

DOI: <https://doi.org/10.32782/2524-0072/2024-61-78>

УДК 631

INNOVATIVE ACTIVITY AS A SYSTEM-FORMING FACTOR IN INCREASE OF THE COMPETITIVENESS OF AGRICULTURE ENTERPRISES

ІННОВАЦІЙНА ДІЯЛЬНІСТЬ ЯК СИСТЕМОФОРМУЮЧИЙ ЧИННИК ПІДВИЩЕННЯ КОНКУРЕНТОСПРОМОЖНОСТІ ПІДПРИЄМСТВ АПК

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The article examines the impact of innovative activity of a business entity on the state of its competitiveness in the agro-industrial complex. The essence of the innovative activity of agricultural enterprises in the agro-industrial complex is highlighted, its features and key differences are revealed. The problems of the external environment affecting the implementation of innovative technologies at agricultural enterprises, in particular at the state level in terms of the implementation and development of an effective mechanism for stimulating the development of innovative activities, are highlighted. Particular attention was paid to the identification of «green» innovative approaches that contribute to increased productivity without harming the environment.

Key words: innovations, innovative activity, agro-industrial complex, agro-industrial complex enterprises, agriculture, competitiveness, «greening», biotechnology.

У статті розглянуто питання впливу інноваційної діяльності суб'єкта господарювання на стан його конкурентоспроможності в агропромисловому комплексі. Висвітлено суть інноваційної діяльності аграрних підприємств в агропромисловому комплексі, розкрито її особливості та ключові відмінності. Охарактеризовано шляхи підвищення конкурентоспроможності підприємств агропромислового комплексу через призму системного впровадження інновацій в умовах глобалізації. Проаналізовано чинники, які сприяють розвитку впровадження інновацій на підприємстві та ті, що стримують або унеможливають впровадження інноваційних технологій у виробництві і переробці сільськогосподарської продукції та розвитку системи управління, та окремих її складових, на підприємстві, що, в свою чергу, прямо або опосередковано впливає на ефективність діяльності суб'єкта господарювання на ринку в умовах високої конкуренції. Висвітлено проблеми зовнішнього середовища, що впливають на впровадження інноваційних технологій на підприємствах АПК зокрема на рівні держави в частині впровадження та розробки ефективного механізму стимулювання розвитку інноваційної діяльності. Приділено значну увагу перспективним напрямкам розвитку інновацій в частині підвищення конкурентоспроможності підприємства, а саме – акцентовано увагу на розвитку екологічно безпечних інновацій в контексті концепції сталого розвитку і з урахуванням негативного впливу ведення високо інтенсивного методу вирощування культур та, відповідно, у зв'язку з цим, покращення інвестиційного клімату як в агропромисловому комплексі в цілому, так і в сфері еколого безпечних технологій. Особлива увага була приділена ідентифікації «зелених» інноваційних підходів, які сприяють підвищенню продуктивності без шкоди для навколишнього середовища. Вивчення цих аспектів має велике значення для розвитку сталої аграрної економіки та забезпечення її конкурентоспроможності в умовах глобалізації.

Ключові слова: інновації, інноваційна діяльність, агропромисловий комплекс, підприємства АПК, сільське господарство, конкурентоспроможність, «озеленення», біотехнології.



Formulation of the problem. At the current stage of the development of the agro-industrial complex of Ukraine, which is of key importance in the context of ensuring the effective functioning of enterprises on the market, the introduction of the latest technologies is gaining, which ensures a decrease in the cost of production on the one hand and increases production efficiency and an increase in market share on the other. In the modern realities of the Ukrainian agro-industrial sector, the intensive method of farming prevails, which has a negative impact on the state of agricultural ecosystems, in particular on the main resource – land, which, accordingly, affects the quality of the obtained products. Taking into account these aspects forces enterprises to change their own business model to a more ecologically oriented one through the introduction of "«green» innovations both in production and in approaches to managing business units. Achieving leading positions in the market is possible only under the conditions of such technologies, which create not only production advantages, but also change the attitude of consumers towards the brand and the company in general. In particular, through the implementation of a system of efficient use of resources, reduction of emissions and energy consumption, as well as the development of products and services with a low impact on the environment. That is why the problem highlighted in this study is relevant.

Analysis of the latest studies, in which the solution to the problem was initiated. The issue of innovative activity and its impact on the efficiency and competitiveness of enterprises in agriculture is still being studied. In turn, such scientists as Honcharuk I. [2], Tomashuk I. [3], Khaietska O. [8], Lohosha R. [9], Vinichenko I. [20], Kaletnik G. [24] and others made a significant contribution to the study of the problem of innovations in the agro-industrial sector of the economy.

The purpose and objectives of the research. The purpose of the article is to study the impact of the innovative activity of agribusiness enterprises on the state of their competitiveness and to determine on this basis the ways to ensure their effective functioning and increase competitiveness through the systematic introduction of innovations in the conditions of globalization.

Highlighting previously unresolved parts of the overall problem. At the current stage of the development of the agricultural industry of Ukraine, an important role is played by the

introduction of the latest technologies and achievements of scientific and technical progress [1]. Innovations are a means of increasing production efficiency, as well as adaptation of enterprises to changes in the social, economic and political environment [2].

Today, the formation of an innovative system in the agricultural industry of Ukraine takes place under very unfavorable conditions [3; 4; 5]: Russia's armed aggression led to the destruction of infrastructure, the reduction of cultivated areas, the death of people and the forced displacement of the population; the high level of inflation, currency fluctuations and scarcity of resources make it difficult to invest in innovations and make them less attractive for business; the level of government spending on science and innovation in Ukraine remains one of the lowest in Europe; low level of acceptance of innovations and readiness for risks associated with their implementation; a significant gap between scientific developments and their practical application in production. In such conditions, it is necessary to develop comprehensive measures aimed at stimulating innovative activities, attracting investments and scientific resources, increasing the level of education and innovative culture of society, as well as promoting partnerships between the public sector, private business and research institutions.

Currently, most domestic agricultural enterprises have difficulties in the context of supplying high-quality, and most importantly, competitive products to the domestic market, and this problem is especially acute when it comes to entering foreign markets. This is a consequence of such negative phenomena as: outdated machinery (in certain branches of the agricultural sector, the amortization of equipment is more than 80%), the disparity in prices for industrial and agricultural products, the constant increase in prices for fuel and lubricants, an imperfect credit and financial system and legislative framework, etc.

In the conditions of globalization, an innovative model of development cannot be effective if it consists only of technological renewal of the resource and material and technical base and structural restructuring of the economy. It provides for the transfer of the vector of development from traditional scientific and technical solutions to the use of fundamentally new progressive technologies that affect the processes of socio-economic development of progressive countries of the world [6]. That is why the wide application of innovations is the most effective and efficient

way to solve the acute socio-economic problems of the agricultural sector, related to the search for mechanisms to increase the economic performance of agricultural enterprises and provide the population with high-quality agricultural products [7].

Innovative development of the agricultural sector means its qualitative reform, based on the growth of production indicators with the simultaneous improvement of the socio-economic mechanism of agriculture. This includes the introduction of advanced technologies in agriculture, improvement of methods of management and organization of agribusiness, improvement of product quality due to innovative approaches to the production and processing of agricultural products, as well as promotion of sustainable development and preservation of natural resources. Such an integrated approach will allow not only to increase the competitiveness of agriculture, but also to ensure the stable development of rural areas and increase the standard of living of the peasantry [8].

Innovative activity is an important component of increasing the efficiency of the development of agribusiness enterprises. Its effectiveness depends on the professional level of scientific personnel and agricultural production specialists [9]. Despite the great innovative potential of agricultural science, it is used to an insufficient extent and is lost every year. Modern problems of the functioning of agricultural enterprises are caused by economic discrimination, the absence of necessary prevention and state measures to overcome the consequences of the economic crisis. Innovation policy should ensure the sustainable development of economic entities based on the organization and management of innovative activities of agricultural enterprises [10].

The role of the innovative factor, which is constantly growing, and the related intentions to obtain the expected economic effect in an acceptable time frame do not allow us to count on the situation that has arisen in the agricultural sector with the introduction of the latest scientific developments and their mass use. However, it is necessary to understand that the successful implementation of innovations can be complicated by various factors, such as technological, economic, social and political circumstances [11].

Actually, the agrarian sector of the economy may have difficulties with the introduction of the latest technologies due to insufficient infrastructure, lack of access to loans to finance

innovations, deficiencies in legal regulation or low qualification of the workforce. In addition, innovations may face resistance from traditional players in the market or from society due to social or environmental justifications. In order for the innovative development of the agricultural sector to bring the expected results, it is necessary to fully support it, which will allow to change the inert and even regressive nature of this process. And this should apply to all areas of ensuring active and effective innovative development of the agricultural industry [12]. In particular, this consists in: first, creating a favorable institutional environment that would support innovation in the agrarian sector of the economy through effective policy, legal regulation and financial support; secondly, ensuring access to modern technologies, scientific developments and innovative practices for agribusiness enterprises in all spheres of their activity, including production, processing, transportation and sale of agricultural products; thirdly, the development of a qualified labor force and stimulation of the improvement of its qualifications in the field of innovation, as well as the creation of mechanisms for the exchange of knowledge and experience between business entities; fourthly, the development of a system of monitoring and evaluation of innovative projects in agriculture, which will allow timely detection of problems and risks, as well as determining effective ways of further development.

The influence of innovations on the level of competitiveness of agro-industrial complex enterprises in modern conditions of globalization is constantly gaining importance. First of all, because the main goal of the enterprise is not only to be competitive compared to other enterprises, but also to constantly modernize each stage of its own production. The above can be achieved only under the condition of high intensity of innovative activity, because due to the constant renewal of production capacities, it is possible to respond in time and with minimal costs to changes in consumer needs, the scientific and technical aspect and the market as a whole. Therefore, the innovative activity of the enterprise and its competitiveness directly and proportionally affect each other [13\$ 14].

According to the classic definition, innovative activity is an activity aimed at the use and commercialization of the results of scientific research and development and leads to the release of new competitive goods and services on the market [15]. However, innovative processes in the agro-industrial complex have certain features. They are distinguished by a variety

of territorial, natural, industry, technological and organizational features [16]. In particular, innovation in the agro-industrial complex is a type of innovation that is implemented with the aim of increasing the efficiency of enterprises and ensuring the stable and expanded reproduction of agro-industrial production, the implementation in economic practice of the results of research and development in the form of new varieties of plants, breeds and species of animals and poultry, new technologies in plant breeding, animal breeding and the processing industry, new fertilizers and means of protection of plants and animals, new methods of prevention and treatment of animals and poultry, new or improved food products, materials, new forms of organization and management of various spheres of the economy, new approaches to social services that allow to increase production efficiency [8].

Innovative processes in agriculture have a direct impact on the peculiarities of agricultural production. Since land is the main production factor in the agricultural sector, production has a number of specific features compared to other industries, in particular [17]:

- a close connection with the reproduction of living organisms;
- seasonal nature of production;
- high level of occurrence of natural risks;
- dependence of the used technologies on natural conditions;
- the difference between the periods of production of certain types of agricultural products;
- the duration of the preparatory stage, etc.

Taking these features into account is important for the stable and successful functioning of the agricultural sector and ensuring the country's food security [18]. An integral part of this process is the integration of modern methods of resource management, the use of digital technologies in agriculture and the constant search for innovative solutions to solve the challenges facing the industry. Only by combining the efforts of the government, scientific institutions, agricultural enterprises and farms can maximum productivity and sustainable development of the agricultural sector be achieved [9].

It is generally accepted that innovative activity requires the involvement of only financial resources, that is, the financing of innovative activity is only monetary relations with other business entities and banks for payment of scientific and technical products, contractor work, supplies of equipment, materials and

components, settlements with customers, labor collectives and state management bodies. etc [19]. However, agreeing with the opinion of some scientists, we believe that the implementation of innovative activities requires the involvement of not only financial resources, but also fixed and circulating assets, property rights and intangible assets, credits, loans and pledges (debt obligations), rights to land ownership and land use, etc [20].

In this regard, as Kalachova I.V. rightly points out, the agricultural sector of the Ukrainian economy has significant land and labor potential, but its effective implementation requires strengthening the material and technical base, replacing existing resource- and labor-intensive technologies with material-, energy- and labor-saving ones [12]. Only the activation of innovative processes and economic development will be able to ensure the formation of effective, resource-saving, and in the current state of agricultural resources, ecologically safe agriculture, capable of meeting the needs of the domestic market and ensuring the competitiveness of enterprises of the domestic agro-industrial complex on foreign markets [21].

Unfortunately, at the current stage, Ukraine is in crisis conditions and in conditions of low investment attractiveness. Such a situation requires a clear definition of the prospects and directions of innovative development of the agrarian sector. Ukrainian agriculture has low indicators of productivity and resource yield compared to the agricultural production of developed countries from the point of view of balance in obtaining profits and reducing or neutralizing the destructive impact on the surrounding natural environment. This indicates a limited and inefficient use of the existing potential, or, in some cases, the actual complete destruction of agricultural land, and hence the loss of it as the main production resource [22]. In addition, important problems are: the lack of transparent legislation that would create conditions for regulating relations between subjects that carry out activities in the agricultural sector; impossibility for farmers or other small business entities to obtain cheap loans; the use of outdated capital means of production; low level of information provision of business entities in modern scientific world assets in the field of agricultural production; actual lack of state support and mechanisms for stimulating the introduction of innovations in agriculture; lack of village infrastructure development [23].

The mentioned factors have a negative impact on the activity of modern agro-industrial enterprises of Ukraine, manifested in the increase in the cost of agro-industrial products, a decrease in their quality. Under such conditions, without improving the investment climate both in agriculture itself and in the part of innovative activity in particular, the development of enterprises of the agro-industrial complex is impossible.

For the effective development of the agricultural industry of Ukraine, it is necessary to form effective mechanisms for the activation of innovative processes at enterprises oriented to the long-term perspective, in particular:

1) promote the formation of an appropriate legal environment for the development of innovative activities, increase motivation for highly productive and high-quality activities by introducing changes to tax and customs legislation;

2) determination of the scope and provision of sufficient financing of innovative processes;

3) provide access to preferential loans for technological innovations and subsidies for scientific research or development of new technology in the production of products.

It is necessary to develop a system of measures to intensify the investment activity of commercial banks, their interest in long-term lending [24]. An important factor for the activation of innovative activity in the agrarian sector of the economy is also ensuring a high level of professional training of specialists and employees of the agricultural sector, combining science with production [25].

In our opinion, the existence of an innovative policy, which consists of the main strategic and tactical aspects of the enterprise's activity, taking into account the goals of modern development, in particular sustainable development and an environmentally safe vector of operation, is of no less importance in the activity of agricultural enterprises. The goal of the innovation policy should be to introduce innovations into the activities of enterprises to ensure optimal production loading. It should be implemented in two directions:

1) the development of innovative methods of using available material, technical and human resources, in particular the improvement of production processes with the aim of optimizing the use of energy and resources, as well as the search for alternative sources of raw materials and energy;

2) responding to current trends and market demand through the development of new products or services that meet consumer needs, in particular, the development of new technologies that meet the requirements of sustainable development and / or the development of products that take into account changes in consumer preferences.

This is to ensure a balance between effective use of available resources and response to changes in market conditions. This approach contributes to the optimal use of opportunities that already exist, simultaneously with the development of new innovative solutions that meet the needs of the modern market and consumers.

It is generally known that the number of resources in agriculture is very limited, therefore investments in fixed capital and financing of working capital must be concentrated on such agribusiness enterprises, in which the production process will be carried out on the basis of the constant introduction of the latest technologies. Such enterprises can be any agricultural farms, the level of innovation potential of which allows implementing at least step-by-step or gradual innovations. Successful innovation does not necessarily require large capital investments or large production volumes. On the contrary, some of the most significant innovations can be carried out on small farms that have the flexibility and ability to quickly adapt to new conditions [26].

The main organizational forms of innovative institutions in the field of agriculture are [2; 27; 28]:

1) educational agro-industrial research centers – cooperation between educational institutions and agricultural enterprises, which promotes the exchange of knowledge, technologies and innovations;

2) agrotechnoparks are a territorial innovation class specializing in the development and implementation of advanced agricultural technologies. Combines research institutions, business structures, startups, educational institutions and infrastructure for testing and implementing new solutions in agriculture;

3) innovation incubators are specialized centers that support startups and innovative projects in their initial stage of development. Provide a variety of support, including access to funds, office space, business consulting and technical support, as well as opportunities to network and collaborate with other companies and experts;

4) venture capital companies – financial organizations that invest funds in startups and young companies with high growth potential, usually in exchange for an ownership stake or equivalent financial instruments.

However, there are a number of problems that prevent innovative structures from achieving the desired results (Table 1).

It should be noted that the efficiency of innovations in the agro-industrial complex depends on the system of indicators of technological, economic, social and environmental efficiency (Figure 1).

This approach will guarantee a more stable and sustainable growth of agriculture, ensuring economic prosperity, social justice and ecological balance. In addition, it will contribute to ensuring food security, reducing poverty in rural areas and preserving natural resources for future generations. Innovative development of agriculture is a key factor in achieving all aspects of sustainable development and creating a viable and sustainable agricultural sector.

As mentioned above, for the activation of innovative activity, it is also important to create innovative programs that include coordination of organizational issues, creation and introduction of innovative products. Today, an innovative strategy of long-term development based on sustainable development is spreading in the agricultural sector, which is a general concept of the need to establish a balance between meeting modern needs and protecting the interests of future generations, including their need for safe food and a harmless natural environment [33].

This concept is due to the emergence of a new type of innovation – ecologically safe or «green» innovations. These include technologies and approaches aimed at conserving natural resources, reducing emissions and impact on the environment, as well as creating sustainable and environmentally friendly products [10; 32]. Such innovations may include the use of renewable energy sources, the introduction of environmentally friendly methods of soil treatment and crop production, as well as the development of biodegradable packaging and materials. Green innovations contribute to sustainable development, nature conservation and waste reduction, and they are becoming increasingly important in today's environmentally responsible world.

Thus, an integral part of the «greening» of the economy is the transition to the use of energy from renewable sources, such as solar and wind energy. This helps to reduce the use of carbon and other harmful emissions into the atmosphere, which helps to fight climate change and air pollution. Also, the «greening» of the economy includes the efficient use of resources, the use of biodegradable materials and the processing of waste to reduce its amount and impact on the environment. Such measures contribute to increasing the ecological sustainability of the economy and reducing its negative impact on the environment.

It should be noted that, in general, this quality management process went through many stages, and the environmental component itself began to play an important role only at the beginning of the 21st century (Table 2).

Table 1

Obstacles to the innovative development of agribusiness enterprises

Obstacles	Brief description
insufficient financial support	lack of sufficient funds to invest in scientific and technical developments
insufficient number of qualified personnel	shortage of specialists with the necessary skills and knowledge to implement innovations
insufficient support from government and regulators	government policy and the regulatory environment can be unfavorable to innovative initiatives, making it difficult for them to develop and spread
internal bureaucratic constraints	complex procedures for decision-making and implementation of actions that inhibit the innovation process
conflicts and staff resistance	internal contradictions and non-acceptance of innovations by staff
imperfection of infrastructure and technologies	absence or obsolescence of the necessary technical base for the introduction of innovations
instability of the market environment	constant changes in the market, which complicate the forecasting and planning of innovative projects

Source: [29; 30; 31; 32]

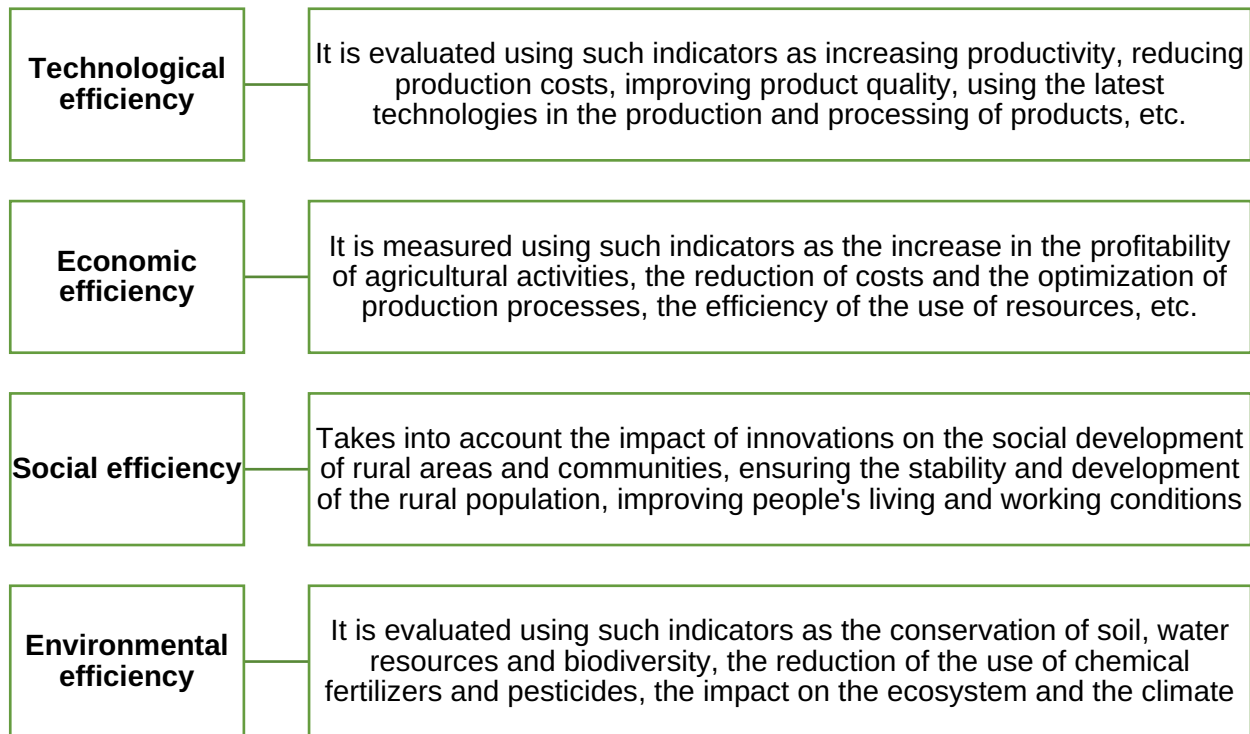


Figure 1. Performance indicators of innovations in the agricultural sector

Source: [10; 21; 32]

The implementation of «green» innovations at enterprises is influenced by various factors that both hinder and promote their development, in particular:

1) organizational and economic – lack of investment resources for financing innovative projects, backwardness of the material and scientific and technical base, lack of reserve capacities, dominance of the economic interests of the entrepreneur on ordinary production;

2) financial and credit – unavailability of financial resources, imperfection of the system of taxation of innovative activity, existing high deductions from the wage fund;

3) political and legal – the variability and instability of the legislative framework, the existence of restrictions on the part of tax and patent-licensing legislation;

4) management – imperfect management structure, predominance of vertical information flows, orientation of manufacturers to already existing markets and short-term return on investment, inconsistency of interests of participants in innovation processes;

5) socio-psychological – fear and resistance to changes that may cause negative consequences for the enterprise team, reluctance to change existing methods of production, workplaces, behavior and traditions.

The application of «green» innovations in the agricultural sector of the economy has great potential for increasing the competitiveness of enterprises in this sector. This approach is aimed at the use of environmentally friendly technologies, production and management methods that contribute to reducing the negative impact on the environment and resource conservation. Thus, under the conditions of globalization of economic processes, the application of biotechnology as an object of innovation, energy- and resource-saving technologies [16].

Innovative activity plays a key role in increasing the competitiveness of agribusiness enterprises and contributes to their sustainable development. By implementing the latest technologies, management methods and production organization, enterprises can increase productivity, product quality and resource efficiency. Innovations allow enterprises of the agrarian sector of the economy to respond to changes in the market situation, consumer requirements and legislation, which is an important factor in their competitiveness.

Conclusions. Innovative activity is an important component of the system of measures to accelerate the development of the agricultural sector, increase the competitiveness and efficiency of agricultural enterprises. Based on

Table 2

Stages of development of quality management at the enterprise

Historical period, years	The name of the stage of quality management	The purpose of the stage	Quality management tools
1900 – 1940	Quality control	prevent defective products from reaching the consumer	new profession «controller», improvement development of devices and methods of control
1940 – 1980	Quality management	prevent the production of defective products	quality management systems, statistical sampling methods of quality control
1980 – 1990	Quality management in accordance with the requirements of international standards	to ensure the production of quality products based on the only globally defined approach to quality management	creation of international quality management standards, certification of quality management systems
1990 – 2010	Total quality management	satisfaction of consumer needs for quality products	principles of total quality management, national and international quality awards
2010 – to the present time	Greening of quality management	an effective combination of satisfying consumer needs for quality products and environmental protection, meeting environmental requirements for the company's work	17 Sustainable Development Goals, 10 Principles of the UN Global Compact

Source: created by the authors based on the data [5; 22; 34; 35]

the above, it can be concluded that the problem of the development of innovative activities based on the use of the achievements of scientific and technical progress in all areas of the agro-industrial complex is complex and multifaceted. The implementation of innovative technologies is an important task for any enterprise and is defined as a promising direction of development that creates a favorable environment for the effective use of resource potential and the formation of competitiveness.

One of the main ways to improve innovative activity at the enterprise and, accordingly, increase its competitiveness is the implementation of the enterprise's innovation policy, taking into account all the features of the business entity. This means that the enterprise must determine its competitive advantages, needs and opportunities for innovative development, taking into account the specifics of its market, technical capabilities, personnel potential and financial capabilities. It is important to create a strategic plan for innovative development that would take into account the needs and

goals of the enterprise for the medium and long term.

In general, the innovative policy of the enterprise should be flexible, adaptive and oriented towards achieving strategic goals and improving the performance of activities, thereby ensuring stable development and a successful competitive position on the market. Undoubtedly, innovative activity in agriculture should be aimed at achieving not only economic, but also social and environmental goals of sustainable development. The implementation of environmentally friendly technologies and production methods helps to preserve natural resources and reduce the negative impact on the environment. In addition, socially oriented innovations can contribute to improving the living and working conditions of villagers, ensuring their stability and well-being, which are important aspects of sustainable development. Only such an approach will ensure sustainable development of agriculture, preservation of natural resources and improvement of the quality of life of the rural population.

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