

## DIRECTIONS FOR INCREASING THE COMPETITIVENESS OF ENTERPRISES OF THE AIC BASED ON AN ADAPTIVE MECHANISM OF RESPONSE TO CHANGES IN THE OPERATING ENVIRONMENT

Yuliia Okhota<sup>1</sup>, Svitlana Dotsiuk<sup>2</sup>

**Abstract.** *The purpose* of the article is to identify and scientifically substantiate the main directions of increasing the competitiveness of agro-industrial enterprises based on an adaptive mechanism for responding to changes in the operating environment, which will ensure their stability, efficiency and ability to long-term development in the face of modern challenges. *Methodology.* The methodological basis of the study, aimed at revealing and substantiating the problem of increasing the competitiveness of agro-industrial enterprises in the face of adaptive response to changes in the operating environment, is a set of general and special scientific methods. In particular, the monographic method was used – for in-depth study of the essence of the problem; logical-theoretical – for the formation of conceptual approaches; statistical and economic-mathematical – for quantitative analysis of trends and relationships; visualization methods – for a visual display of the results obtained; systems analysis – for a comprehensive assessment of influencing factors; logical generalization and abstraction – for the formation of conclusions and proposals. The information base for the study was official materials of the State Statistics Service of Ukraine, statistical yearbooks, as well as scientific publications and analytical developments of domestic and foreign scientists on the relevant topic. *The results of the study* showed that during 2020-2024, most enterprises in agriculture make a profit, and only a smaller number of enterprises have a loss from their activities. However, in 2022, the percentage of enterprises that have a loss increased from 11.3% to 21.5% compared to 2021. An analysis of the dynamics of the number of employed and hired workers at enterprises in agriculture in Ukraine for 2020-2024 allows us to conclude that there is a clear trend towards a reduction in the workforce during most of the analyzed period, with a further sign of stabilization at the final stage. It was also found that agricultural losses in the two years after the full-scale invasion of the Russian Federation into the territory of Ukraine reached 10.3 billion USD. Thus, in the face of such challenges, taking into account the results obtained, the authors proposed a number of directions that contribute to increasing the competitiveness of agro-industrial complex enterprises based on an adaptive mechanism. *Practical implications.* The authors identified a set of factors that influence the formation of the goals of the functioning of agribusiness enterprises, and the basic components of the adaptive mechanism for responding to changes in the environment of the functioning of agrarian enterprises with the characteristics of each component. It was suggested that agricultural producers also consider the goal of “ensuring and increasing their competitiveness” as the basis along with the goal of “obtaining profit”, and also substantiated the need to implement an adaptive mechanism by agricultural formations. In order to study changes in the environment of the functioning of the agricultural sector, a number of relevant indicators were analyzed, in particular, the economic efficiency of agricultural enterprises; the number of employed and hired workers at enterprises in agriculture; losses by category caused to agriculture after a full-scale invasion, etc. Based on the analysis, the authors formed the appropriate conclusions, on the basis of which factors were identified that influence the competitiveness of agribusiness enterprises. In particular, martial law and existing state support programs for agricultural producers were examined in more detail among these factors. *Value / originality.* The value of the research is that, taking into account the negative impact of the war on the functioning of

<sup>1</sup> Vinnytsia National Agrarian University, Ukraine

E-mail: [yuliaokhota2017@gmail.com](mailto:yuliaokhota2017@gmail.com)

ORCID: <https://orcid.org/0000-0001-9943-2206>

ResearcherID: <https://www.webofscience.com/wos/author/record/1759619>

<sup>2</sup> Vinnytsia National Agrarian University, Ukraine (corresponding author)

E-mail: [sveta.dotsiuk@gmail.com](mailto:sveta.dotsiuk@gmail.com)

ORCID: <https://orcid.org/0000-0002-4021-8018>

ResearcherID: <https://www.webofscience.com/wos/author/record/AAY-4264-2021>



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agricultural enterprises and the preservation of their competitiveness, the authors, in addition to the main areas of increasing the competitiveness of agricultural enterprises based on the adaptive mechanism, separately listed areas of creating competitive advantages for these enterprises in the post-war recovery. In particular, such areas are: modernization and technological progress, product diversification, development of cooperation and agricultural associations, development of human capital, technologization of management and digitalization of agribusiness, sustainable resource management.

**Keywords:** competitiveness, economic efficiency, adaptive mechanism, changing operating environment, agro-industrial complex, agricultural enterprise.

**JEL Classification:** O13, Q13, Q18

## 1. Introduction

The agro-industrial complex (AIC) is one of the key sectors of the national economy, which not only ensures the formation of a significant share of the country's gross domestic product, but also performs a strategic function – ensuring food security. For example, the share of the agro-industrial sector in Ukraine's GDP in 2024 was approximately 20%, with agricultural production accounting for about 11%, while the processing industry – 9%. The role of agricultural enterprises is to stably provide the population with high-quality food products, form export potential and develop related industries, which makes them one of the system-forming elements of the economy. In modern conditions, when global markets are characterized by high dynamics of price fluctuations, increased competition and the influence of external crisis factors (economic, environmental, geopolitical), increasing the competitiveness of agri-industrial enterprises is becoming a priority task of state and corporate policy.

The formation of an adaptive mechanism for responding to changes in the operating environment, which allows agricultural enterprises to flexibly adapt to new challenges and use opportunities for growth, is of particular relevance. Such a mechanism provides not only a prompt response to changes in the market situation, but also promotes strategic development through innovative, organizational and economic tools. Its implementation is a necessary condition for preserving and strengthening the positions of the agro-industrial complex in the structure of the national economy, as well as an important factor in ensuring domestic food security, as well as achieving energy independence of the country.

## 2. Literature Review

Olshanska O. and Puzyryova P. in their research prove that an important aspect in managing the competitiveness of agribusiness enterprises is their ability to adapt to changing business conditions, which includes not only the use of competitive advantages, but also the ability to effectively respond to changes in the market and change their strategy in accordance

with new conditions, especially the conditions of martial law. They emphasize that the competitiveness of agribusiness enterprises determines their ability to gain advantages in a competitive environment that is characteristic of the market of agricultural products and services, which covers many aspects, given the current state of war in the country: targeted state policy; the role of the state in the development of the agricultural sector; product quality; reduction of production costs; state orders for products; scientific support of the agro-industrial complex (Olshanska, Puzyryova, 2023).

Chikov I.A., studying the components of increasing competitiveness, notes that the innovative mechanism for increasing the competitiveness of agro-industrial complex enterprises is aimed at forming the functional support of business structures in terms of the stages of the life cycle of business entities. In particular, innovative, investment, financial, logistical, environmental and marketing support. This forms a comprehensive management system for a business entity, which allows it to effectively adapt to changes in the external environment, optimize internal processes and increase competitiveness in the market (Chikov, 2024; Chikov, 2022).

In the research of Khushvakhtzoda K. it was found that the main forms of reporting of enterprises of the agricultural sector show their low efficiency due to the insufficient volume of data provided. As a result, it was proved that by introducing certain changes in the methodology of compiling accounting (management) reporting and improving the quality of data in it, it is possible to increase the level of competitiveness of enterprises. Therefore, the author proposed such forms of their reporting that could solve some existing problems of increasing the competitiveness of enterprises (Khushvakhtzoda, 2022).

Faqih A., Elizabeth R., et al. in their research pay significant attention to innovative bioenergy production as an additional direction of activity of agricultural enterprises, including farms, in order to increase their competitiveness and expand employment opportunities. At the same time, they prove the important role of state support for farms, which will encourage agricultural producers to diversify biofuel production (Faqih, 2020).

Mazur K., Tomashuk I., et al. determine the features of implementation and prove the importance of developing marketing activities in agricultural enterprises as a direction for ensuring their competitiveness and increasing the efficiency of their activities (Mazur, 2024).

Honcharuk I., et al., in order to increase the competitiveness of agricultural enterprises, argue that further development of biogas production and increase in digestate production are necessary to meet the needs of agricultural enterprises in organic fertilizers, since there is currently an urgent need to increase soil fertility, and also propose to study the European experience of agro-industrial complex development and introduce green technologies as directions, which opens up opportunities for modernization of the industry and will increase its efficiency in the conditions of a global changing environment (Honcharuk, 2024a; Honcharuk, 2024b).

Kozelský R., Maitah M., et al., assessing the impact of monetary policy on the competitiveness of agricultural enterprises, found that higher interest rates negatively affect the results of agricultural enterprises. A market environment with low interest rates can stimulate the introduction of innovations, the introduction of new technologies and the development of robotics in agricultural enterprises. Lower financing costs due to low interest rates can stimulate business activity and economic growth, which can positively affect the competitiveness of agricultural enterprises (Kozelský, 2024).

Despite the presence of a wide range of scientific works devoted to this issue, the issue remains insufficiently studied. This necessitates the need for further research aimed at a deeper analysis of the identified patterns and clarification of the mechanisms of their influence in the changing environment of the functioning of agricultural enterprises, which will allow to outline effective directions for increasing their competitiveness.

### **3. Competitiveness of AIC Enterprises in a Changing Operating Environment**

Competitiveness is a determining factor for the success of agricultural enterprises, as it directly affects their ability to function effectively in the conditions of market changes, technological innovations, instability and all possible changes in their operating environment. It is important for an agricultural enterprise to be competitive, as this allows not only to maintain stability and financial sustainability in difficult economic conditions, but also to ensure access to new markets, improve product quality and reduce costs through the introduction of modern technologies. This contributes to the creation of added value, attracting investment and improving production

efficiency, which, in turn, strengthens positions in domestic and foreign markets, especially in competition with other producing countries.

In modern conditions of a market economy, characterized by the dynamic development of technologies, globalization of markets and growing competition, the competitiveness of an enterprise acquires the status of a determining factor in its viability and strategic success. It serves not only as an indicator of the current state of the enterprise, but also as an indicator of its ability to develop, adapt, and maintain a stable position in the market in the long term (Chikov, 2024).

The term "competitiveness" comes from the Latin "concurrentia", which means "competition" or "rivalry".

We share the opinion of scientists Bochko O.Yu. and Kozhushko P.I., who understand "enterprise competitiveness" as a complex systemic concept that embodies the competitive advantages of a particular enterprise over others in terms of the totality of all determining parameters that contribute to consolidating the enterprise's positions, which are more advantageous compared to competitors, in a certain market in a specific period of time under a certain influence of the operating environment (Bochko, Kozhushko, 2024).

Given the essence of the concept of "competitiveness", we believe that every business entity should perceive ensuring competitiveness as its main goal along with the goal of making a profit.

To achieve competitiveness and make a profit, an agricultural enterprise needs to implement a number of priority goals, such as increasing production efficiency, introducing innovative technologies, optimizing costs, improving product quality, and expanding sales markets, which together form a strategic basis for ensuring stable growth and strengthening market positions.

A clear definition of the enterprise's goals is the foundation of its sustainable development as a whole. It is thanks to the presence of clearly formulated goals that the enterprise can effectively plan, evaluate achievements, adapt to market changes and ensure a harmonious combination of economic benefit with social responsibility. Successful implementation of goals transforms the enterprise from a passive market participant into an active creator of economic value (Sulima, 2024).

Figure 1 shows the key factors that influence the formation of goals for the functioning of agricultural enterprises. The relationship between these elements creates a holistic system that determines the direction of enterprise development in the agricultural sector of the economy.

We believe that the fundamental goal of any enterprise is to organize the production of goods and (or) the provision of services in order to fully and

timely satisfy the needs of consumers, which, in turn, ensures the achievement of the maximum possible economic result in the form of profit. In addition, the profit of the enterprise is important not only for the activities and functioning of the enterprise itself, but is a guarantee of the development of the state. After all, enterprises pay taxes that fill the state budget.

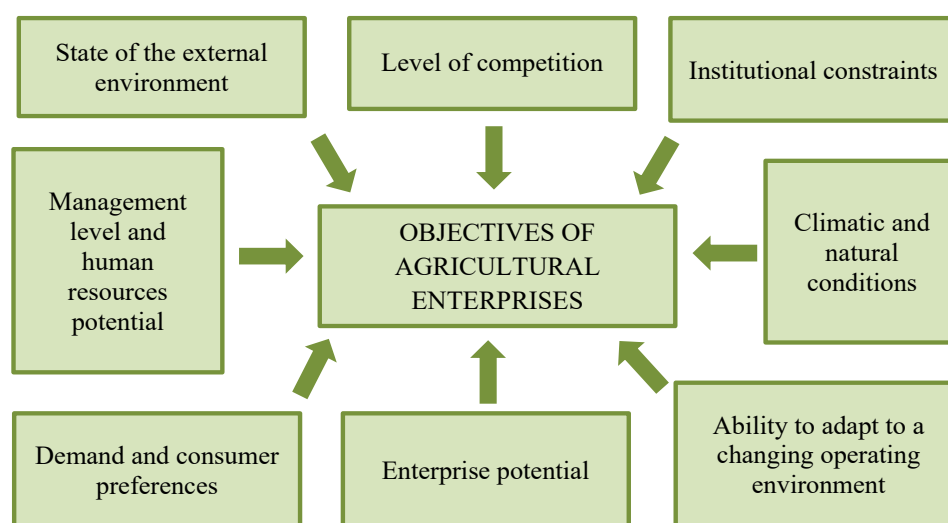
In modern conditions of uncertainty and a changing operating environment, it is important for agribusiness enterprises to apply an adaptive mechanism to ensure and increase their competitiveness.

The adaptive mechanism for responding to changes in the operating environment of agricultural enterprises is a system of measures, tools and management decisions that ensures flexible and effective adaptation

of the enterprise to changes in the external and internal environment (Fedirets, 2024). In conditions of instability, climate change, price volatility, political situation and technological innovations, agricultural enterprises must be able to quickly respond and adapt to new challenges.

The adaptive mechanism for responding to changes in the operating environment of agricultural enterprises includes a number of components, the main ones of which are shown in Figure 2.

Monitoring the external environment includes systematic observation of market, climatic, political, legal and social changes, as well as analysis of raw material prices, exchange rates, demand for products, competitive environment, etc.



**Figure 1. A set of factors that influence the formation of goals for the functioning of agricultural enterprises**

*Source: compiled by the authors*



**Figure 2. Basic components of an adaptive mechanism for responding to changes in the operating environment of agricultural enterprises**

*Source: formed and supplemented by the authors based on (Fedirets, 2024)*

SWOT analysis of the enterprise reveals the strengths and weaknesses of the enterprise, external opportunities and threats, and also contributes to making informed decisions in strategic planning.

A flexible organizational structure means that an agricultural enterprise will be able to quickly restructure its activities: change the management structure, redirect resources, introduce new divisions or reduce ineffective ones.

Diversification of production involves growing several crops or engaging in related activities (livestock, processing, logistics), which in the future will reduce the risks of dependence on one crop, weather conditions or sales market.

Innovative activities and digitalization are associated with the introduction of innovative technologies: precision agriculture, drones, GPS monitoring, process automation, while optimizing costs and increasing productivity.

Crisis management involves the availability of emergency response scenarios (droughts, epidemics, market closures); includes insurance, creating reserves, partnerships with suppliers and customers.

Financial flexibility affects the quality of cash flow management, lending, leasing, finding investors or grants, as well as the ability to quickly mobilize resources in the event of a crisis or new opportunities.

Personnel adaptation includes training personnel in new technologies, adaptation to changes in production processes, flexible forms of employment and a motivation system (Fedirets, 2024).

In order to study changes in the environment of the agricultural sector, we will analyze a number of relevant indicators, in particular, the economic efficiency of agricultural enterprises; the number of employed and hired workers at agricultural enterprises; losses by category caused to agriculture after a full-scale invasion.

The economic efficiency of agricultural enterprises shows the level of use of available resources to achieve the maximum volume and quality of products at minimal costs. Figure 3 presents the economic efficiency of enterprises in agriculture, hunting and the provision of related services in Ukraine for 2020-2024.

The results of the analysis show that during 2020-2024, the majority of enterprises in agriculture, hunting and related services will make a profit, and only a smaller number of enterprises will have a loss from their activities. It is worth paying attention to 2022, where it is noticeable that the percentage of enterprises that have a loss compared to 2021 increased from 11.3% to 21.5%. As of 2023, this percentage of enterprises remained practically at the same level, which confirms the continued persistence of an unfavorable economic environment for some enterprises. However, in 2024, the number of loss-making enterprises decreased to 15.8%, and the percentage of profitable ones increased to 84.2%. Such an increase is a positive factor that may indicate a partial recovery of the industry and improvement in the financial efficiency of enterprises.

The formation of high competitiveness of enterprises requires the involvement of a competitive workforce and effective social and labor relations. We believe that the increase in the number of enterprises that suffered losses from their activities in 2022 and 2023 affects the number of employed workers and the number of employees in agriculture, hunting and the provision of related services (Figure 4).

Analysis of the dynamics of the number of employed and hired workers at enterprises in agriculture, hunting and the provision of related services in Ukraine for 2020-2024 allows us to conclude that there is a clear trend towards a reduction in the workforce during most of the analyzed period, with a further sign of stabilization at the final stage. Thus, in 2020-2021, the

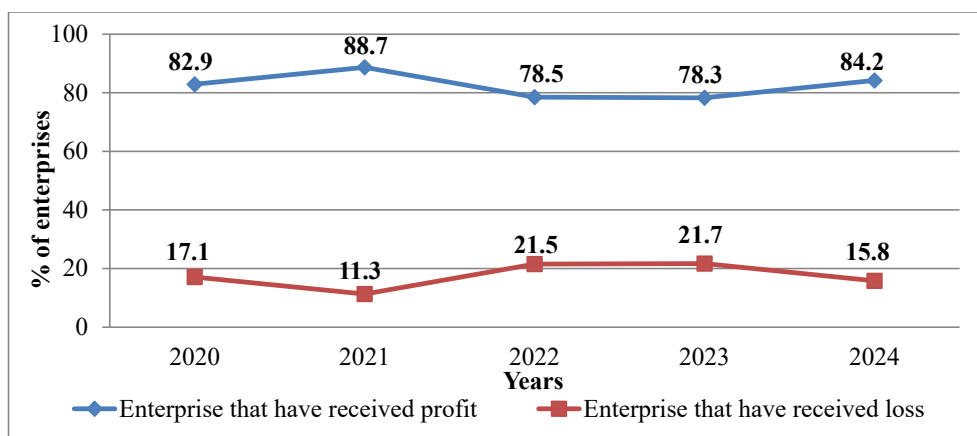
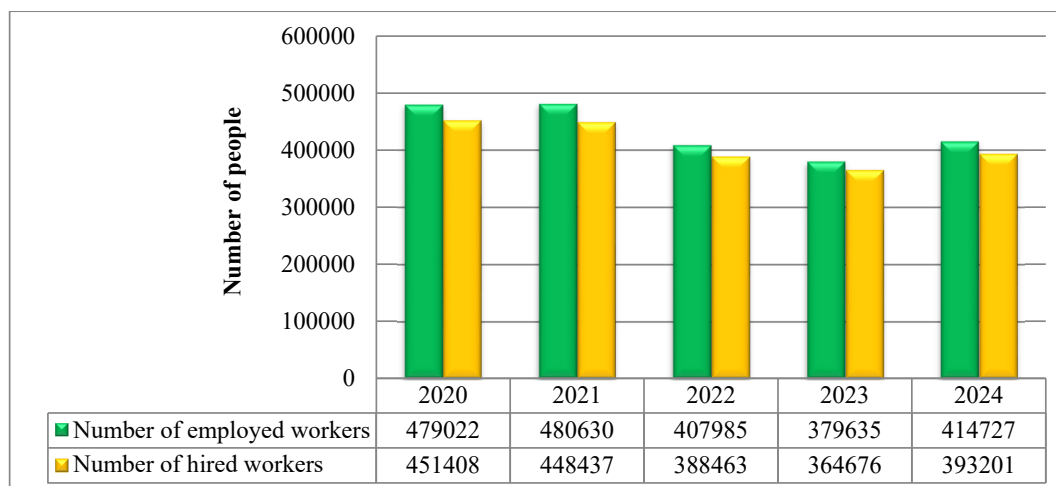


Figure 3. Economic efficiency of enterprises in agriculture, hunting and related services in Ukraine for 2020-2024, %

Source: compiled by the authors based on (State Statistics Service of Ukraine, 2024)



**Figure 4. Number of employed and hired workers at enterprises in agriculture, hunting and related services in Ukraine in 2020-2024, people**

*Source: compiled by the authors based on (State Statistics Service of Ukraine, 2024)*

highest level of employment is observed: the number of employed workers in 2020 was 479022 people and in 2021 – 480630 people, and hired workers – in 2020 – 451408 people and in 2021 – 448437 people. This indicates the relative stability of the labor market during this period, which is due to the normal pace of development of enterprises and sufficient demand for labor.

Starting from 2022, a sharp decrease in the number of both employed and hired workers has been recorded. Thus, in 2022, compared to 2021, the number of employed workers decreased by 72645, and hired workers by 59974 people. This negative trend continued in 2023, when the indicators reached the minimum level for the period under study (379635 employed and 364676 hired workers).

At the same time, in 2024, there was a slight increase in the number of workers in both categories: the number of employed increased by 35092 people compared to the previous year, the number of hired workers by 28525 people. This indicates the beginning of the process of labor market recovery, which may be the result of the intensification of economic activity of enterprises, the resumption of production and the creation of new jobs.

For a deeper and more comprehensive understanding of the processes that directly affect the financial and economic performance of enterprises and determine their competitive positions in the market, it is necessary to clearly outline the structure of influencing factors. In our study, we consider it appropriate to conditionally divide all competitiveness factors into external and internal (Figure 5).

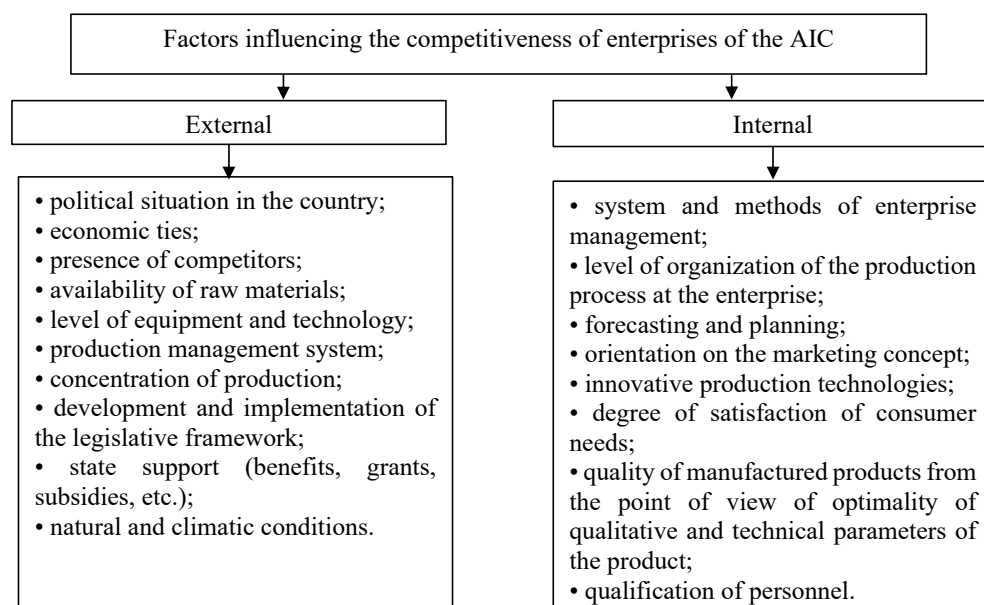
Also worth noting are the factors proposed in their scientific work by the authors Chikov I.A., Khaietska O.P. et al., who identify factors influencing

the competitiveness of agricultural enterprises according to the level, in particular: microlevel, mesolevel, macrolevel and metalevel, identifying at each level such a negative factor as war and military threats (Chikov, 2023).

Thus, among the factors that affect the competitiveness of the enterprise, martial law, introduced in connection with military operations on the territory of Ukraine, is particularly important today, which has a significant impact on the functioning of agricultural enterprises. First, the production and transport infrastructure is being destroyed: warehouses, equipment, granaries are being destroyed, agricultural lands are being damaged or mined. This leads to a reduction in production volumes and an increase in the cost of production.

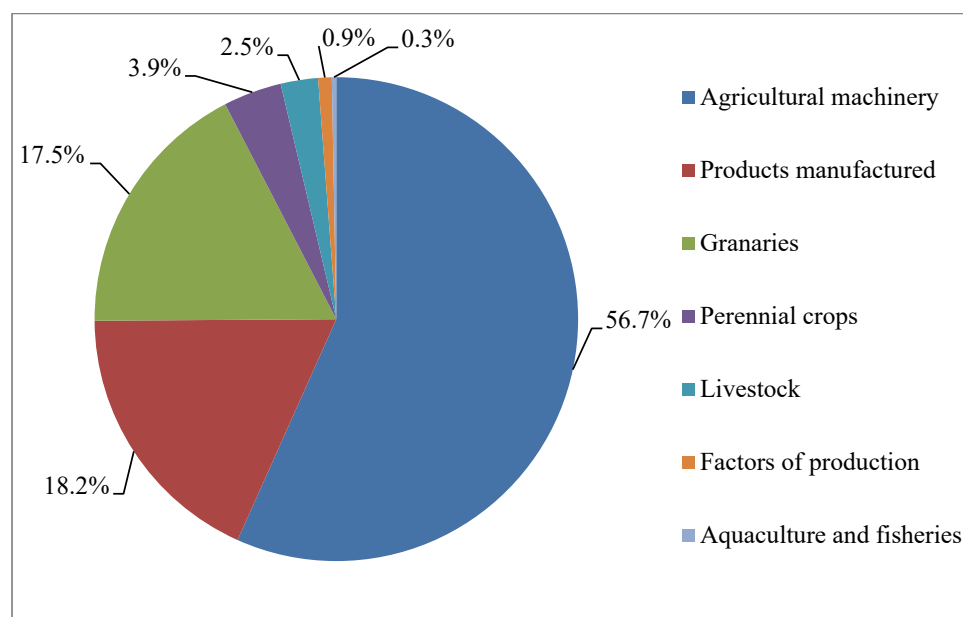
Agricultural losses in the two years after the full-scale invasion of the Russian Federation into the territory of Ukraine reached 10.3 billion USD, including: damage and destruction of agricultural machinery for 5.8 billion USD, destroyed and stolen means of production and manufactured products for 1.97 billion USD, damage to granaries for 1.8 billion USD, damage to perennial plantings for 398 million USD, livestock for 254 million USD, and aquaculture and fisheries for 35 million USD. The relatively moderate pace of this growth is due to the fact that a significant part of the assets in the regions where ground battles are ongoing were already destroyed in the first year of the invasion. The three regions that suffered the most losses were Zaporizhia, Kherson, and Luhansk regions, which together accounted for 65% of the total losses (Figure 6) (Chikov, 2024).

Secondly, a serious problem is the disruption of logistics chains. Some of the traditional export routes (in particular, seaports) are blocked or operate with



**Figure 5. Factors influencing the competitiveness of enterprises of the AIC**

Source: supplemented by the authors based on (Sarai, 2018; Dotsiuk, 2024)



**Figure 6. Distribution of losses by category caused to agriculture after the full-scale invasion of the Russian Federation into the territory of Ukraine during 2022-2023**

Source: compiled by the authors based on (Center for Food and Land Use Research, 2024)

interruptions, which complicates the transportation of products both within the country and abroad. This especially applies to the export of grain crops, which form the basis of Ukraine's agricultural exports.

In the process of exporting grain crops, Ukrainian producers are forced to look for alternative transportation routes, in particular railway and road routes through neighboring countries. Such a forced

reorientation of logistics flows leads to an increase in transportation costs, an extension of product delivery times to end consumers, and also increases the general instability of the implementation of foreign economic contracts. Delays in deliveries can have a negative impact on the image of Ukrainian exporters on world markets, which in the long term leads to a decrease in their competitiveness and a weakening

of Ukraine's position as one of the leading suppliers of grain crops.

Thirdly, martial law affects the labor resources of enterprises. A significant part of the working-age population is mobilized into the ranks of the Armed Forces of Ukraine or is forced to leave their place of permanent residence due to active hostilities, which leads to the formation of a structural labor shortage. Such a shortage is especially noticeable during peak periods of the agricultural cycle – during the sowing and harvesting campaigns, when the involvement of additional labor resources is critically necessary to ensure the continuity of production processes. This situation complicates the planning and organization of work, increases the burden on existing personnel, and also creates risks of under-receiving the planned harvest volumes and reducing export potential (Center for Food and Land Use Research, 2024).

Despite the significant losses suffered by enterprises as a result of hostilities, their high adaptability and ability to quickly respond to constant changes in the external environment allow them not only to keep their businesses afloat, but also to find new ways of development and growth in the extremely difficult situation caused by the war.

In the context of martial law, it is worth noting such a factor as state support for the agricultural sector (AgroPortal, 2024), which has a certain impact on the competitiveness of agricultural enterprises. Perhaps today the number of existing state support programs for farmers is limited, but those that are possible in wartime are in operation. For example, in 2024, a number of state programs were in operation, using which agricultural producers could partially support and develop their farms (Table 1).

Applications for these types of assistance are submitted through the State Agrarian Register.

Ukrainian farmers can also receive grant funding. In particular:

– A grant for the creation or development of horticulture, berry growing and viticulture is provided in the amount of up to 70% of the project cost, but not more than UAH 10 million and provided that it is financed by the recipient's funds. The recipient's share of co-financing must be at least 30% of the project cost. Grants are provided for planting no more than 25 hectares of plantations.

– Up to UAH 7 million can be attracted for a grant for the development of greenhouses. Funds are provided for the construction of a greenhouse with an area of from 0.4 to 2.4 hectares. The condition is at least 4 permanent and 10 seasonal workers per 1 hectare of modular greenhouse area (AgroPortal, 2024).

In Ukraine, grant applications are submitted through the "Diya" portal.

In addition, during martial law, agricultural land located in an active combat zone or active combat zone where registers are operating is automatically exempt from paying taxes. If the land is located within the scope of possible combat operations or is mined, one should contact local self-government bodies, which will decide on exemption from all taxes due to contamination with explosive objects (AgroPortal, 2024).

Therefore, taking into account the analyzed economic efficiency of agricultural enterprises; the number of employed and hired workers at agricultural enterprises; the losses by category caused to agriculture after a full-scale invasion, and the main cause-and-effect relationships of negative factors; as well as the current directions of state support for agricultural producers, the need to apply an adaptive mechanism by agricultural enterprises is emphasized.

Thus, in our opinion, the justification for the need to implement an adaptive mechanism by agricultural formations is based on such aspects as:

– High dynamics of changes in the external environment. Climate change, martial law, new market

Table 1

#### Directions of state support for agricultural producers in Ukraine in 2024

|                                                        |                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DIRECTIONS OF STATE SUPPORT FOR AGRICULTURAL PRODUCERS | <ul style="list-style-type: none"> <li>▶ Small farmers who cultivate up to 120 hectares in the deoccupied territories will be able to receive UAH 8 thousand in non-refundable assistance per 1 hectare, and UAH 4 thousand in the controlled territory.</li> </ul>                                                                                |
|                                                        | <ul style="list-style-type: none"> <li>▶ Farmers who keep from 3 to 100 cows can receive 7 thousand UAH per head, and 2 thousand UAH for those who raise from 5 to 500 heads of goats and sheep.</li> </ul>                                                                                                                                        |
|                                                        | <ul style="list-style-type: none"> <li>▶ Compensation for up to 50% of the cost of restoration and construction of land reclamation systems. The amount of assistance will not exceed UAH 26.5 thousand per 1 ha of cultivated land on which hydrotechnical land reclamation is carried out, excluding the cost of irrigation machines.</li> </ul> |
|                                                        | <ul style="list-style-type: none"> <li>▶ Compensation of the cost of domestic agricultural machinery is up to 25%. This applies to equipment purchased since April 2024, included in the list of the Ministry of Economy of Ukraine.</li> </ul>                                                                                                    |
|                                                        | <ul style="list-style-type: none"> <li>▶ Compensation for up to 80% of the cost of demining work.</li> </ul>                                                                                                                                                                                                                                       |
|                                                        | <ul style="list-style-type: none"> <li>▶ Agricultural entrepreneurs cultivating up to 500 hectares can receive a loan guarantee through the Partial Loan Guarantee Fund in Agriculture. Under the program, the producer can reduce the collateral for the loan by half. The first guarantees have already been issued.</li> </ul>                  |

Source: (AgroPortal, 2024)

requirements and restrictions force agricultural enterprises to quickly restructure.

– Uncertainty of the political situation. Frequent legislative changes, currency fluctuations, export restrictions.

– Competition and globalization. The modern agricultural sector is part of the global market, and enterprises must meet its standards.

– Technological breakthrough. Those who do not adapt to innovations quickly lose competitiveness.

#### 4. Increasing the Competitiveness of Enterprises of the AIC Based on an Adaptive Mechanism

In the context of modern challenges, the formation and implementation of an effective adaptive mechanism for the functioning of agro-industrial complex enterprises is of particular importance, which allows for timely response to changes in the market environment, effective use of existing resource potential, introduction of innovations, and ensuring sustainable growth of competitiveness in the context of globalization and economic turbulence.

Table 2 proposes directions that contribute to increasing the competitiveness of agro-industrial

complex enterprises based on an adaptive mechanism.

The introduction of innovative technologies at agro-industrial enterprises is of great importance. Innovative technologies allow to automate production processes, optimize the use of resources and improve production conditions, which contributes to a significant increase in yield, improvement of product quality and reduction of production losses. At the same time, they contribute to reducing costs for material resources, fuel and labor through the use of modern methods of soil cultivation, precision farming systems, automated equipment control systems and energy-efficient technologies, which is critically important in the context of growing resource prices and the need to increase environmental safety. The rational use of natural resources, in particular water, fertilizers and energy resources, allows to minimize the negative impact on the environment, reduce land degradation and support biodiversity, which corresponds to the principles of sustainable development of the agricultural sector. In addition, innovations increase the competitiveness of enterprises, enabling them to respond quickly to changing market conditions, introduce new types of products and improve technological processes, which helps to strengthen positions in domestic and

Table 2

#### Directions for increasing the competitiveness of enterprises of the AIC based on an adaptive mechanism

| № | Direction                                                 | The essence of direction                                                                                                                                                                                                                                                                                        |
|---|-----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Introduction of innovative technologies                   | - updating the technical base;<br>- use of modern agricultural technologies;<br>- automation and digitalization of production.                                                                                                                                                                                  |
| 2 | Development of a flexible organizational structure        | - optimization of management processes;<br>- reduction of bureaucracy;<br>- delegation of authority;<br>- increase in the speed of decision-making.                                                                                                                                                             |
| 3 | Improvement of human resource potential                   | - training and retraining of personnel;<br>- development of personnel competencies;<br>- stimulation of innovative activity of employees.                                                                                                                                                                       |
| 4 | Adaptation of financial and economic policy               | - cost management;<br>- finding alternative sources of financing;<br>- increasing financial sustainability.                                                                                                                                                                                                     |
| 5 | Expansion of sales markets and marketing flexibility      | - demand analysis;<br>- development of new markets;<br>- development of effective marketing strategies.                                                                                                                                                                                                         |
| 6 | Benchmarking as a powerful tool of strategic management   | - identification and adaptation of the best agricultural technologies and management practices;<br>- comparison of productivity and efficiency with leading enterprises in the industry;<br>- constant market analysis and formation of strategies to increase the competitiveness of agricultural enterprises. |
| 7 | Integration and cooperation                               | - cooperation with other enterprises, scientific institutions;<br>- formation of clusters;<br>- attraction of investments.                                                                                                                                                                                      |
| 8 | State support for agricultural producers                  | - ensuring sustainable development and innovation;<br>- creating a favorable economic environment;<br>- protecting and expanding the market positions of enterprises.                                                                                                                                           |
| 9 | Production and use of biofuels as an innovative direction | - rational use of resource potential;<br>- reduction of energy dependence and costs of the enterprise;<br>- increase of environmental and market competitiveness.                                                                                                                                               |

Source: formed and supplemented by the authors based on (Chikov, 2023; Hontaruk, 2024; Kaletnik, Lutkovska, 2020; Khaminich, 2025; Liudvik, 2024; Okhota, 2024; Shelenko, 2025) and own research

foreign markets. Also, innovative solutions ensure the long-term stability of the agro-industrial complex, helping to integrate environmentally friendly technologies that preserve natural ecosystems and contribute to reducing greenhouse gas emissions (Kaletnik, Lutkovska, 2020; Liudvik, 2024).

We believe that the use of digital technologies, information and analytical systems and monitoring systems greatly facilitates the management of production processes, provides operational control and increases the efficiency of management decision-making, which in turn contributes to increasing the overall productivity and economic stability of enterprises the AIC.

The development of a flexible organizational structure helps to increase the speed of an enterprise's response to changes in the external environment, reduces bureaucratic procedures, ensures effective delegation of authority, and stimulates employee responsibility for the final result.

Human resource potential remains the basis for the development of the enterprise's labor opportunities. Increasing its level involves not only the development of professional competencies of personnel through training and advanced training, but also the creation of conditions for attracting and retaining young qualified specialists in the industry. Stimulating the innovative activity of employees contributes to the generation of new solutions and increases the flexibility of the enterprise. However, this cannot be achieved without adequate funding (Sulima, 2024).

Adaptation of financial and economic policy involves cost management, searching for alternative sources of financing, and forming financial stability of enterprises to counteract external economic risks. Expansion of sales markets and marketing flexibility are important factors for diversifying market risks, developing new market segments, and developing effective marketing strategies, which allows increasing sales volumes and increasing profitability.

The significance of benchmarking as a tool for competitiveness management lies in its ability to create conditions for dialogue between the enterprise and the environment in which it operates. It is through comparison, analytical interpretation and adaptation of best practices that the company gains the ability to see its own development prospects in the context of general market trends, technological innovations and consumer behavioral changes. Thus, benchmarking not only contributes to operational improvement, but also provides a strategic advantage, forming the basis for competitive growth, risk resilience and the creation of added value for all stakeholders (Khaminich, 2025).

Integration and cooperation with other enterprises, scientific institutions and clusters allow you to gain access to advanced technologies, increase innovation

potential and attract investments for the implementation of large-scale projects.

The role of state support for agricultural producers is to create favorable conditions for increasing their competitiveness, ensuring food security and sustainable development of the agro-industrial complex in the face of dynamic challenges of the market environment.

The introduction of the production and use of biofuels as an innovative direction increases the competitiveness of agricultural enterprises by optimizing energy costs, effectively using agricultural raw materials, strengthening the environmental image in national and international markets, and expanding investment prospects in the field of renewable energy.

Thus, the proposed directions form a holistic adaptive mechanism that meets modern challenges and contributes to increasing the competitiveness of agro-industrial enterprises both at the national and international levels.

Taking into account the negative impact of the war on the functioning of agricultural enterprises and the preservation of their competitiveness (Figure 6), in addition to the directions for increasing the competitiveness of agro-industrial complex enterprises based on the adaptive mechanism, it is worth separately indicating the directions for creating competitive advantages of these enterprises in the conditions of post-war recovery. In the conditions of post-war recovery of agricultural enterprises in Ukraine, a number of directions are relevant that can help them create competitive advantages (Figure 7):

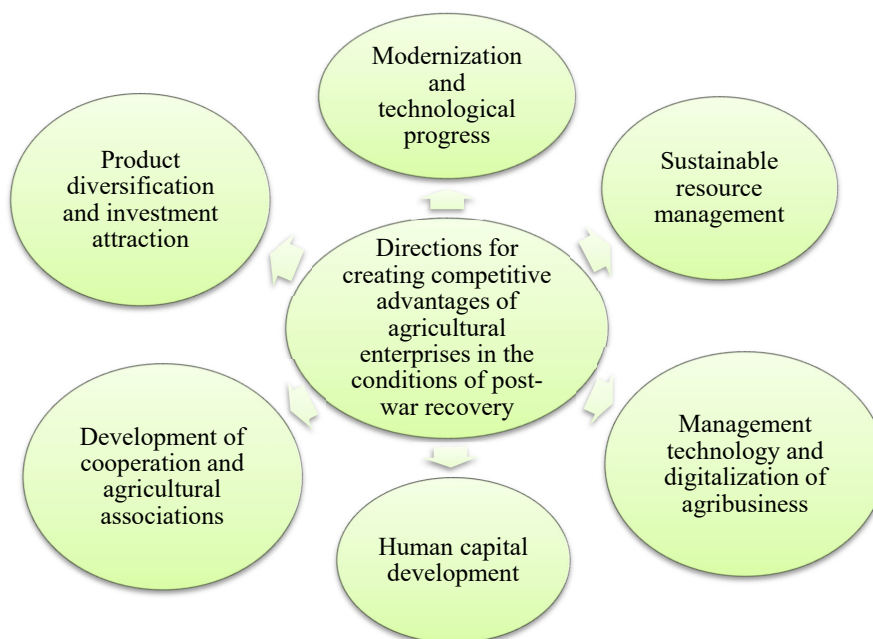
1. Modernization and technological progress. The use of advanced agricultural technologies can improve production efficiency and increase yields. As practice shows, investments in modern equipment, process automation and the introduction of digital technologies can increase productivity and reduce costs.

2. Product diversification. For example, growing different crops, developing rural tourism or producing organic products. Therefore, expanding the range of agricultural products can provide the enterprise with greater stability and protection from price fluctuations on the market.

3. Development of cooperation and agricultural associations. The unification of small and medium-sized agricultural enterprises into integrated business structures can provide them with greater market power, access to shared resources and increase their competitiveness and, as a result, achieve a synergistic effect.

4. Development of human capital. Investing in training and personnel development can improve the qualifications of agricultural enterprise employees and ensure their ability to effectively implement new technologies and production methods.

5. Management technologization and digitalization of agribusiness are often aimed at simplifying the



**Figure 7. Directions for creating competitive advantages of agricultural enterprises in the conditions of post-war recovery**

*Source: compiled by the authors based on (Revenko, 2024)*

implementation of repetitive routine processes, improving communication with consumers and other stakeholders.

6. Sustainable resource management. Preservation of soils, water resources and biodiversity are important aspects of sustainable development of the agricultural sector. The implementation of sustainable farming practices and water management methods can increase productivity and long-term sustainability of enterprises (Revenko, 2024).

Also, taking into account the principles of the circular economy when forming integrated business structures is considered a promising long-term direction for creating competitive advantages. The implementation of such directions will contribute to increasing production efficiency, diversifying activities, and strengthening the resilience of agricultural enterprises in the process of post-war recovery.

## 5. Conclusion

Therefore, the implementation of the directions for increasing the competitiveness of agribusiness enterprises should be based on the principle of an adaptive mechanism capable of promptly responding to changes in the external environment and quickly using new opportunities for development. For the effective functioning of such a mechanism, it is especially important to ensure adequate state support for small and medium-sized agricultural enterprises. The urgent directions of support include: preferential lending and subsidies for the introduction of modern

technologies and equipment, promoting digitalization and automation of production processes, supporting innovative projects and research, creating favorable conditions for access to domestic and foreign markets, as well as improving the skills of personnel through educational programs and training. Such comprehensive state support will contribute to increasing the efficiency, sustainability and competitiveness of agricultural enterprises in the post-conflict period.

Thus, the integration of the proposed directions on the basis of an adaptive mechanism in combination with adequate state support is a key factor in achieving and further increasing the competitiveness of agricultural enterprises. This is of particular importance, since agribusiness entities ensure not only Ukraine's food security, but also play an important role in stabilizing food markets at the international level.

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