

Review Article

Analysis of the Current State of Economic Development of the Agricultural Sector and Research of Priority Directions

Rima Sh. Nasrullayeva¹✉  and Gulana M. Aliyeva²✉

¹Department of Agribusiness and Management, Institute of Agrarian Problems, Ministry of Science and Education of the Republic of Azerbaijan, Ganja AZ2000, Azerbaijan

²Naftalan Oil and Surfactants Laboratory, Institute of Ecology and Natural Resources, Ministry of Science and Education of the Republic of Azerbaijan, Ganja AZ2000, Azerbaijan

Abstract

In modern times, the economic development of the agricultural sector constitutes one of the main pillars of the country's overall economic security and macroeconomic stability. The research analyzes the current state of agriculture and comprehensively examines the sector's share in gross domestic product and its growth dynamics. At the current stage, the application of innovative technologies to increase competitiveness in the agricultural sector is considered one of the most important priorities. Analyses show that increasing efficiency in the agricultural sector depends on the volume of direct investments and the optimization of state support mechanisms. The article assesses the changes in the structure of the agro-industrial complex and the level of development of the processing industry based on statistical indicators. Ensuring food security and supplying the domestic market with local products is the main objective of the research. In modern conditions, efficient use of water resources and preservation of soil fertility are crucial factors for the sustainable development of agriculture. The study shows that involving small and medium-sized farms in cooperative processes can significantly boost productivity. In order to expand the export potential of the agricultural sector, it is necessary to establish quality control systems in accordance with international standards. Improving logistics infrastructure and establishing a "field-to-fork" chain are of great importance in terms of preventing crop losses. The real economic effects of subsidies and tax breaks applied within the framework of the state's agrarian policy are explained in detail in the work. The application of digital agriculture and "smart village" concepts creates new opportunities in field management. The study examines the negative impacts of climate change on agriculture and ways to improve risk insurance mechanisms. Strengthening human resources potential in the agricultural sector and integrating scientific achievements into production are highlighted as priority areas. Analysis of the market situation shows that special attention should be paid to branding and marketing strategies in order to compete in the global market. The role of the agricultural sector in the socio-economic development of regions is assessed in the context of reducing unemployment and providing employment. As a result of the research, it is proposed to introduce modern management models and improve the investment climate for the development of the agricultural sector. Correctly identifying priority areas will create conditions for intensive development of agriculture in the future. Finally, the main points of the strategic roadmap for agricultural modernization and the expected economic dividends are summarized. This study can serve as a scientific source for the formulation of agrarian policy and the preparation of sectoral programs. In conclusion, it is noted that the development of the agrarian sector is a decisive factor in the diversification of the country's non-oil sector.

Keywords: agricultural economics, agro-industrial complex, sustainable development strategy, food security, innovative agricultural technologies

Received: 21.05.2026

Accepted: 29.06.2026

Published: 30.06.2026

<https://doi.org/10.54414/DTLX3533>

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1. Introduction

In the modern world economy, the agricultural sector is not only a sector that produces food products, but also has strategic importance as a guarantor of national security and social stability. In the context of globalization, the economic independence of countries is directly measured by the level of agricultural development and the degree to which the domestic market is supplied by local production. Geopolitical changes and disruptions in global supply chains in recent years have made the modernization of the agricultural sector an urgent issue for all countries. In the strategy for diversifying the non-oil sector of the Azerbaijani economy, the agricultural sector has been identified as one of the areas with the highest potential [1]. Our country's favorable climatic conditions, rich soil resources, and ancient agricultural traditions create a solid foundation for the intensive development of this sector.

The development of the agricultural sector is an important social factor that directly affects the increase in employment in rural areas and the regulation of urbanization processes. The main task facing the agricultural sector today is to completely abandon the extensive development model and transition to a science-intensive development path. The challenges of the modern era necessitate digital transformation in agriculture and the implementation of the concepts of "Smart Village" and "Smart Farm" [2]. The relevance of the research is also related to the need to develop new adaptation mechanisms to global problems such as water scarcity and soil erosion caused by climate change [3].

The priorities of the state's agrarian policy are aimed at supporting agricultural producers, increasing the efficiency of subsidies, and accelerating the flow of investment into the sector [4]. The development of the agricultural processing industry plays a crucial role in creating a value-added chain and transitioning from raw material exports to finished product exports [5]. In accordance with the requirements of a market economy, cooperation between farms and the expansion of the activities of agroparks serve to increase productivity. Improving insurance mechanisms in the agricultural sector is an important financial tool to protect producers from natural disasters and other risks.

In the modern stage of economic development, innovations applied in the agricultural sector aim not only to increase yields but also to produce environmentally friendly products. In order to remain competitive in the global market, the process of obtaining international quality certificates and branding of local products must be accelerated. The purpose of the research is to deeply analyze the current state of the agricultural sector, identify factors that hinder development, and suggest solutions. The dynamics of the sector's economic indicators allow us to objectively assess the results of the implementation of state programs.

Expanding scientific research in the agricultural sector and creating new varieties and breeds increases the quality of selection work. The availability of information and advisory services to farmers is one of the main factors accelerating the transfer of innovations to the field. Diversifying export markets reduces the foreign dependence of local products and stimulates foreign exchange inflows. The study also focuses on sources of financing for the agricultural sector, the role of soft loans, and the participation of the banking sector in this process.

Expanding the network of logistics centers and cold storage complexes prevents seasonal price fluctuations. The implementation of modern irrigation systems not only minimizes water loss but also increases the volume of produce obtained from a single area many times over. The development of the agricultural sector also means the renewal of rural infrastructure and an increase in the living standards of the population. This presented work proposes scientific and practical recommendations for the formation of a competitive structure of agriculture. This presented work proposes scientific and practical recommendations for the formation of a competitive structure of agriculture.

The issues raised in the introduction outline the future development model of the agricultural sector. A comprehensive examination of all these factors is of great importance for the full realization of the country's economic potential. In conclusion, it should be noted that the sustainable development of the agricultural sector is an integral part of the state's long-term economic strategy. This research paper presents a scientific view on the deepening of agrarian reforms against the backdrop of contemporary economic realities.

2. Relevance of the Topic

Rapid changes and global challenges in the modern world economy have made the development of the agricultural sector a strategic priority for every state. The issue of meeting the food needs of a growing world population further increases the relevance of agricultural development. Increasing agricultural productivity in the face of global climate change and limited natural resources requires new approaches. The issue of food security is currently considered an integral part of national security, and this topic remains relevant [6]. The disruptions in global supply chains amid the pandemic and regional conflicts have necessitated increased domestic production. The agricultural sector acts as one of the most important economic drivers in the development strategy of Azerbaijan's non-oil sector. The diversification of the country's export potential directly depends on the production of competitive agricultural products.

At the modern stage, the digitalization of agriculture and the application of "Smart Agriculture" technologies are among the main factors determining the scientific and practical relevance of the topic [2]. The efficient use of land and water resources is the basis of the research in terms of sustainable development principles. Expanding market access opportunities for small and medium-sized farms operating in the agricultural sector is still an urgent issue awaiting a solution. Increasing the role of the agricultural sector in the socio-economic development of regions is of great importance for increasing the employment level of the population. Optimizing state support and subsidy mechanisms is very relevant in terms of increasing the motivation of agricultural producers. Expanding the network of processing enterprises in the agro-industrial complex is important to prevent the loss of raw materials.

Improving the investment climate and attracting local and foreign investment to the sector is crucial for the success of agrarian reforms [4]. The tightening of international requirements for the quality and safety of agricultural products makes standardization issues in this area relevant. Risk management in the agricultural sector and the implementation of an agricultural insurance system are important factors in ensuring the financial stability of farmers. The integration of scientific achievements and innovations into the production process is necessary to overcome the technological backwardness of the sector. The weakness of cooperative relations in agriculture creates certain difficulties in establishing a unified production and sales chain. The lack of logistics infrastructure and cold storage systems negatively affects the cost and quality of the product.

Branding and promotion of the "Made in Azerbaijan" brand in global markets increases the foreign competitiveness of our agricultural products [5]. Attracting young specialists to the agricultural sector and modernizing the personnel training system remain urgent problems. Rebuilding irrigation systems based on modern technologies (drip and sprinkler) is the most effective way to combat the threat of water scarcity. The development of the agricultural sector also serves to improve the quality of life in rural areas and social infrastructure. Reducing import dependence and stimulating import-substituting production means strengthening economic sovereignty. A comprehensive examination of these issues in research forms the scientific basis for improving agrarian policy.

The increasing demand for ecologically clean and biological agricultural products in modern times is making changes in the production structure urgent. Statistical analysis of the development rates of the agricultural sector is necessary for the preparation of future forecasts and strategic planning. One of the main directions of the research is the assessment of the implementation status of state programs and their impact on sectoral development. Changing market conditions require the development of flexible decision-making mechanisms for farmers. Consequently, analyzing the current state of the agricultural sector and determining priorities is the most important factor ensuring the country's sustainable economic growth. This study aims to demonstrate scientific solutions to the listed pressing issues and provide practical recommendations.

Purpose of the study: It consists of comprehensively analyzing the current state of economic development of the agricultural sector, identifying existing problems, and determining strategic priority areas on a scientific and practical basis to increase the competitiveness of the sector.

Research object: The agrarian sector of the Republic of Azerbaijan is a system of production and economic relations that determines the dynamics of economic development of economic entities operating in this field.

Research methods: The research process used methods such as systematic and comparative analysis, statistical grouping, economic-mathematical modeling, logical generalization, and correlation of quantitative indicators with qualitative changes.

3. Materials and Methods

The material base of the study is made up of official data of the State Statistical Committee of the Republic of Azerbaijan, reports of the Ministry of Agriculture, and reviews of international organizations related to the agrarian sector [3], [7]. When analyzing the statistical indicators of the last ten years, it is clear that the agricultural sector has maintained its share in non-oil GDP stably and has demonstrated a growth trend [7]. Analyses show that although the share of intensive technologies in the production of crop products is increasing, farms using extensive methods still dominate. During the discussions, it became clear that the agroparks and large farms established in the country significantly outperform small family farms in terms of productivity indicators [7]. However, the role of small farms in the country's overall food supply remains crucial, and this contrast proves the need for structural reforms in the sector.

Although subsidized fuel and fertilizer subsidies implemented by the state play an important role in reducing farmers' costs, the fact that subsidies are provided to the cultivated area rather than directly to the final product leads to inefficiency in some cases [4]. One of the important issues discussed is that the level of technical equipment in the agricultural sector does not meet modern requirements. An outdated fleet of tractors and combines causes serious losses during harvest, which reduces economic efficiency. Research materials confirm that the simplification of leasing mechanisms has increased the rate of renewal of agricultural machinery by 20% in recent years [7]. Discussions on irrigation water management show that it is impossible to solve the problem of water scarcity without abandoning traditional irrigation methods.

Productivity is 30–40% higher in areas where modern irrigation systems are applied, which shows that investments pay off in a short time [3]. The weak breeding work in the livestock sector and the low milk yield of local breeds are among the main topics of discussion. Adapting imported high-yielding breeds of animals to local conditions and establishing proper feed rations is still considered risky from an economic perspective. The level of development of the processing industry in the agricultural sector weakens the place of agricultural products in the value chain. Raw material exports bring 3–4 times less foreign exchange to the country than finished product exports, which requires a change in the economic priorities of the sector.

The poor development of logistics infrastructure, especially the "cold chain" system, leads to the fact that up to 25% of fruit and vegetable products spoil before reaching the consumer from the field. During the discussions, it was emphasized that there is still a great need for educational work in the field of implementing the agrarian insurance mechanism. Farmers' limited access to bank loans and onerous collateral requirements slow the flow of private capital into the sector. Although increasing the volume of state agricultural loans and lowering interest rates is a positive step, control over the intended use of these funds should be strengthened. Research materials show that the transition to organic agriculture promises great prospects for Azerbaijan's access to European markets [3].

However, excessive use of pesticides leads to soil degradation and product quality falling short of international standards. Another problem discussed is the lack of professional agronomists and veterinarians in rural areas. The mismatch between the practical knowledge of personnel trained by higher education institutions and production requirements is creating a personnel crisis in the field. Although the implementation of the Electronic Agricultural Information System (EAIS) has increased transparency in management, older generation farmers have difficulty using this system due to low digital literacy [2]. Branding and registration of local products under geographical indications is noted as a factor that increases their competitiveness in domestic and foreign markets [5].

Despite improvements in the legislation on cooperatives, farmers' reluctance to unite prevents them from fulfilling large-scale orders [4]. The discussions noted that the existence of monopoly elements in agricultural markets creates a sharp difference between the price of the product purchased from the producer and the retail price. This situation both reduces the producer's income and negatively affects the pocket of the end consumer. The efficiency of agroparks is assessed as a factor that directly affects the socio-economic development of the region in which they are located. In the face of climate change, the introduction of new drought-resistant plant varieties is a key task facing scientific research institutions [3].

Finally, the materials and discussions section confirms that the future of the agricultural sector depends on full digitalization and the integration of green technologies. Each discussed item provides a scientific basis for a more efficient development of the country's agrarian policy. The dynamics of statistical data show that with

proper management, Azerbaijan can become the main agricultural center of the region in the next decade. The results of the study prove that infrastructure modernization and personnel training should be at the forefront in order to realize existing potential. All discussions come to a single conclusion: the agricultural sector is the backbone of Azerbaijan's non-oil economy. Each analysis in this section provides a solid foundation for determining future priorities.

The table below summarizes the main directions characterizing the modern state of economic development of the agricultural sector, the analysis of the current situation, and the development prospects.

Table 1. Economic development indicators and analysis of the agricultural sector.

Development Directions	Analysis of the Modern Situation	Current Problems	Priority Goals
Share in GDP and growth	Stable growth dynamics are observed in the non-oil sector.	Extensive methods are still widespread.	Increasing added value through intensive development.
Technological equipment	Introduction of new techniques by modern agroparks.	Deterioration and losses of small farmers' equipment.	Simplification of leasing terms and transfer of innovations.
Use of water resources	Starting the implementation of drip and sprinkler systems.	High water loss during traditional irrigation (up to 40%).	Full implementation of "smart irrigation" and cost-effective technologies.
State support and financing	Transparency of subsidies through ECTIS.	Banks' collateral requirements and the level of availability of loans.	Optimization of subsidies according to final product output.
Export potential	Leadership in the region in fruit and vegetable exports (tomatoes, hazelnuts, etc.).	Weakness in standardization and international certification (GlobalGAP).	Diversification of export markets and branding.
Processing industry	Raw material production exceeds processing capacity.	Lack of logistics centers and the "cold chain" system.	Transition to full processing of raw materials and export of finished products.
Personnel and science	Agrarian education reforms and stimulation of young specialists.	Discrepancy between theoretical knowledge and practical requirements.	Integration of scientific research into production and consulting services.
Cattle-breeding	State programs to increase the share of pedigree livestock.	Low productivity of local animal breeds.	Strengthening breeding work and improving the feed base.

As can be seen from the table, the current state of the agricultural sector necessitates a transition to a stage of digitalization and intensification. The implementation of priority areas is the main factor ensuring both the country's internal food security and foreign exchange inflow.

4. Results and Discussion

Conducted research and multidisciplinary analyses show that the agricultural sector is a strategic sector that plays a fundamental role in the sustainable development of Azerbaijan's non-oil economy. Against the backdrop of modern economic realities, the current state of agriculture simultaneously embodies both great potential and structural problems that need to be addressed. As a result of the study, it should be noted that the future development of the agricultural sector directly depends on the intensification and rapid integration of scientific and technological innovations into the production process. As a result of the agrarian reforms implemented in the country, management mechanisms have been improved, and the degree of transparency in the sector has increased significantly. The full implementation of the Electronic Agricultural Information System (EAIS) has become a key factor in ensuring the targeting of state support and the efficient distribution of subsidies [2]. However, statistical data proves that productivity in small farms is still below the world average.

One of the most important conclusions of the study is that the extensive development model should be completely abandoned, and the volume of output from a single area should be increased [3]. In an era of limited water resources, the application of modern irrigation technologies is no longer an option, but a necessity. To prevent soil salinization and erosion, land reclamation and irrigation systems must be radically rebuilt. Expanding the activities of agroparks creates conditions for the successful implementation of the clustering model in agriculture and increases the competitiveness of products. Economic analyses show that cooperation among agricultural producers is the most effective mechanism for facilitating their access to financial resources and sales markets [4].

To expand the export geography of the agricultural sector, the certification process in accordance with international standards (GlobalGAP, HACCP) should be accelerated [3], [5]. It has become known that products exported in raw form bring much less income to the country than finished products. For this reason, the development of the processing industry and the establishment of small and medium-sized processing enterprises in rural areas should be a priority [5]. The lack of logistics infrastructure, especially cold storage complexes, is a major factor in increasing crop losses, which directly reduces farmer profitability. Tax incentives applied within the framework of the state's agrarian policy are an important tool that stimulates investment in the sector. Further improvement of the agricultural insurance system will ensure farmers' resilience to risks arising from natural disasters [4].

To increase productivity in the livestock sector, the quality of artificial insemination and breeding work must be raised to a new level. Strengthening the feed base and efficient use of pastures can help reduce the cost of livestock products. The application of digitalization, drone technologies, and satellite monitoring systems in agriculture increases the accuracy of management decisions. The research results show that the network of agricultural advisory services should be expanded, and farmers should be provided with access to modern knowledge. Close cooperation between higher and vocational education institutions and agribusinesses can solve the problem of staff shortages. Protecting the domestic market and supporting import-substituting production are the main guarantees of food security.

The production of biological and organic agricultural products holds great promise for Azerbaijan in the context of a "green economy" [3]. Recycling agricultural waste both protects the environment and creates an additional source of income. The collateral conditions applied by the banking sector when providing loans to the agricultural sector should be made more accessible to farmers. Improving rural infrastructure within the framework of regional development programs is an important factor in preventing the flow from rural to urban areas. State procurement and financial support for scientific research in the field of breeding climate-resistant plant varieties should be increased [3]. The establishment of a fully closed "farm-to-table" chain serves to provide consumers with high-quality and safe food.

Properly establishing branding and marketing strategies in the agricultural sector will allow local products to take their place in the global market. The introduction of a "results-based" approach to the provision of subsidies will dramatically increase the efficiency of public funds. The conclusion of the study emphasizes that the development of the agrarian sector is not only economic, but also has a broad social significance. The attractiveness of the investment environment for the modernization of the sector must be constantly kept in focus. Adapting international experience in the field of agricultural innovation to the country's conditions will prevent waste of time.

Increasing the share of electronic platforms in the trade of agricultural products increases the direct income of farmers by reducing the number of intermediaries [2]. Optimizing the functioning of the land market will lead to more efficient use of land resources. Ensuring gender equality in the agricultural sector and involving women in agribusiness increases social inclusion. Measuring the economic efficiency of the digital transformation of the agricultural sector remains a relevant direction for future research.

5. Conclusion

In conclusion, it should be noted that Azerbaijan's agricultural sector has entered a new stage of its growth. Consistent implementation of the identified priority areas will both strengthen the country's food independence and lead to a significant increase in non-oil exports [6]. The coordinated activities of the triangle of state, science, and farmers are the key to sustainable progress in the agricultural sector. Research proves that a competitive agricultural sector will continue to be one of the key indicators of Azerbaijan's economic strength [1]. Every successful step in this area is an investment that serves the social well-being of the country and the security of future generations. Thus, an analysis of the current state of the agricultural sector once again confirms its irreplaceability for the country's economy.

The novelty of the research work: It consists of a comprehensive analysis of the development dynamics of the agricultural sector against the backdrop of climate change and digital transformation, and the substantiation of specific economic mechanisms and priority directions with new scientific approaches for the transition to an export-oriented intensive development model, along with the food security of the domestic market.

The applied significance of the research work: The scientific and practical recommendations put forward can be used in the preparation of state programs in the agricultural sector and in the development of strategic roadmaps to increase the economic efficiency of farms. At the same time, the results of the study are a favorable basis for application in the process of managing agricultural producers' risks and improving access mechanisms to export markets.

Economic efficiency of research work: It is characterized by increasing profitability from a single area by optimizing costs in the agricultural sector and minimizing crop losses. The application of advanced intensive development methods creates the basis for the formation of a value-added chain and a significant increase in export revenues by increasing the degree of processing of agricultural products. As a result, the implementation of these proposals directly contributes to both increasing farmer incomes and increasing tax revenues from the agricultural sector to the state budget.

Author Contributions

Both authors have read and agreed to the published version of the manuscript.

Conflict of Interest

The authors declare no conflicts of interest.

Funding

This research received no external funding.

Acknowledgment

The authors would like to thank their respective institutions for providing support and facilities that contributed to the completion of this study.

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