Volume 4, Issue 4, April - 2026
ISSN (E): 2938-3781

Web of Agriculture: Journal of Agriculture and Biological Sciences
webofjournals.com/index.php/8

DEVELOPMENT OF AGRICULTURE IN UZBEKISTAN

Siddikov Zaxid Tulkunovich
Docent, Tashkent State Agrarian University,
Tashkent, Uzbekistan

Abstract
This article examines the modern directions of agricultural development in Uzbekistan, particularly the introduction of innovative technologies, efficient use of land and water resources, and the modernization of the agrarian sector. It also substantiates the importance of ensuring food security, developing cluster systems, and widely implementing the concept of "smart agriculture." Based on the research findings, scientific recommendations and proposals aimed at improving the efficiency of the agricultural sector have been developed.

Keywords: Agriculture, innovation, food security, land resources, water resources, cluster system, smart agriculture, digital technologies, agrotechnology, efficiency.

Introduction

At present, profound reforms are being implemented across all sectors of our country, and the processes of modernization and diversification of economic sectors are continuing at a rapid pace. In particular, the development of agriculture has been elevated to the level of state policy, with special attention being paid to improving this sector on the basis of innovative approaches. Agriculture is one of the strategically important sectors of the national economy, playing a crucial role in ensuring food supply for the population, providing raw materials for industry, and increasing export potential.

In recent years, large-scale efforts have been undertaken in the agrarian sector, including the introduction of digital technologies, efficient use of land and water resources, application of intensive agrotechnologies, and development of cluster systems. In particular, the use of modern irrigation methods (such as drip irrigation and laser land leveling), the introduction of high-yield crop varieties, and the improvement of agro-logistics systems have contributed to increasing sector efficiency.

At the same time, challenges such as global climate change, limited water resources, and declining soil fertility necessitate the further scientific development of agriculture. This requires the widespread implementation of scientific research, innovative developments, and "smart agriculture" concepts in the agrarian sector.

Literature review

The Action Strategy for the Development of the Republic of Uzbekistan for 2017–2021 identified important tasks aimed at fundamentally reforming, modernizing, and increasing the efficiency of the agricultural sector. Within this framework, priority areas include the rational use of land and water resources, the introduction of advanced agrotechnologies, support for farmers and dehkan

Volume 4, Issue 4, April - 2026
ISSN (E): 2938-3781

households, and the expansion of export-oriented agricultural production.

Analysis of scientific literature shows that innovative approaches play a crucial role in agricultural development. In particular, studies conducted by foreign scholars demonstrate that the application of "smart agriculture," digital platforms, artificial intelligence, and IoT technologies can increase productivity, reduce costs, and ensure efficient resource utilization. According to the Food and Agriculture Organization (FAO), the implementation of modern agrotechnologies can reduce water consumption by 20–30% while significantly increasing crop yields.

Local researchers have also extensively studied issues such as the development of cluster systems, cooperative relations, and agro-logistics infrastructure in agriculture. They emphasize that agro-clusters, which integrate the entire chain from production to processing and export, serve as an important factor in improving efficiency.

Recent scientific sources also focus on the development of sustainable agriculture under climate change conditions. In particular, concepts such as resource-saving technologies, the use of renewable energy sources, and the production of environmentally friendly products are being promoted. This highlights the necessity of developing the agrarian sector based on the principles of a "green economy."

Additionally, scientific literature highlights the importance of digital transformation in agriculture, including the creation of agricultural databases and the use of drones and geographic information systems (GIS) for land monitoring.

Research methodology

A comprehensive approach was used to scientifically substantiate and analyze the processes of agricultural development in the country. During the research, the method of system analysis was applied to study the structural elements of the agrarian sector, as well as the interrelationships and mechanisms of influence among them. The synthesis method was used to generalize data obtained from various sources and to formulate integrated conclusions.

Furthermore, statistical grouping and comparative analysis methods were employed to evaluate the dynamics of agricultural indicators, sectoral changes, and regional differences. This made it possible to analyze production volumes, yield levels, and the efficiency of resource utilization. Through abstract-logical reasoning, cause-and-effect relationships of existing problems in the agrarian sector were identified, and scientifically grounded recommendations for their elimination were developed.

The research also utilized expert evaluation methods, which allowed for the generalization of opinions of specialists in the field and the identification of priority directions. Forecasting methods were applied to assess future development trends in agriculture, particularly in relation to digital technologies, water-saving innovations, and the expansion of cluster systems.

In addition, modern scientific approaches such as econometric modeling, correlation-regression analysis, and scenario analysis were applied. These methods made it possible to determine the degree of influence of key factors (water resources, investments, and technological level) on agricultural production. Moreover, the potential for applying digital data analysis and GIS technologies in evaluating elements of "smart agriculture" was also considered.

Web of Agriculture: Journal of Agriculture and Biological Sciences
webofjournals.com/index.php/8

Volume 4, Issue 4, April - 2026
ISSN (E): 2938-3781

Analysis and main results

In the agricultural sector of our country, consistent efforts to improve the meliorative condition of lands, leach saline soils, enhance soil fertility, introduce modern irrigation systems, and ensure food security are of great importance.

Food security in the Republic of Uzbekistan necessitates the creation of economic and organizational-legal foundations for the development of agriculture and water management, the implementation of structural transformations, and the introduction of market mechanisms. This, in turn, increases the demand for creating favorable conditions for farms. Consequently, the processes of agricultural modernization, introduction of advanced machinery and innovative technologies, and efficient use of limited land, water, capital, and labor resources are intensifying year by year. At the same time, reducing production costs and conducting in-depth scientific research on the current state of cluster systems in fruit and vegetable production remain highly relevant.

In the context of accelerated globalization in the world economic system, the scientific study of rational use of land and water resources and ensuring food security has become increasingly important. In CIS countries, issues of economic security, including food security, have been studied in the works of A. Arkhipov, N.N. Vashekin, E.N. Veduta, M.I. Dzliev, A.M. Zhonlarov, A.V. Kalosov, E.A. Oleynikov, V.K. Senchagov, M. Spanov and others. Their studies mainly address national economic security, including rational use of land and water resources and, to some extent, food security.

In Uzbekistan, issues of economic security have been studied by scholars such as H.P. Abulqosimov, A.A. Isajanov, Sh.R. Qobilov, A.X. Sodiqov, Q.Z. Farmonov and others. In particular, H.P. Abulqosimov's work examines these issues from the perspectives of the state, enterprise, and individual, focusing on rational resource use and ensuring economic and food security in financial and economic activities.

Food security has become one of the global challenges facing humanity. According to the Food and Agriculture Organization (FAO), nearly 30% of the world's population (over 2 billion people) currently suffer from insufficient nutrition. Under such conditions, significant progress has been achieved in strengthening food security in our country by ensuring stable provision of high-quality and sufficient food products to the population.

In particular, the Resolution of the President of the Republic of Uzbekistan dated December 29, 2015, "On measures for further reform and development of agriculture for 2016–2020" (No. PQ-2460), serves as a continuation of ongoing reforms and creates a basis for increasing agricultural production volumes and advancing the sector to a new stage.

According to this resolution, by 2020, 220 thousand hectares of irrigated land (including 170 thousand hectares of cotton and 50 thousand hectares of wheat) were planned to be reallocated for the cultivation of potatoes, vegetables, melons, oilseeds, and fodder crops, as well as for the establishment of new intensive orchards. These changes were primarily implemented on lands with low soil fertility, poor meliorative conditions, and insufficient water supply, where cotton yields had not exceeded 10–15 centners per hectare in recent years.

This policy not only significantly increased food production and ensured abundance in domestic markets but also contributed to job creation through processing activities. Moreover, increasing agricultural exports has led to higher incomes for farmers. The use of intensive technologies in

Volume 4, Issue 4, April - 2026
ISSN (E): 2938-3781

grain and cotton production has also been emphasized, with targets set to achieve average yields of 26.9 centners per hectare for cotton and 66.4 centners per hectare for grain by 2022.

At present, extensive work is being carried out to create the necessary economic and legal conditions for the development of agriculture and water management. Special attention is being given to supporting farms in the process of structural transformation and the implementation of market mechanisms. As a result, farmers' attitudes toward land have changed significantly, and a new class of landowners-farms-has emerged. The farming movement has become not only a key producer of agricultural products but also an important socio-political force responsible for rural development.

The rapid development of agriculture inevitably leads to increased consumption of water resources. If appropriate measures are not taken in time, this may negatively affect national food security.

According to the Presidential Decree No. PF-5330 dated February 12, 2018, "On organizational measures to radically improve the system of public administration in agriculture and water management," the Ministry of Agriculture and the Ministry of Water Resources were established on the basis of the former Ministry of Agriculture and Water Management. The key outcome of this reform was the clear definition of the functions and responsibilities of both ministries.

The main functions of the Ministry of Agriculture include: implementing a unified policy aimed at modernization, introducing advanced technologies, ensuring food security, increasing export potential, organizing food reserves, promoting processing industries, and integrating education, science, and production.

The Ministry of Water Resources is responsible for implementing a unified water management policy, ensuring rational and sustainable use of water resources, improving irrigation and melioration systems, promoting water-saving technologies, strengthening institutional capacity, and developing international cooperation in transboundary water management.

The development of agriculture is recognized as one of the priority directions of economic development in Uzbekistan. The introduction of modern technologies and equipment has significantly improved the efficiency of resource utilization.

In January–June 2022, the total volume of agricultural, forestry, and fishery production amounted to 35,210.8 billion UZS, representing 102.7% compared to the same period in 2017. The share of agriculture accounted for 35,012.3 billion UZS (102.7%), forestry – 58.7 billion UZS (100.7%), and fisheries – 139.8 billion UZS (130.2%).

Among regions, Andijan region accounted for the largest share (12.0%), followed by Tashkent (11.5%) and Surkhandarya (10.8%), while the lowest shares were observed in Karakalpakstan (2.1%), Syrdarya (3.6%), and Jizzakh (4.3%).

Further deepening structural reforms in agriculture, ensuring stable production growth, strengthening food security, expanding environmentally friendly production, and increasing export potential are among the key strategic priorities for the future.

As emphasized by the President of Uzbekistan, Shavkat Mirziyoyev, agricultural reform and ensuring food security remain among the most important national priorities. Special attention is given to the development of multi-sectoral farming systems as the driving force of the agro-industrial complex.

Web of Agriculture: Journal of Agriculture and Biological Sciences
webofjournals.com/index.php/8

Volume 4, Issue 4, April - 2026
ISSN (E): 2938-3781

Web of Agriculture: Journal of Agriculture and Biological Sciences
webofjournals.com/index.php/8

Conclusions and recommendations

Based on the above analysis, it is evident that the development of agriculture in our country is directly linked to the efficient use of land and water resources, the introduction of innovative technologies, and comprehensive modernization. In the context of climate change, water scarcity, and population growth, sustainable agricultural development has become a pressing issue.

Therefore, the following recommendations are proposed:

Develop and implement a clear roadmap for the widespread introduction of water-saving technologies (drip and sprinkler irrigation), which can reduce water consumption by 30–40% and increase productivity.

Improve land allocation mechanisms and incentivize high-performing multi-sector farms by providing additional land resources.

Expand livestock, poultry, and fishery sectors to increase food production and strengthen the feed base.

Enhance human capital in agriculture through continuous training and retraining of farmers in modern technologies and digital solutions.

Strengthen the link between science and practice by promoting the implementation of scientific innovations and “smart agriculture” technologies.

Introduce digital monitoring systems (drones, sensors, GIS) to improve decision-making processes.

Promote organic agriculture and ensure environmental sustainability by controlling the use of chemical inputs and preserving soil fertility.

References

1. Decree of the President of the Republic of Uzbekistan on the Action Strategy for 2017–2021. Tashkent, 2017.
2. Decree on the Agricultural Development Strategy for 2020–2030. Tashkent, 2019.
3. Ministry of Agriculture of Uzbekistan reports, 2020–2024.
4. State Statistics Committee of Uzbekistan, annual agricultural reports, 2019–2024.
5. FAO. The State of Food and Agriculture. Rome, 2022.
6. World Bank. Uzbekistan Agriculture Reports. Washington DC, 2021–2023.
7. IFAD. Rural Development Report. Rome, 2021.
8. Porter M.E. Competitive Advantage of Nations. 1990.
9. Schultz T.W. Transforming Traditional Agriculture. 1964.
10. Pingali P. Agricultural Growth and Economic Development. 2010.
11. Pretty J. Sustainable Agriculture. 2008.
12. Rosegrant M.W. Global Food Security. 2003.
13. Tilman D. et al. PNAS, 2011.
14. Godfray H.C.J. et al. Science, 2010.
15. Uzbek scholars’ research collections, 2018–2024.