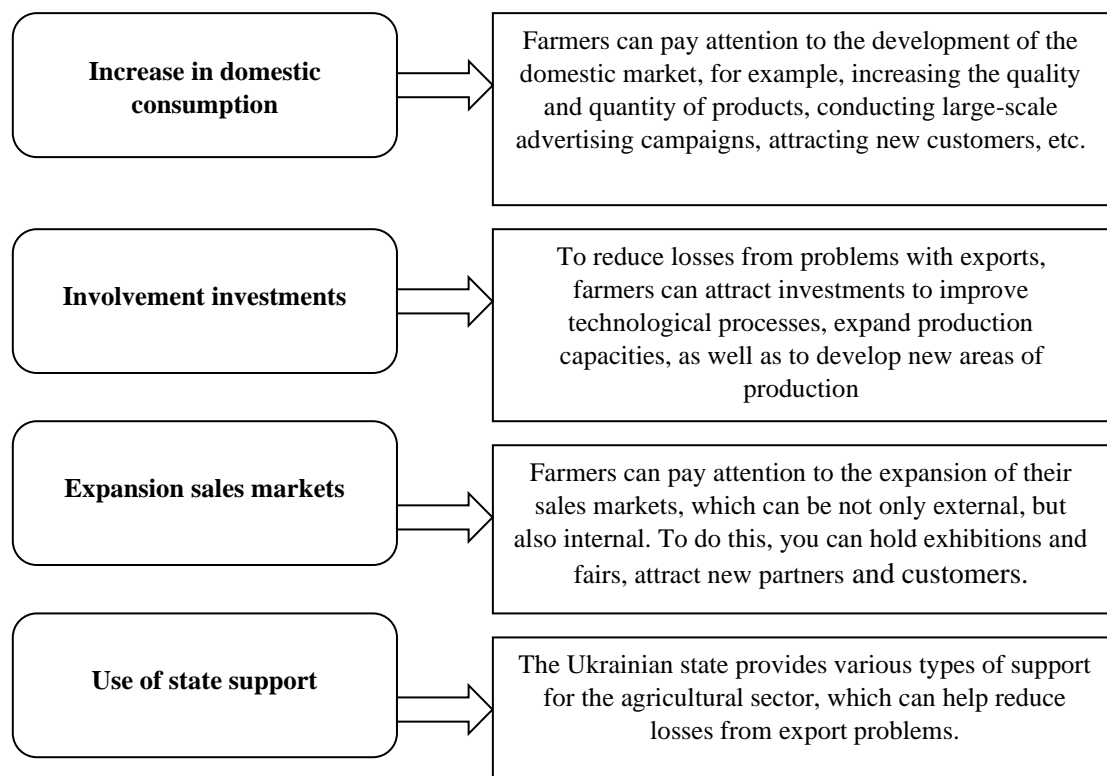


Figure 1. Ways of responding to export problems for agricultural producers

Source: compiled by the authors.

Also, the increase in the cost of electricity and fuel has led to an increase in the costs of growing and processing vegetable products, which has a difficult effect on the profitability of exports. In addition, let's not forget that vegetables are an important component of our diet, as well as an important export product for Ukraine. However, due to the war and economic sanctions against Russia, the volume of growing vegetables in the country decreased, which led to an increase in the import of vegetable products.

However, it is worth noting that the import of vegetable products also led to a decrease in production in Ukraine and dependence on imports. This can become a serious problem in the event of a change in the economic situation on the world market and an increase in the prices of imported products.

We can single out some import problems that appeared with the outbreak of war in Ukraine:

1. A decrease in the number of countries ready to export their vegetable products to Ukraine due to the deterioration of the political and economic situation in the country.
2. Increase in the cost of transporting vegetable products due to increased risks and costs of transportation through the conflict zone.
3. Deterioration of the quality of vegetable products due to difficult conditions of storage and transportation.
4. The increase in the cost of vegetable products due to the increase in costs for its cultivation and processing in the exporting countries.
5. A decrease in the volume of imports due to a decrease in the demand for vegetable products in Ukraine due to economic instability and an increase in product prices.

According to the State Statistics Service, prices for goods and services in Ukraine in 2022 increased by almost 23 percent on average. In general, the cost of food products increased

by 27.1 percent. In particular, the growth of consumer prices for vegetables was 68.5 percent, and for fruits – 27.7 percent [8].

The increase in prices for fresh and useful vitamins was primarily facilitated by the partial occupation by Russian invaders of the fertile lands of the Kherson and Zaporizhzhia regions, which before the war actively supplied vegetables for the whole of Ukraine. The energy crisis in the country and problems with logistics also became a significant factor in the price increase.

In 2021, the area of harvesting vegetable crops in Ukraine amounted to 460.8 thousand hectares, including among all regions the largest shares of this area in the amount of 9.2% and 8.8% were in Lviv and Kherson regions.

The southern region of Ukraine within the Black Sea Economic District covers Mykolai, Kherson and Odesa regions. The farmers of the Kherson region are leaders in the production of vegetables and provide a significant share of the supply in the market of the southern region of Ukraine. In 2021, 11,269.4 thousand tons of vegetables were collected in the Kherson region and it became the leader in Ukraine (Figure 2). Moreover, during the period from 1990 to 2021, this share increased from 36.2% to 58.6%.

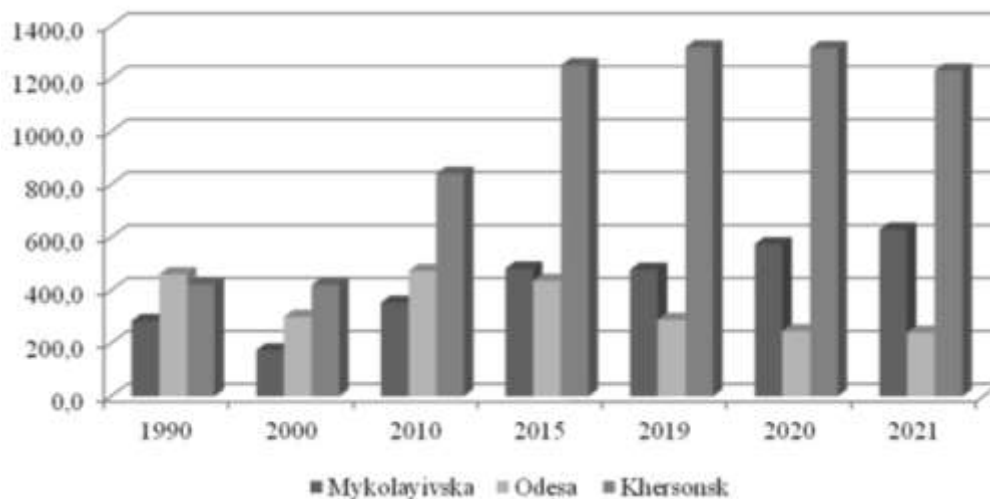


Figure 2. Production of vegetables in the southern region of Ukraine, thousand tons

Source: compiled by the authors

Farms engaged in the production of vegetable products under the influence of natural and economic conditions have different specializations. It should be noted that the Kherson region mainly grows cucumbers and gherkins, tomatoes, cabbage, onions, carrots and other vegetable crops. In 2021, 11.1% of cucumbers in Ukraine were grown by farmers of the Kherson region. It should also be noted that in this region the share of cucumber production increased from 3.2% in 1995 to 11.1% in 2021.

In the Mykolayiv region, the indicated indicator fluctuated within the period from 2.3% in 2020 to 3.9% in 2000. In the Odesa region, there is also a fluctuation of the indicator within the range of 2.1% (1995) – 3.7% (2000) and in 2021 the indicator was 2.4%.

The share of tomatoes grown in the Kherson region in 2021 was 27.7% in Ukraine as a whole. This indicator in 1995 was 10.1%, i.e. the growth occurred 2.7 times. In the Mykolaiv region, there is a trend towards an increase in the share of tomato production in Ukraine from 3.7% in 1995 to 17.6% in 2021. In the Odesa region, this indicator decreased to the level of 2.5% in 2021 against 7.9% in 1995 and 10.4% in 2000.

If we consider the cultivated areas of rural and urban areas. of crops in the Odesa and Mykolaiv regions for the period from 1995 to 2021, it is possible to note the growth of areas under grain and leguminous crops, sunflower and rapeseed. In Mykolaiv and Odesa regions, the growth of the area of grain and leguminous harvesting in 2021 compared to 1995 was 24.4% and 38.1%, respectively, and in Kherson region – 1.9%. The area of sunflower harvesting in the Mykolaiv and Odesa regions increased by 3.6 and 2.5 times, respectively, although the indicator also increased by 3.2 times in the Kherson region. The area of rapeseed harvesting in the Mykolaiv and Odesa regions increased to 61.8 and 118.6 thousand hectares in 2021, respectively, against 0.3 thousand hectares in 1995.

However, farmers of the Kherson region lost the opportunity to supply the domestic market with vegetables last season due to the occupation of territories and constant shelling and destruction of the material and technical base, as well as the complication of vegetable logistics.

Therefore, consumers of the southern region of Ukraine in the conditions of martial law felt a decrease in the supply of local vegetables on the market in terms of most items, which led to an increase in imports. Compared to the previous year, in 2022, the import of vegetables increased sharply, by about 43 percent. Vegetables were imported mainly from Turkey and Poland [9]. This significantly influenced the increase in the price of vegetables in Ukraine.

That is why the agricultural sector of the south of Ukraine should quickly reorient its production to the cultivation of rural areas. cultures, the products of which will provide an unsatisfied need within the country or region. On the other hand, due to the flexibility of production, there will be a balance of demand and supply on the market, which will form a competitive price for products and ensure the growth of purchasing power among consumers. Also, the load from the export-import policy in the country will decrease (Table 2).

Flexibility also implies a change in production technology in the conditions of climatic changes in the southern region of Ukraine, which makes it possible to reduce costs and increase land productivity.

Table 2. Directions of the flexibility of agricultural production in the conditions of martial law

<i>Direction</i>	<i>Value</i>
The flexibility of farming cultures	The ability to quickly change the types and volumes of crops grown in accordance with market conditions and changes in consumer preferences
Flexibility of volumes and assortment of products	The ability to quickly change the volume and assortment of manufactured products
Flexibility in the use of resources	The ability to efficiently use resources such as water, fertilizers, energy and labor through the implementation of resource-saving technologies
Workforce flexibility	The ability of enterprises to adapt their workforce to changing production requirements and conditions. This means the ability to quickly change the number and composition of your employees according to production needs
Flexibility in financial management	Ability to effectively manage finances, including budgeting, financial analysis and risk management to ensure financial sustainability and operational flexibility

Source: compiled by the authors.

It should be noted that in the conditions of martial law, there is a decrease in demand for some types of products while simultaneously increasing demand for others. The flexibility of agricultural production will allow us to quickly adjust to new market conditions and produce products that are needed in such a difficult time. Also, as can be seen from the conducted research, there is a need to increase the production volumes of some types of products, therefore the agricultural sector can use flexibility to increase the production volumes.

The use of resource-saving technologies in the production of agricultural products can help improve the efficiency and flexibility of production processes. The directions of such flexibility can be: the use of elements of precision agriculture, which will make it possible to accurately determine the needs for resources (water, fertilizers, pesticides) for each plot of land; use of energy-efficient technologies; use of irrigation systems with precise dosing; the use of soil and plant quality control systems: the use of sensors and monitoring technologies will allow real-time control of the level of soil pollution, plant growth and yield status, and others.

In the conditions of martial law, special attention must be paid to the flexibility of the workforce in the conditions of the movement of Ukrainians and the mobilization of men into the Armed Forces. In this direction, it is necessary to create flexible work schedules in order to adapt the working hours of employees to the changing needs of production and market requirements. This may mean changing working hours, flexible hours or using a part-time job. An important direction is the ability of employees to quickly change their skills and competencies in accordance with external challenges, changes in technologies, processes or production needs. For farmers, this may mean training workers in new skills or retraining for different tasks.

There should also be workplace flexibility: the ability of employees to work in different locations, including telecommuting or working from different locations. In addition, the flexibility of agricultural production can reduce the risks of loss of production and increase the chances of survival of agricultural enterprises in the conditions of martial law. Also, flexibility can help reduce dependence on imports, which can become an important factor in Ukraine's economic growth under martial law.

Conclusion. Currently, Ukraine is in a difficult economic situation, which endangers not only the food security of Ukrainians, but also significantly affects the security of many countries of the world. The external economic and social challenges of 2019–2022 require a solution to the further provision of economic and food security at a qualitatively new level. As the results of the conducted research showed, Ukraine is an active participant in world trade and has exported and imported a significant amount of agricultural products in recent years. The structure of export and import of products has traditionally been formed and, thus, Ukrainians were provided with the necessary food. Currently, there is an acute problem with the logistics of agricultural products. On the other hand, the purchasing power of consumers is decreasing and the structure of sale and consumption of agricultural products is unstable.

We believe that solving these problems is possible due to the immediate flexible transformation of production. Every manager of an agrarian business must reorient his production and pay attention to those types of products that could solve the problem of food security in the country. Traditionally, in Ukraine, the production of agricultural products was concentrated in certain regions, but currently, in the conditions of martial law and the blocking of certain territories by Russian aggressors, it is necessary to change this paradigm and pay attention to the niches of rural areas. cultures with a sufficiently high level of competitiveness. It is the flexibility of production in combination with the principles of universality, adaptability and adaptability that is a key aspect in overcoming food security in modern conditions.

References

1. Negrey M. V., Trofimtseva O. V. (2022). Analiz funktsionuvannia ahrarnoho sektoru Ukrainy v umovakh viiny. [Analysis of the functioning of the agrarian sector of Ukraine in the minds of war]. *Bulletin of V. N. Karazin Kharkiv National University series "Economics"*, no. 102, pp. 49–54. DOI: <https://doi.org/10.26565/2311-2379-2022-102-06>

2. Shevchenko A., Petrenko O. (2023). Determinanty ekonomichnoho rozvytku silskoho hospodarstva v Ukraini. [Determinants of economic development of agriculture in Ukraine]. *Modern Economics*, no. 38, pp. 186–193. Available at: <https://modecon.mnau.edu.ua/determinants-of-economic-development-of/>. DOI: [https://doi.org/10.31521/modecon.V38\(2023\)-28](https://doi.org/10.31521/modecon.V38(2023)-28)
3. Erokhin V., Tianming G., Chivu L. & Andrei JV. (2022). Food security in a food self-sufficient economy: A review of China's ongoing transition to a zero hunger state. *Agric. Econ. Czech.* 68 (12): 476–487. DOI: <https://doi.org/10.17221/278/2022-AGRICECON>
4. Boczar P., Błażejczyk-Majka L. (2022). Efficiency of European Union wheat producers on world market and analysis of its determinants based on the data envelopment analysis method. *Agric. Econ. Czech*, no. 68 (12), pp. 455–463. DOI: <https://doi.org/10.17221/267/2022-AGRICECON>
5. Petrenko O. P., Polishchuk V. S. (2023). Ekonomichna bezpeka derzhavy. [Economic security of the state]. *A collection of theses of reports based on the materials of the International Scientific and Practical Conference "Sustainable Development of the Economy, Society and Entrepreneurship"*. Ivano-Frankivsk, Ukraine, pp. 103–106. Available at: https://drive.google.com/file/d/1v36DbIQUrByFrzvYg61AooDw9FEmi_Fp/view?usp=share_link (accessed 10 January 2024).
6. Demkiv O. I. (2011). Hnuchkist pidpriemstva yak zasib dosiahnennia yoho konkurentospromozhnosti. [Flexibility of the enterprise as a means of achieving its competitiveness]. *Scientific Bulletin of the Poltava University of Economics and Trade*, no. 6 (51), pp. 164–167. Available at: <http://journal.puet.edu.ua/index.php/nven/article/view/205/217> (accessed 27 January 2024).
7. Ministry of Agrarian Policy and Food of Ukraine. *Official website*. Available at: <https://minagro.gov.ua/investoram/monitoring-stanu-apk/eksport-z-ukrayini-zernovih-zernobobovih-ta-boroshna> (accessed: 20 January 2024).
8. State Statistics Service of Ukraine: *Official website*. Available at: <https://ukrstat.gov.ua/> (accessed: 21 January 2024).
9. Kyrychenko A. Vitaminnyi zapas: chy prynese vesna podorozhchannia ta nestachu ovochiv i fruktiv. [Vitamin stock: will spring bring price increases and shortages of vegetables and fruits]. Available at: <https://www.unian.ua/economics/agro/zrostannya-cin-neminuche-chi-prinese-vesna-podorozhchannya-ta-nestachu-ovochiv-i-fruktiv-12125064.html> (accessed 09 January 2024).
10. Gvozdyova O. (2022). Eksport z Ukrainy pid chas viiny: yak zminylas struktura postachan ukrainskoi produktsii za kordon [Exports from Ukraine during the war: how the structure of the supply of Ukrainian products abroad changed]. *Economic truth*. Available at: <https://www.epravda.com.ua/columns/2022/10/24/692959/> (accessed 09 January 2024).
11. Shabatura T. S., Heine V. L. (2022). Formuvannia stanu ekonomichnoi bezpeky silskohospodarskykh pidpriemstv v umovakh svitovoi pandemii Covid-19. [Formation of the state of economic security of agricultural enterprises in the conditions of the global Covid-19 pandemic]. *Economic Bulletin of the Black Sea Littoral*, no. 3, pp. 124–135.
12. Halytskyi O. M., Kommunishina S. A. (2021). Suchasnyi stan ta perspektyvy rozvytku vyrobnytstva produktsii roslinnytstva v Ukraini [The current state and prospects for the development of crop production in Ukraine]. *Economic Bulletin of the Black Sea Littoral*, no. 2, pp. 3–14.

Список використаних джерел

1. Негрей М. В., Трофімцева О. В. Аналіз функціонування аграрного сектору України в умовах війни. *Вісник Харківського національного університету імені В. Н. Каразіна серія «Економічна»*. 2022. Випуск 102. С. 49–54. DOI: <https://doi.org/10.26565/2311-2379-2022-102-06>
2. Шевченко А. А., Петренко О. П. Детермінанти економічного розвитку сільського господарства в Україні. *Modern Economics*. 2023. № 38. С. 186–193. URL: <https://modecon.mnau.edu.ua/determinants-of-economic-development-of/> (дата звернення: 12.02.2024). DOI: [https://doi.org/10.31521/modecon.V38\(2023\)-28](https://doi.org/10.31521/modecon.V38(2023)-28)
3. Erokhin V, Tianming G, Chivu L, Andrei JV. Food security in a food self-sufficient economy: A review of China's ongoing transition to a zero hunger state. *Agric. Econ. Czech*. 2022. No. 68 (12). С. 476–487. DOI: <https://doi.org/10.17221/278/2022-AGRICECON>
4. Boczar P., Błażejczyk-Majka L. Efficiency of European Union wheat producers on world market and analysis of its determinants based on the data envelopment analysis method. *Agric. Econ. Czech*. 2022. No. 68 (12). С. 455–463. DOI: <https://doi.org/10.17221/267/2022-AGRICECON>
5. Петренко О. П., Поліщук В. С. Економічна безпека держави. Збірник тез доповідей за матеріалами Міжнародної науково-практичної конференції «Сталий розвиток економіки, суспільства та підприємництва» (м. Івано-Франківськ, 27–28 квітня 2023 р.). Івано-Франківський національний технічний університет нафти і газу. 2023. С. 103–106. URL: https://drive.google.com/file/d/1v36DbIQUrByFrzvYg61AooDw9FEmi_Fp/view?usp=share_link (дата звернення: 14.02.2024).

6. Демків О. І. Гнучкість підприємства як засіб досягнення його конкурентоспроможності. Науковий вісник Полтавського університету економіки і торгівлі. 2011. № 6 (51). Ч. 2. С. 164–167. URL: <http://journal.puet.edu.ua/index.php/nvel/article/viewFile/205/217> (дата звернення: 12.12.2023).
7. Міністерство аграрної політики і продовольства України. Офіційний вебсайт. URL: <https://minagro.gov.ua/investoram/monitoring-stanu-apk/eksport-z-ukrayini-zernovih-zernobobovih-ta-boroshna> (дата звернення: 09.12.2023).
8. Державна служба статистики України: офіційний вебсайт. URL: <https://ukrstat.gov.ua/> (дата звернення: 08.12.2023).
9. Кириченко А. Вітамінний запас: чи принесе весна подорожчання та нестачу овочів і фруктів. URL: <https://www.unian.ua/economics/agro/zrostannya-cin-neminuche-chi-prinese-vesna-podorozhchannya-ta-nestachu-ovochiv-i-fruktiv-12125064.html> (дата звернення: 08.12.2023).
10. Гвоздьова О. Експорт з України під час війни: як змінилась структура постачань української продукції за кордон. Економічна правда. 2022. URL: <https://www.epravda.com.ua/columns/2022/10/24/692959/> (дата звернення: 10.03.2024).
11. Шабатура Т. С., Гейне В. Л. Формування стану економічної безпеки сільськогосподарських підприємств в умовах світової пандемії Covid-19. Економічний вісник Причорномор'я. 2022. № 3. С. 124–135. URL: <https://ebbsl.com.ua/index.php/visnuk/article/view/44/39> (дата звернення: 10.11.2023).
12. Галицький О. М., Комунішина С. А. Сучасний стан та перспективи розвитку виробництва продукції рослинництва в Україні. Економічний вісник Причорномор'я. 2021. № 2. С. 3–14. URL: <https://ebbsl.com.ua/index.php/visnuk/article/view/17/15> (дата звернення: 10.11.2023).