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# COMPONENT STRUCTURE OF ECONOMIC SECURITY OF AN AGRICULTURAL ENTERPRISE

*The article examines the component structure of economic security of an agricultural enterprise. The main components of economic security and their interrelation are analyzed. The peculiarities of ensuring economic security in the agricultural sector are revealed. A comprehensive approach to the formation of the economic security system of an agricultural enterprise is proposed, taking into account the specifics of the industry. The necessity of integrating various security components to achieve sustainable development of agricultural enterprises is substantiated. The research hypothesis is that an effective economic security system of an agricultural enterprise should be based on the integration of various security components, considering their interconnection and mutual influence. The methodological basis of the research is a systematic approach, methods of analysis and synthesis, comparison, and generalization. Based on the analysis of scientific sources and considering industry specifics, a component structure of economic security for agricultural enterprises is proposed, which includes financial, production and technological, market, personnel, innovatve investment, environmental, and information security. The necessity of a comprehensive approach to forming the economic security system of an agricultural enterprise is substantiated, taking into account the interconnection and mutual influence of its components. The proposed approach allows for a systematic assessment of the economic security level and the development of strategies for its provision in agricultural enterprises. It can be used in forming a monitoring system for economic security and making*

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# КОМПОНЕНТНА СТРУКТУРА ЕКОНОМІЧНОЇ БЕЗПЕКИ АГРАРНОГО ПІДПРИЄМСТВА

*Економічна безпека аграрних підприємств відіграє ключову роль у забезпеченні продовольчої безпеки країни та сталого розвитку сільських територій. В умовах зростання глобальних викликів, кліматичних змін і загострення конкуренції на агропродовольчих ринках актуалізується необхідність комплексного дослідження компонентної структури економічної безпеки аграрних підприємств. Специфіка аграрного виробництва, зокрема залежність від природно-кліматичних умов, сезонність, тривалий виробничий цикл, використання землі як основного засобу виробництва, зумовлює особливості формування системи економічної безпеки в цьому секторі. Гіпотеза дослідження полягає в тому, що ефективна система економічної безпеки аграрного підприємства має базуватися на інтеграції різних компонентів безпеки з урахуванням їх взаємозв'язку та взаємовпливу. Методологічною основою дослідження є системний підхід, методи аналізу та синтезу, порівняння, узагальнення. На основі аналізу наукових джерел і з огляду на галузеву специфіку запропоновано компонентну структуру економічної безпеки аграрного підприємства, яка містить фінансову, виробничо-технологічну, ринкову, кадрову, інноваційно-інвестиційну, екологічну й інформаційну безпеку. Обґрунтовано необхідність комплексного підходу до формування системи економічної безпеки аграрного підприємства з урахуванням взаємозв'язку і взаємовпливу її складових. Запропонований підхід дає змогу системно оцінювати рівень економічної безпеки та розробляти стратегії її забезпечення в аграрних підприємствах. Він може бути використаний при формуванні системи моніторингу економічної*

*management decisions to improve it. The research results create a theoretical foundation for developing a methodology for integrated assessment of the economic security level of an agricultural enterprise and forming an organizational and economic mechanism for its provision in modern economic conditions, which defines prospects for further research in this direction.*

*Keywords:* economic security, agricultural enterprise, component structure, financial security, personnel security, production security.

*безпеки та прийнятті управлінських рішень щодо її підвищення. Результати дослідження створюють теоретичне підґрунтя для розробки методики інтегральної оцінки рівня економічної безпеки аграрного підприємства та формування організаційно-економічного механізму її забезпечення в сучасних умовах господарювання, що визначає перспективи подальших досліджень у цьому напрямі.*

*Ключові слова:* економічна безпека, аграрне підприємство, компонентна структура, фінансова безпека, кадрова безпека, виробнича безпека.

**JEL Classification:** Q10, Q14, O13.

## Introduction

Economic security of agricultural enterprises plays a key role in ensuring food security of the country and sustainable development of rural areas. In the conditions of globalization and growing competition in agro-food markets, the issue of providing food security is becoming especially urgent. The complex nature of threats and challenges faced by modern agricultural enterprises necessitates the study of the component structure of their economic security and the development of effective mechanisms for ensuring it.

The component structure study of the economic security of agricultural enterprises is closely related to important scientific and practical tasks, in particular: the development of strategies to increase the competitiveness of the agricultural sector of the economy; ensuring sustainable development of rural areas; improvement of state support mechanisms for agricultural enterprises; adaptation of the agricultural sector to climate changes and environmental challenges; digital transformation of agriculture.

Solving these tasks requires a comprehensive approach to the formation of the economic security system, taking into account modern trends in the development of the industry and global challenges.

The theoretical foundations of economic security were considered in their works by such scientists as O. Aref'eva, V. Geets, M. Yermoshenko, S. Ilyashenko, G. Kozachenko, V. Muntiyan and others (Kozahchenko et al., 2003). Features of the economic security of agricultural enterprises were studied by V. Andriychuk, O. Vlasyuk, M. Malik, P. Sabluk, V. Tkachuk (Tkachuk & Yaremova, 2019) and other scientists.

Despite a significant number of publications, the question of the economic security component structure requires further research in view of the dynamism of the external environment and the specifics of agricultural production. Scientists such as Joshua and Rudnichenko (2023) made a significant contribution to the study of this problem, who analyzed approaches to the essential content of the category "economic security of the

enterprise"; Kovalska et al. (2023), who studied the essence, structure and mechanism of ensuring the economic security of the enterprise; Lezina (2024), who studied the genesis of the development of the definition "economic security of the enterprise"; Prokhorova et al. (2022), who analyzed the economic security of Ukrainian enterprises in conditions of destabilizing development; Fenii (2024), who studied influencing factors on the formation of economic security of processing enterprises of Ukraine; Namliiev and Kacicka (2022), who investigated the current problems of regulating the economic activity of enterprises and the development of the anti-crisis management system in market conditions.

The aim of the article is to substantiate the economic security component structure of an agricultural enterprise and to develop a comprehensive approach to its formation, taking into account the specifics of the industry.

To achieve the aim, the following tasks have been defined:

- to analyze the available approaches to determining the components of economic security of the enterprise;
- identify the features of ensuring economic security in the agricultural sector;
- to substantiate the component structure of the economic security of an agricultural enterprise.

In the course of the research, the hypothesis is tested that an effective system of economic security of an agricultural enterprise should be based on the integration of various security components, taking into account their interrelationship and mutual influence.

The methodological basis of the research is a systematic approach, methods of analysis and synthesis, comparison, generalization. Scientific publications of domestic and foreign scientists, statistical data, results of the author's own research served as the information base.

The structure of the article includes an introduction, three main sections, conclusions and a reference. The first chapter deals with the theoretical aspects of the economic security of the enterprise. The second is devoted to the analysis of the features of the economic security of agricultural enterprises. The third section substantiates the component structure of the economic security of the agricultural enterprise and suggests directions for its improvement.

## 1. Theoretical aspects of economic security of the enterprise

Economic security of an enterprise is a complex multifaceted category that reflects the ability of a business entity to function effectively and develop under the influence of various threats and risks. In the scientific literature, there are different approaches to defining the essence of economic security and its components.

Thus, Ilyashenko (2016, p. 12) considers economic security of an enterprise as a state of effective use of resources and available market opportunities, which makes it possible to prevent internal and external threats and ensure long-term survival and sustainable development in the market in accordance with the chosen mission.

Kozachenko et al. (2003) interpret economic security of an enterprise as a measure of harmonization in time and space of the economic interests of the enterprise with the interests of the external environment entities connected with it, operating outside the enterprise.

In their works, Prokhorov et al. (2022, p. 36) consider economic security of an enterprise as an adaptive system that differs from the traditional one in its ability to take into account destabilizing factors, prevent the negative impact of internal and external environmental factors, as well as change and self-learn. The authors believe that a complete enterprise security system should have such properties as emergency, determinism and implementation of co-evolution processes.

Joshua and Rudnichenko (2023, p. 50) understand economic security of an enterprise as a complex characteristic that reflects a state that contributes to the stable and maximally effective functioning and development of the enterprise, increases its competitiveness, is characterized by security and helps to reduce the negative impact of internal and external threats on the potential of the enterprise in conditions of global challenges and ensures the achievement of strategic business goals.

Kovalska et al. (2023, p. 129) define economic security of an enterprise as a complex concept that reflects the totality of various aspects of the enterprise's activity and its ability to resist and protect itself from destabilizing factors of the internal and external environment, while ensuring the sustainability of economic development through the effective use of existing and potential resources.

Lezina (2024, p. 105) characterizes economic security as "a state of protection from threats, a state of effective use of resources, the ability to operate stably, the presence of competitive advantages and the ability to achieve goals".

For his part, Fenii (2024, p. 233) analyzed the factors affecting the formation of economic security of processing enterprises of Ukraine. The scientist identifies the size of the enterprise, its attractiveness for investors and raiders, the institutional environment and the variability of the external environment as factors influencing on economic security of an enterprise.

Economic risks require management decisions to be made for the formation of the company's development strategy, which, according to the authors of Namliiev and Kacicka (2022, p. 6), "makes it necessary to develop adequate methods and techniques of regulation in crisis periods of the

functioning of the market economy, which are fundamental to the creation of an effective system anti-crisis management, which ensures the economic security of these subjects in the process of ensuring the reproduction and satisfaction of public needs".

The analysis of the theoretical base makes it possible to distinguish the following main approaches to the structuring of economic security of an enterprise:

*functional*, which provides for the allocation of functional components of security (financial, personnel, technical and technological, legal, informational, etc.);

*resource*, which is based on ensuring the efficient use of the company's resources;

*protective*, focusing on protection against threats;

*harmonization*, which considers economic security as a measure of coordination of the interests of the enterprise with the interests of the subjects of the external environment.

The most common is the functional approach, according to which seven main components of economic security of an enterprise are distinguished (*Figure 1*).

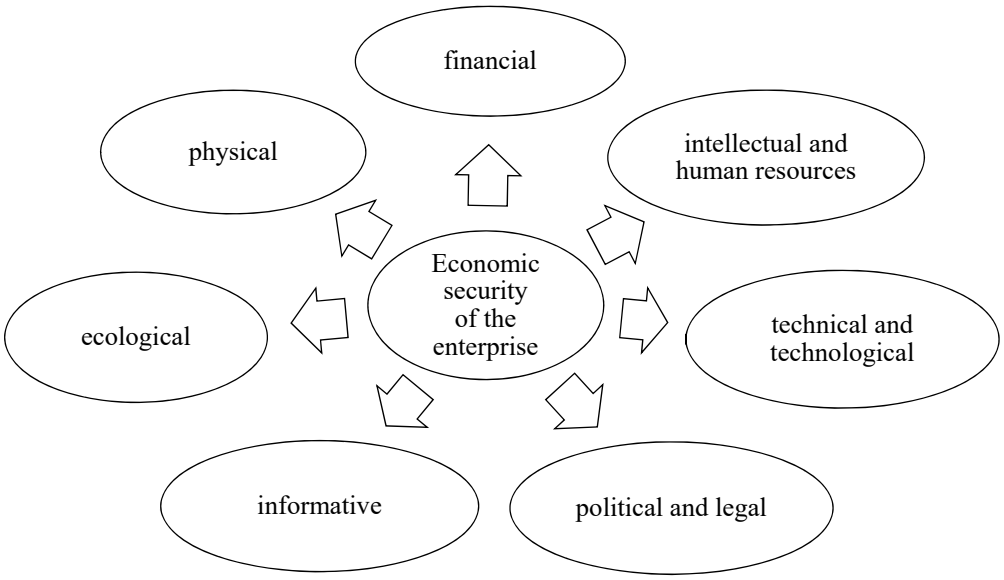


Figure 1. Components of economic security of the enterprise

*Source:* compiled by the author based on (Ilyashenko, 2016; Kozachenko & Ponomaryev, 2015).

Each of these components is characterized by its own content, a set of functional criteria and methods of provision (*Table 1*).

*Table 1*

Characteristics of the functional components of economic security of the enterprise

| Composite | Content | Functional criteria |
|---|---|---|
| Financial | Achieving the most efficient use of corporate resources | Level of financial stability, solvency, business activity |
| Intellectual and HR | Preservation and development of the intellectual potential of the enterprise | Indicators of personnel qualification, staff turnover, labor productivity |
| Technical and technological | The degree of compliance of the applied technologies with modern global analogues | The level of progressiveness of technologies, competitiveness of products |
| Political and legal | Comprehensive legal support of the enterprise | Compliance with current legislation, level of legal protection |
| Informational | Effective information and analytical support of activities | Completeness, accuracy, timeliness of information |
| Ecological | Compliance with environmental standards, minimization of losses from environmental pollution | The level of pollutant emissions, environmental friendliness of products |
| Power | Ensuring physical safety of employees, preservation of property | Reliability of the security system, protection against criminal encroachments |

*Source:* compiled by the author based on (Ilyashenko, 2016; Kozachenko & Ponomaryev, 2015).

It is important to note that all components of economic security are closely interrelated and mutually dependent. Therefore, providing economic security of an enterprise requires a comprehensive approach and taking into account the specifics of the industry.

## 2. Features of economic security of agricultural enterprises

The agricultural sector has a number of features that significantly affect the economic security of enterprises in the sector. Among the main *specific features of agricultural production*, which must be taken into account when forming a system of economic security, it is possible to highlight:

- dependence on natural and climatic conditions, which increases production risks;
- seasonality of production, which affects the unevenness of income during the year;
- a long production cycle, which slows down capital turnover;
- use of land as the main means of production;
- work with living organisms (plants, animals), which requires special approaches to the organization of production processes;
- high capital intensity of production with low capital return;
- price disparity for industrial and agricultural products;
- dependence on state support of the industry.

The specified features determine the specificity of threats to the economic security of agricultural enterprises and directions of its provision.

Thus, Tkachuk (2019) identifies the following main threats to the economic security of agricultural enterprises:

*natural and climatic* (droughts, floods, hail, etc.);

*production and technological* (low level of technical equipment, non-compliance with production technologies);

*market* (price fluctuations, imperfection of agricultural market infrastructure);

*financial* (limited access to credit resources, high interest rates);

*personnel* (outflow of qualified personnel from rural areas);

*institutional* (imperfect regulatory and legal support of the agricultural sector).

However, in the conditions of a full-scale invasion that began in 2022, the list of threats to the economic security of agricultural enterprises has significantly expanded. New threats related to military actions have been added to the traditional threats:

• physical destruction or damage to production facilities, infrastructure and crops as a result of these actions;

• loss of access to land resources due to occupation of territories or mining of fields;

• violation of logistics chains of supply of resources and sales of products, especially export routes;

• loss of personnel potential due to the mobilization of workers or their forced migration;

• restriction of access to financial resources and investments due to increased risks of doing business in war conditions;

• the increase in production costs due to the increase in the price of fuel and lubricants, fertilizers, and plant protection products;

• a decrease in demand in the domestic market due to a drop in the purchasing power of the population;

• risks of raiding of enterprises in conditions of an unstable security situation;

• cyber attacks on information systems of enterprises and objects of critical infrastructure of the agricultural sector.

Taking into account the specified features, the economic security system of an enterprise should be aimed at:

• minimization of the influence of natural and climatic risks;

• provision of technological modernization of production;

• diversification of production and sales markets;

• increasing financial stability and solvency;

• formation of an effective personnel policy;

• development of innovative activity;

• greening of production;

• strengthening of physical and informational security of the enterprise;

• adaptation of business processes to the conditions of martial law and development of post-war recovery strategies.

In view of the above, the economic security system should be oriented towards minimizing the impact of natural and climatic risks, ensuring technological modernization of production, diversification of production and sales markets, increasing financial stability and solvency, forming an effective personnel policy, developing innovative activities, greening production, strengthening physical and information security of the enterprise, as well as adaptation of business processes to the conditions of martial law and development of post-war recovery strategies.

## 3. Component structure of the economic security of an agricultural enterprise

Based on the analysis of scientific sources and taking into account the specifics of the industry, we propose to highlight the following main components of economic security of an agricultural enterprise (*Figure 2*).

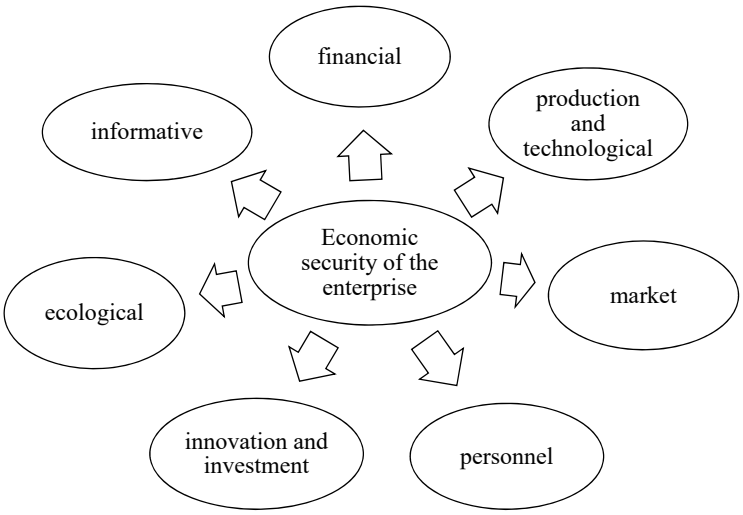


Figure 2. Components of economic security of an agricultural enterprise

*Source:* compiled by the author based on (Ilyashenko, 2016; Kozachenko & Ponomaryev, 2015).

Let's consider in more detail the content and features of each component.

### *3.1. Financial security*

Financial security is a key component of economic security of an agricultural enterprise, as it ensures its financial stability, solvency and development potential. Features of ensuring the financial security of agricultural enterprises are related to the seasonality of production, a long production cycle, high capital intensity and dependence on external financing. The need to take financial security indicators into account is due to their key role in ensuring the stable functioning and development of an agricultural enterprise. A comprehensive analysis of these indicators enables:

- to assess the ability of the enterprise to fulfill its financial obligations and to resist financial risks (liquidity and solvency indicators);

• determine the level of financial independence and stability of the enterprise (financial stability indicators);

• analyze the efficiency of resource use and management of assets and liabilities (indicators of business activity);

• evaluate the profitability of the activity and the efficiency of the enterprise's management (activity performance indicators).

Monitoring of these indicators, the characteristics of which are given in the *Table 2*, makes it possible to identify financial threats in a timely manner and to develop measures to neutralize them, which is critically important for ensuring the economic security of an agricultural enterprise.

*Table 2*

Indicator characteristics of financial security of an enterprise

| Indicator | Calculation | Interpretation |
|---|---|---|
| Liquidity and solvency indicators | | |
| Current liquidity ratio | $\frac{\text{Current assets}}{\text{Current liabilities}}$ | 1.5–2.5 is optimal. Shows the ability to repay short-term obligations |
| Quick liquidity ratio | $\frac{\text{Current assets} - \text{Stocks}}{\text{Current liabilities}}$ | 0.7–1.0 is optimal. Reflects the ability to repay short-term obligations at the expense of the most liquid assets |
| Absolute liquidity ratio | $\frac{\text{Funds}}{\text{Current liabilities}}$ | 0.2–0.35 is optimal. Shows the share of short-term liabilities that can be repaid immediately |
| Indicators of financial stability | | |
| Coefficient of autonomy | $\frac{\text{Equity capital}}{\text{Total assets}}$ | > 0.5 is considered good. Shows the share of own funds in the total amount of assets |
| Financial leverage ratio | $\frac{\text{Long} - \text{term liabilities}}{\text{Equity capital}}$ | < 1.0 is considered optimal. Reflects the ratio of borrowed and own funds |
| Coefficient of provision of own working capital | $\frac{\text{Equity capital} - \text{Non} - \text{current assets}}{\text{Current assets}}$ | > 0.1 is considered normal. Shows the share of own working capital in the structure of current assets |
| Indicators of business activity | | |
| Asset turnover ratio | $\frac{\text{Sales revenue}}{\text{Average annual asset value}}$ | A higher value indicates more efficient use of assets |
| Accounts receivable turnover ratio | $\frac{\text{Sales revenue}}{\text{Average annual accounts receivable}}$ | A higher value indicates more efficient work with debtors |
| Accounts Payable Turnover Ratio | $\frac{\text{Cost of goods sold}}{\text{Average annual accounts receivableь}}$ | A higher value indicates faster repayment of debts to creditors |
| Performance indicators of activity | | |
| Return on assets (ROA) | $\frac{\text{Net income}}{\text{Average cost of assets}} \cdot 100\%$ | A higher value indicates a more efficient use of assets |
| Return on equity (ROE) | $\frac{\text{Net income}}{\text{Average cost of equity capital}} \cdot 100\%$ | A higher value indicates a more efficient use of equity capital |
| Return on sales (ROS) | $\frac{\text{Net income}}{\text{Sales revenue}} \cdot 100\%$ | A higher value indicates a more effective pricing policy and cost control |

*Source:* compiled by the author based on (Ilyashenko, 2016; Tkachuk, 2019).

A high level of financial security ensures the stability of the enterprise's functioning, its ability to withstand financial risks and attract investments.

*3.2. Production and technological safety*

Production and technological safety reflects the ability of an agricultural enterprise to ensure the efficiency of production processes, high quality of products and competitiveness on the market. The key aspects of ensuring production and technological safety are:

- optimization of the structure of sown areas and crop rotation;
- introduction of advanced technologies for growing agricultural crops and keeping animals;
- technical re-equipment of production;
- provision of high quality seed and breeding material;
- compliance with agrotechnological requirements and veterinary and sanitary standards.

The main indicators of production and technological safety of the enterprise are presented in the *Table 3*.

*Table 3*

Indicator characteristics of production and technological safety of an enterprise

| Indicator | Calculation | Interpretation |
|---|---|---|
| Fund return | $\frac{\text{Revenue}}{\text{Average annual cost of fixed assets}}$ | A higher value indicates more efficient use of fixed assets |
| The rate of renewal of fixed assets | $\frac{\text{The cost of commissioning new fixed ass}}{\text{The cost of fixed assets at the end of the pe}}$ | A higher value indicates more active updating of the technological base |
| Depreciation rate of fixed assets | $\frac{\text{The amount of depreciation of fixed assets}}{\text{Initial cost of fixed assets}}$ | A lower value indicates a better technical condition of fixed assets |
| Crop yield | $\frac{\text{The volume of the harvested crop}}{\text{Sowing area}}$ | Compared with industry averages |
| Productivity of animals | $\frac{\text{The volume of livestock production}}{\text{Livestock}}$ | It is compared with normative and industry average indicators |
| Gross income per 1 ha of agricultural land | $\frac{\text{Gross income}}{\text{The area of agricultural land}}$ | A higher value indicates a more efficient use of land resources |
| Net income per 1 ha of arable land | $\frac{\text{Net profit}}{\text{Arable land}}$ | A higher value indicates a higher efficiency of crop production |
| Profit per 1 ha of crops of a separate culture | $\frac{\text{Profit from growing cropsи}}{\text{Crop area}}$ | It makes it possible to evaluate the efficiency of growing certain crops |
| Energy intensity of production | $\frac{\text{The volume of consumed energy resources}}{\text{Volume of produced products}}$ | A lower value indicates higher energy efficiency of production |
| Material capacity of products | $\frac{\text{Material costs}}{\text{Cost of manufactured products}}$ | A lower value indicates a more efficient use of material resources |

*Source:* compiled by the author based on (Tkachuk, 2019; Ilyashenko, 2016).

High production and technological safety enables the enterprise to effectively use resources, maintain product competitiveness and adapt to changes in technologies and production conditions.

*3.3. Market security*

Market security of an agricultural enterprise characterizes its ability to function effectively in a competitive environment, to adapt to changes in the market situation and to ensure a stable position on the market. Features of the market security of agricultural enterprises are related to the high volatility of prices for agricultural products, seasonality of demand, imperfection of the infrastructure of the agricultural market. The main indicators of the market security of the enterprise are described in the *Table 4.*

*Table 4*

Indicator characteristics of market security of an enterprise

| Indicator | Calculation | Interpretation |
|---|---|---|
| Market share | $\frac{\text{Enterprise sales volume}}{\text{Total market volume}} \cdot 100\%$ | A larger share usually means a higher market security |
| Herfindahl-Hirschman Index (HHI) for sales diversification | $\Sigma(\text{sales share of each type of product})^2$ | < 1500 indicates high diversification, > 2500 – low |
| Profitability of sales | $\frac{\text{Net profit}}{\text{Revenue from sale}} \cdot 100\%$ | A higher value indicates a better pricing policy and sales efficiency |

*Source:* compiled by the author.

The main areas of ensuring market security:

- diversification of production and sales markets;
- formation of an effective marketing strategy;
- creation of own brand.

A high level of market security ensures income stability, the possibility of expanding activities and strengthening market positions.

*3.4. Personnel security*

Personnel security of an agricultural enterprise is aimed at the formation, preservation and development of personnel potential, ensuring social protection of employees. The peculiarities of personnel security in the agricultural sector are related to the seasonality of employment, the outflow of qualified personnel from rural areas, and the low level of wages.

The main directions of ensuring personnel security:

- formation of an effective personnel motivation system;
- creation of favorable working conditions;
- provision of opportunities for professional development and career growth;

- development of corporate culture;
- social protection of employees.

The main indicators of personnel security of the enterprise are presented in the *Table 5.*

*Table 5*

Indicator characteristics of personnel security of an enterprise

| Indicators | Calculation | Interpretation |
|---|---|---|
| Labor productivity | $\frac{\text{Revenue}}{\text{The average number of employees}}$ | A higher value indicates a more efficient use of labor resources |
| Staff turnover rate | $\frac{\text{The number of dismissed employees}}{\text{Average roster number}} \cdot 100\%$ | < 5% – low, 5–10% – normal, > 10% – high turnover |
| Coefficient of professional development | $\frac{\text{The number of trained employees}}{\text{Total number of employees}} \cdot 100\%$ | A higher value indicates greater attention to staff development |

*Source:* compiled by the author.

High personnel security contributes to increasing labor efficiency, reducing risks associated with the human factor, and creating a stable team.

### *3.5. Innovation and investment security*

Innovation and investment security reflects the ability of an agricultural enterprise to provide innovative development and effective investment. In the conditions of intensifying competition and the need for technological modernization of agricultural production, the importance of this component of economic security is increasing.

The main directions of ensuring innovation and investment security:

- implementation of innovative production technologies;
- use of precision farming methods;
- investment in infrastructure development;
- cooperation with research institutions.

The calculation of indicators of innovation and investment security of the enterprise is given in the *Table 6.*

*Table 6*

Indicator characteristics of innovation and investment security of an enterprise

| Indicators | Calculation | Interpretation |
|---|---|---|
| Coefficient of innovative activity | $\frac{\text{Innovation costs}}{\text{General costs}} \cdot 100\%$ | A higher value indicates greater innovative activity |
| ROI (Return on Investment) | $\frac{(\text{Profit from investments} - \text{Cost of investments})}{\text{Cost of investments}} \cdot 100\%$ | A positive value indicates a return on investment |
| Product renewal rate | $\frac{\text{Volume of new products}}{\text{Total volume of production}} \cdot 100\%$ | A higher value indicates a more active implementation of innovations |

*Source:* compiled by the author.

A high level of innovation and investment security ensures the long-term competitiveness of the enterprise, its ability to adapt to changes in technologies and market conditions.

*3.6. Environmental safety*

Environmental safety of an agricultural enterprise is aimed at minimizing the negative impact of production activities on the environment and ensuring the production of environmentally friendly products. It is especially relevant in the context of global climate changes and increased environmental requirements for agricultural production.

The main areas of ensuring environmental safety:

- introduction of environmentally safe production technologies;
- rational use of land and water resources;
- reduction of greenhouse gas emissions;
- disposal of production waste;
- production of organic products.

The main indicators of environmental safety of an enterprise are presented in the *Table 7*.

*Table 7*

Characteristics of environmental safety indicators of an enterprise

| Indicators | Calculation | Interpretation |
|---|---|---|
| The coefficient of waste utilization | $\frac{\text{Volume of disposed waste}}{\text{The total amount of waste}} \cdot 100\%$ | A higher value indicates a better environmental policy |
| Energy intensity of production | $\frac{\text{Energy expenditure}}{\text{Volume of produced products}}$ | A lower value indicates more energy-efficient production |
| Soil fertility restoration coefficient | $\frac{\text{The area of reclaimed land}}{\text{Total land area}} \cdot 100\%$ | A higher value indicates more active measures to support fertility |

*Source:* compiled by the author.

The analysis of the above indicators makes it possible to assess the effectiveness of the environmental policy of the agricultural enterprise and to identify potential directions for its improvement. It is important to note that ensuring environmental safety not only contributes to the preservation of the environment, but can also become a source of competitive advantages for the enterprise. In particular, the introduction of energy-efficient technologies makes it possible to reduce production costs, and the production of organic products – to enter new, premium market segments.

At the same time, ensuring environmental safety often requires significant investments, which can be burdensome for small and medium-sized agricultural enterprises. Therefore, it is important to find a balance between ecological requirements and economic efficiency, as well as to develop state programs to support the greening of agricultural production.

*3.7. Information security*

Information security of an agricultural enterprise involves the protection of information resources, commercial secrets and the provision of effective information and analytical support for management decision-making. In the conditions of digitization of the agricultural sector, the role of information security is growing.

The main areas of ensuring information security:

- implementation of modern management information systems;
- protection of commercial secrets and intellectual property;
- ensuring cyber security;
- development of the external environment monitoring system;
- increasing the information literacy of the staff.

The main indicators of information security of the enterprise are listed in *Table 8*.

*Table 8*

Characteristics of information security indicators of an enterprise

| Indicators | Calculation | Interpretation |
|---|---|---|
| Information security factor | $\frac{\text{Number of protected information assets}}{\text{Total number of information assets}} \cdot 100\%$ | A higher value indicates better information protection. |
| Frequency of cyber attacks | $\frac{\text{Number of successful cyber attacks}}{\text{Total number of attempted attacks}} \cdot 100\%$ | A lower value indicates better cyber security |
| Investment ratio in IT security | $\frac{\text{IT security costs}}{\text{General IT costs}} \cdot 100\%$ | A higher value indicates greater attention to information security |

*Source:* compiled by the author.

A high level of information security protects the enterprise from the leakage of confidential information, ensures the stability of business processes and reduces the risks of financial losses from cyber attacks.

The proposed component structure of the economic security of the agricultural enterprise enables a comprehensive approach to the formation of the system of its support, taking into account the specifics of the industry. It is important to note that all components are closely interconnected and inter-dependent. Therefore, in order to achieve a high level of economic security, it is necessary to ensure the balanced development of all its components.

## Conclusions

The economic security of an agricultural enterprise is a complex multicomponent system that reflects the ability of a business entity to function effectively and develop under the influence of various threats and risks.

The specificity of agricultural production (dependence on natural and climatic conditions, seasonality, long production cycle, use of land as the main means of production, etc.) determines the peculiarities of the formation

of the system of economic security of agricultural enterprises, which confirms the need to take into account the specifics of the industry when developing mechanisms for ensuring economic security.

The conducted analysis of the theoretical base enabled the author to identify the main approaches to the structuring of the economic security of the enterprise, among which the functional approach is the most common. According to this approach, the following main components of economic security are distinguished, such as financial, intellectual and personnel, technical and technological, political and legal, informational, ecological and force.

Based on the analysis, the author proposed a component structure of the economic security of an agricultural enterprise, which includes financial, production-technological, market, personnel, innovation-investment, environmental and informational components. Such structure confirms the proposed hypothesis about the need to integrate various security components to achieve sustainable development of agricultural enterprises.

The analysis of the relationships between the components of economic security demonstrates their close interdependence, which emphasizes the importance of a comprehensive approach to the formation of the economic security system. The results of the research indicate that in order to achieve a high level of economic security of an agricultural enterprise, it is necessary to ensure the balanced development of all its components, taking into account their mutual influence, which also confirms the proposed hypothesis.

The proposed approach to the structuring of the economic security of an agricultural enterprise creates a basis for the development of effective strategies for ensuring economic security and the formation of an appropriate monitoring system.

Prospects for further research are related to the development of a method of integral assessment of the level of economic security of an agricultural enterprise and the formation of an organizational and economic mechanism for its provision.

The proposed approach to the structuring of the economic security of an agricultural enterprise can be used in the development of a strategy for ensuring economic security and the formation of an appropriate monitoring system.

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