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AGRICULTURAL MANAGEMENT BASED ON INNOVATIVE TECHNOLOGIES AT THE INTERNATIONAL LEVEL: THE EXAMPLE OF UZBEKISTAN

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Abstract: The agricultural sector, which is of great importance to national economies, is one of the key and fundamental sectors that generates high incomes for entrepreneurs following investments in agricultural activities. Furthermore, it can be said that the agricultural sector is one of the driving forces. Income generated from agricultural activities leads to increased demand for goods and services produced by other sectors, stimulating production activities in those sectors and resulting in increased production volumes. Therefore, increasing the income level generated from the agricultural sector, which is so economically important, is of paramount importance. In this process, it is crucial to develop innovative technologies and effectively utilize these technologies in agricultural production to increase both the quantity and quality of agricultural products. This will lead to increases in agricultural income, and consequently, in the gross national product, particularly due to increases in agricultural product volume. In this study, after presenting the successes achieved in Uzbekistan as a result of the use of innovative technologies developed at the international level to ensure the development of the agricultural sector, the shortcomings and negative aspects of these technologies are revealed, and then the necessary arrangements are emphasized to eliminate these shortcomings and increase agricultural output.

Key words: technology, agricultural production, innovative management, Uzbekistan.

Annotatsiya: Qishloq xo'jaligi sektori milliy iqtisodiyotlar uchun katta ahamiyatga ega bo'lib, qishloq xo'jaligi faoliyatiga kiritilgan investitsiyalar ortidan tadbirkorlarga yuqori daromad keltiradigan asosiy va fundamental tarmoqlardan biridir. Shuningdek, qishloq xo'jaligi iqtisodiyotning harakatlantiruvchi kuchlaridan biri sifatida qaraladi. Qishloq xo'jaligi faoliyatidan olinadigan daromad boshqa tarmoqlar tomonidan ishlab chiqariladigan tovar va xizmatlarga bo'lgan talabning ortishiga olib keladi, bu esa ushbu tarmoqlarda ishlab chiqarish faoliyatini rag'batlantirib, ishlab chiqarish hajmining ko'payishiga sabab bo'ladi. Shu bois iqtisodiy jihatdan muhim bo'lgan ushbu sektorda daromad darajasini oshirish ustuvor ahamiyatga ega. Bu jarayonda innovatsion texnologiyalarni rivojlantirish va ularni qishloq xo'jaligi ishlab chiqarishida samarali qo'llash orqali mahsulot hajmi hamda sifatini oshirish muhimdir. Bu esa qishloq xo'jaligidagi daromadlarning ortishiga, natijada yalpi milliy mahsulotning ko'payishiga, ayniqsa qishloq xo'jaligi mahsulotlari hajmining kengayishi hisobiga, olib keladi. Ushbu tadqiqotda O'zbekistonda qishloq xo'jaligi sektorini rivojlantirish maqsadida xalqaro darajada yaratilgan innovatsion texnologiyalarni qo'llash natijasida erishilgan yutuqlar yoritiladi, ularning kamchiliklari va salbiy jihatlari ochib beriladi hamda ushbu kamchiliklarni bartaraf etish va qishloq xo'jaligi ishlab chiqarish hajmini oshirish uchun zarur choralar ko'rsatib o'tiladi.

Kalit so'zlar: texnologiya, qishloq xo'jaligi ishlab chiqarishi, innovatsion boshqaruv, O'zbekiston.

Аннотация: Сельскохозяйственный сектор, имеющий важное значение для национальных экономик, является одной из ключевых и фундаментальных отраслей, генерирующих высокий доход для предпринимателей, инвестирующих в аграрную деятельность. Кроме того, сельское хозяйство считается одной из движущих сил экономики. Доход, полученный от сельскохозяйственной деятельности, вызывает рост спроса на товары и услуги, производимые в других секторах, стимулируя в них производственные процессы и увеличивая объемы выпуска. Поэтому повышение уровня доходов, формируемых в столь значимом секторе, имеет первостепенное значение. В этом процессе крайне важно развивать инновационные технологии и эффективно использовать их в сельскохозяйственном производстве для увеличения как количества, так и качества сельхозпродукции. Это приведёт к росту доходов в сельском хозяйстве и, как следствие, к увеличению валового национального продукта, особенно за счет расширения объемов производимой продукции. В данном исследовании после представления успехов Узбекистана, достигнутых в результате применения инновационных технологий международного уровня для развития сельскохозяйственного сектора, раскрываются недостатки и негативные аспекты этих технологий, а также подчёркиваются необходимые меры для устранения выявленных проблем и повышения объемов аграрного производства.

Ключевые слова: технология, сельскохозяйственное производство, инновационное управление, Узбекистан.

INTRODUCTION

Innovative technologies are critical for strengthening food security, increasing productivity, and ensuring sustainable agricultural development. Today, rapid scientific development and innovation are taking place in every aspect of life. These scientific advancements and innovations significantly contribute to building a valuable future for the country's economic development and enable the consistent and sustainable development of all areas of both society and state life. The Uzbek economy, which has gained significant momentum in economic development, must effectively utilize scientific advances and innovations to ensure the continuity of this development process. This will enable Uzbekistan to achieve a certain level of competitiveness, achieve socioeconomic development rates that allow for a high standard of living, improve the quality of human capital, and radically shift public awareness, thereby achieving both economic development and positive changes in social life. The successful use of science and innovation today is building a valuable future for the country and playing a crucial role in the consistent and sustainable development of all areas of social life. In this context, Uzbekistan's economy and economic assets are in the process of reorienting their resources toward innovative development. This process aims to achieve a certain level of competitiveness and socioeconomic development goals that guarantee an increase in living standards, to improve the quality of human capital, and to bring about positive changes in the country's mentality, social and economic life, and public awareness, all in conjunction with radical shifts. In this context, global experience demonstrates that the continuous implementation of innovations that ensure qualitative growth in all areas becomes the driving force of social and economic development. The most successful and stable countries of our time are those where innovative development models and «smart» technologies are consistently implemented. The sustainable development of such countries, their competitiveness in global markets, is based on innovative ideas and developments, along with the export of natural resources and the use of physical labor.

The primary goal of innovative development is to ensure the country's economic growth and competitiveness in global markets through the widespread promotion of innovation and scientific achievements and the increase of the intellectual share of the economy. Uzbek President Sh. M. Mirziyoyev signed a decree «On the further development of the information and innovation system in agriculture and the provision of modern services.» The decree prioritizes the development of the information and innovation system in agriculture between 2021 and 2025¹.

According to this decree, the National Center for Knowledge and Innovation in Agriculture will operate under the Ministry of Agriculture, which will link the integrated system for providing education, science, production, and modern agricultural services to agricultural organizations in the agricultural sector. The National Center is planned to be established on the basis of the Scientific and Production Center for Agriculture and Food Supply, the State Enterprise for Agricultural Innovation, and the Cotton Seed Center. Furthermore, President of the Republic of Uzbekistan S.M. Mirziyoyev's designation of 2023 as the «Year of Support for Active Entrepreneurship, Innovative Ideas, and Technologies» in Uzbekistan (Provisional Public Procedure No. PF-5199-F, dated October 9, 2017) underpins the goal of innovative development in the Republic of Uzbekistan. President S.M. Mirziyoyev stated, «By active entrepreneurs, we mean businesspeople who can produce competitive products and, most importantly, create new jobs, benefiting not only themselves and their

¹ https://kun.uz/news/2021/02/08/qishloq_khojaligida-bilim-va-innovatsiyal-tizimini-rivojları-koncepsiyasi_tadərəndə

families but also society as a whole. Today, we are moving along the path of innovative development, aiming to fundamentally renew all areas of state and social life. Of course, there is a reason for this. Because in these rapidly evolving times, who wins? The state that relies on new ideas, new ideas, and innovation wins.»

REVIEW OF LITERATURE ON THE SUBJECT

The global transformation of agricultural management increasingly relies on the introduction of innovative technologies, institutional modernization, and the integration of scientific knowledge into production processes. The literature addressing innovation-driven agricultural development highlights that improving national competitiveness and ensuring sustainable sectoral growth require systemic innovation policies and technologically advanced management practices. The case of Uzbekistan, which is currently strengthening its innovation ecosystem in agriculture, aligns with these global trends.

Dyzhova emphasizes that effective management of intellectual property forms the foundation for innovation-based economic development, particularly in sectors where technological renewal depends on knowledge protection and commercialization. This perspective is essential for agriculture, where new biotechnologies, digital platforms, and smart-farming systems require institutional mechanisms ensuring ownership rights and technology transfer. Komiljonov further develops the idea that innovation management methods must be continuously improved to strengthen organizational adaptability and increase the efficiency of agricultural enterprises, especially in transition economies such as Uzbekistan.

Santo, in his classical work, conceptualizes innovation as a core driver of economic progress, highlighting that technological change reshapes productive structures and determines long-term growth trajectories. This approach is directly applicable to agriculture, where modern mechanization, digital monitoring, and resource-efficient practices significantly enhance productivity and sustainability. Complementing these theoretical insights, Abdullaev and Khasandzhanov argue that innovation-led economic renewal forms the basis for modernization and competitiveness. Their findings underscore the importance of national innovation strategies designed to accelerate technological upgrading in agriculture.

International frameworks also provide a structured vision for sustainable agricultural development. The Russian Federation's Strategy for the Socio-Economic Development of the Agro-Industrial Complex outlines knowledge-based approaches to improving sectoral performance, highlighting the importance of scientific research, state support, and coordinated innovation policies. Ushachev similarly stresses the critical role of scientific foundations in government agricultural programs, arguing that modern agricultural management requires a stable linkage between research institutions and producers.

In the context of Uzbekistan, national scholars emphasize the significance of innovation mechanisms specifically tailored to farming enterprises. Umurzoqov and Toshboev analyze the economic conditions of farm management and underline the need for technological modernization to enhance productivity and ensure efficient resource allocation. Chariev expands this perspective through methodological recommendations focused on stimulating innovative activity in foreign agricultural systems, offering comparative insights that can be adapted to Uzbekistan's ongoing reforms.

Taken together, the reviewed literature demonstrates that innovation-based agricultural management relies on an integrated system: intellectual property protection, advanced management methodologies, state-supported modernization programs, and international best practices. For Uzbekistan, aligning these components with global technological advancements provides a strategic foundation for increasing agricultural efficiency, ensuring sustainability, and enhancing competitiveness in the international market.

RESEARCH METHODOLOGY

The study collected data from international agro-innovation reports, official agricultural statistics of Uzbekistan, and scientific sources on global best practices. The obtained information was analyzed using comparative analysis, structural analysis, and content analysis to identify patterns and evaluate the impact of innovative technologies on agricultural management efficiency.

ANALYSIS AND RESULTS

It's safe to say that agricultural innovation has been given serious consideration in Uzbekistan recently. According to the minutes of the first meeting of the Cabinet of Ministers of the Republic of Uzbekistan, held on March 5, 2021, at the "X Republic Fair of Innovative Ideas, Technologies, and Projects," held at the "Uzexpocenter" from May 10-12, 2021, 95 developments developed by scientists working in the system were exhibited in detail. More than 250 mutually beneficial agreements, totaling 3.7 billion soums, were signed between 15 research institutions in the system, higher education institutions, farms, and other clients. During

the reporting period, scientific research conducted by researchers in the sector and related scientific articles were published in 30 international journals, more than 600 local journals, 250 international conferences, and 580 Republican conferences. In addition, 3 international monographs and 135 local monographs, textbooks, training and methodology handbooks have been published.

In addition, in accordance with the Decree of the President of the Republic of Uzbekistan, No. PF-5264, dated November 29, 2021, «On the Establishment of the Ministry of Innovation Development of the Republic of Uzbekistan,» the goal is to promote innovations in agriculture. This decree aims to:

—Propose proposals for the introduction of modern, proven agricultural production methods based on the concept of «Smart Agriculture,» which allows for the rational use of existing land, water, and other natural resources;

—Promote the introduction of innovative ideas, developments, and technologies in the agricultural sector that will allow for maximum automation of agricultural production, a significant increase in productivity, and improvements in financial indicators, ensuring the country's food security;

—Promote the expansion of trade markets and direct deliveries, ensuring the competitiveness of agricultural products in the global market, including to large retailers.

In line with these objectives, the aim is to transform Uzbekistan into a rapidly developing country with a stable market economy that fosters high levels of innovation and intellectual contributions to production, a modern, competitive industry that will participate in the global market, and a favorable investment and business climate. To achieve these goals, it is crucial to establish an effective state support system for innovative activities in Uzbekistan and to adopt an innovative development model that encourages the practical application of innovative ideas, developments, and technologies in public administration, priority sectors of the economy, and the social sector. Furthermore, state regulation and support of innovation processes, as well as the promotion of innovations in agriculture, are crucial for agricultural development.

The application of innovations to the agricultural sector encompasses new approaches to social services used to increase production efficiency, new methods for organizing and managing various sectors of the economy, new methods for the treatment and prophylaxis of livestock and poultry farming, plant and animal protection products, new technologies in agriculture, livestock farming, and the processing industry, research and development of high-quality food products, species and breeds of livestock and poultry farming, and the identification of new plant species. The agro-industrial complex is characterized by the organization of the main types and aspects of innovations, their diversity, forms, and methods of implementation. Therefore, the management of innovation processes involves classifying innovations according to various causes and is carried out according to key aspects that characterize the most important characteristics of innovations.

According to scientific literature sources, there are four types of innovations in agriculture. These are:

- Selection and genetics;
- Technical and technological production;
- Organization and management;
- Solving social and environmental problems.

These innovations are considered crucial for the successful management of innovation processes in the agricultural sector. To increase the efficiency of agricultural production, developing the industry through innovative methods is crucial. To establish an effective mechanism for managing innovation in the agricultural sector, it is planned to establish regional specialized agrotechnical centers in each region of Uzbekistan. Furthermore, it can be argued that accelerated innovation development in agriculture can be achieved primarily by combining the region's scientific, educational, production, and financial potential into a single agricultural innovation complex and by creating economic conditions that encourage innovation in the region.

The main functions of the regional specialized agro-industrial center planned to be established in each region of Uzbekistan include:

- Developing the basic principles of regional innovation policy development in the agro-industrial complex and improving its implementation methods;
- Identifying the main directions of innovative development in agriculture in the region;
- Coordinating the innovative activities of agricultural enterprises;
- Monitoring the agricultural innovation market;
- Providing information and communication support to agricultural enterprises in the field of innovative activities;
- Selecting and preliminary assessment of the potential use of innovations in agro-industrial production;
- Preparing proposals for the development of innovations and providing consulting services for their implementation;
- Monitoring the implementation of agricultural innovations and investment projects receiving state aid (Table 1).

Table 1. Innovative Development Areas of Agriculture in the Region²

Innovations in Agriculture	Expected Results in Agriculture
To introduce new disease-resistant, highest-yielding crop varieties using cellular technology, molecular genetics and traditional breeding methods.	Increasing crop yields and improving grain quality
Adaptation of high-yield agricultural crop varieties from foreign countries to the soil and climate conditions of the region	Reducing costs by introducing new high-yield crops
Development and implementation of new land use and water conservation technologies	Maintaining soil fertility and increasing crop yields
Development and implementation of machinery-saving systems for the complex mechanization of agricultural technological processes	Increasing labor productivity and reducing mechanized labor costs
Development and use of highly effective biological products to combat plant diseases and pests	Increasing productivity and product quality
Innovations in the Livestock Sector	Hayvancılık Sektöründe Beklenen Sonuçlar
Ensuring quality livestock farming in agriculture	Increasing livestock productivity Improving the breed composition of the herd
Adaptation of foreign-origin agricultural livestock farming in the region	Reducing costs by improving the reproductive composition of the herd Increasing livestock productivity
Development and implementation of waste-free technologies in the processing of animal products	Increasing the diversity of food products Reducing production costs
Creation of new resource-saving information systems for the complex mechanization of technological processes in animal husbandry	Increasing labor productivity Reducing product costs
Production of water supply equipment based on the use of renewable natural energy sources	Reducing livestock production costs Increasing environmental safety
Improvement of livestock feeding and nutrition systems	Increasing livestock productivity Improving product quality
Development of new methods for diagnosis, prevention, and treatment of animals	Improving the quality of livestock products Improving the ecological conditions of the region

* Taking into account re-planting and fallow lands.

Measures to optimize the composition of arable land and increase productivity are expected to significantly increase agricultural production in Uzbekistan. In particular, between 2021 and 2024, grain production will increase by 1,195,000 tons, potatoes by 931,000 tons, vegetables by 3,002,200 tons, fruits by 648,600 tons, and grapes by 273,900 tons, laying the foundation for ensuring food security in Uzbekistan.

In the Republic of Uzbekistan, cotton and grain areas decreased by 49,000 hectares and 10,000 hectares, respectively, in 2019. The plan is to allocate 8.1,000 hectares of the reduced acreage to potato production, 27.2,000 hectares to vegetable production, 5.9,000 hectares to intensive horticulture, 2.9,000 hectares to vineyards, 10.9,000 hectares to forage crop production, and 4,000 hectares to oilseed production. These measures are expected to reduce losses from growing cotton and grain on low-profitable land by 80 billion soums, produce an additional 1 million tons of fruit and vegetable products, create more than 48.5,000 new jobs in the regions, increase the number of people employed on these lands to 75.6,000, and double the export volume of both fruit and vegetables (Figure 1).

² Author's own elaboration

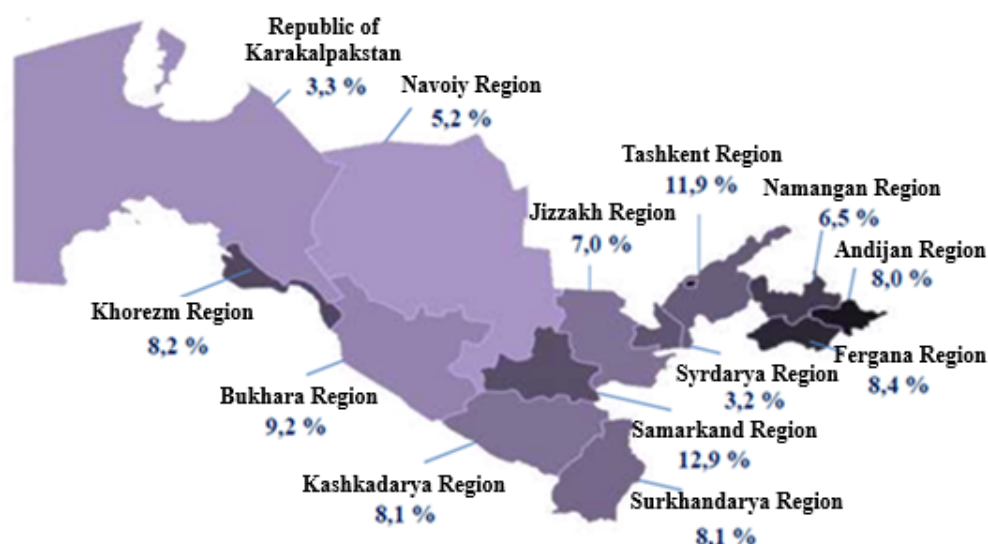


Figure 1. Distribution of Total Volume of Agriculture, Forestry and Fishery Products (Services) by Region³

The Samarkand region holds the largest share of the total volume of agricultural, forestry, and fishing products (services) in Uzbekistan, accounting for 12.9%. Tashkent and Bukhara regions are second and third, accounting for 11.9% and 9.2%, respectively. The Navoi region holds the smallest shares of the total volume of agricultural, forestry, and fishing products (services) in Uzbekistan, accounting for 5.2%, the Karakalpakstan Republic (3.3%), and the Syr Darya region (3.2%).

When data on livestock products produced between January and March 2024 were analyzed by economic category, it was determined that 5.2% of the total meat produced belonged to farms, 87.7% to dehqan and household farms, and 7.1% to organizations engaged in agricultural activities. Furthermore, 6.5% of milk production was carried out on farms, 91.9% by peasant and household farms, and 1.6% by organizations engaged in agricultural activities. Additionally, 17.1% of egg production was carried out on farms, 54.4% by peasant and household farms, and 28.5% by organizations engaged in agricultural activities. Furthermore, 16.7% of wool shearing was carried out on farms, 76.0% by peasant and household farms, and 7.3% by organizations engaged in agricultural activities. In addition, 11.5% of the karakul skins were obtained from farms, 84.0% from peasant and household farms, and 4.5% from agricultural organizations. Finally, it was determined that 37.2% of the fish caught were obtained from farms, 7.3% from peasant and household farms, and 55.5% from agricultural organizations (Figure 2).

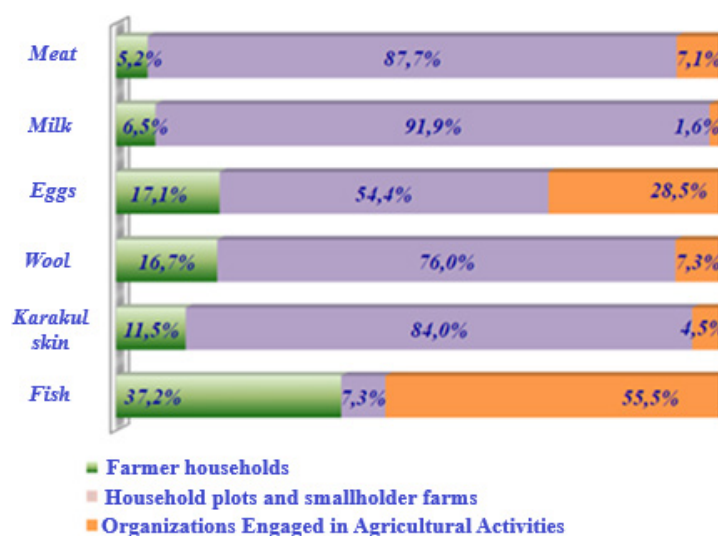


Figure 2. Share of Farm Categories in Main Livestock Products Grown in January-March 2024⁴

³ Author's own elaboration

⁴ Author's own elaboration

A Dehqan farm is a farm that grows and sells agricultural produce on a plot of land granted to the head of the Dehqan farm on the basis of hereditary lifetime ownership or lease (sublease) based on the labor of the members of the Dehqan farm. The primary objectives of the Dehqan farm are to develop intensive horticulture and viticulture by planting high-yielding, early-maturing dwarf and semi-dwarf trees based on modern agricultural technologies, and to increase the production of export-oriented fruit and vegetable crops that are in demand in global markets.

Seed breeding and variety selection play a crucial role in increasing the productivity of agricultural crops. According to the Ministry of Agriculture and Water Resources of the Republic of Uzbekistan, during the years of independence, Uzbek scientists conducted extensive research on the creation of new varieties of fruit, mulberry, walnut, subtropical plants, citrus plants, and grapes, examining local and introduced varieties, developing care technologies, and introducing them into production. As a result, for the first time in Central Asia, the selection of seed, mulberry, and walnut crops was established through selection, laying the foundation for the creation of new varieties. As a result of many years of scientific research, more than 170 fruit and grape varieties have been produced, approximately 80 of which are registered in the State Register. Currently, 709 varieties of fruit, vegetables, potatoes, and melons are registered in the State Register; 189 of these are local varieties and 520 are foreign varieties (Table 2).

Table 2. Fruit, Vegetable, Melon and Potato Varieties Registered in the State Register of the Republic of Uzbekistan⁵

Indicator	Total	Content	
		Local Varieties	Foreign Varieties
Type of crop varieties	709	189	520

One of the most important issues in agricultural innovation in recent years is the expansion of research and development efforts to create agricultural crop and animal breeds suitable for Uzbekistan's soil and climate conditions and resistant to drought, salinity, heat, and disease. From an agricultural perspective, one of the most important challenges today is the development of early-maturing, high-yielding agricultural crop varieties suitable for various soil and climate zones, based on gene knockout biotechnologies, and the elimination of their negative impacts on consumer health. Furthermore, the modernization and rapid development of the livestock sector is an important component of the overall development of the agricultural sector. In the Republic of Uzbekistan, with the decision dated December 29, 2021 and numbered PQ-2460 "On measures for deepening and developing agricultural reform in 2021-2023", it was planned to increase the number of cattle by 3,165 thousand head, the number of sheep and goats by 4,281 thousand head, and the number of poultry by 31,200 thousand head in 2021-2024. Accordingly, it is aimed to increase the volume of meat production (in live weight) by 519.0 thousand tons, milk by 4,177.0 thousand tons, fish by 90.0 thousand tons, honey by 13.7 thousand tons, and eggs by 4,100.0 million units in these years (Table 3).

Table 3. Forecast Indicators for Increasing Livestock Production in the Republic in 2021-2024⁶

Indicators	2024	Estimated Indicators					Changes for the 2021-2024 Period	
		2019	2020	2021	2022	2023	+ , -	%
Number of animals (thousand head)								
Cattle	11 635	12 150	12 720	13 350	14 050	14 800	+ 3 165	127,2
Sheep and goats	18 906	19 600	20 380	21 240	22 170	23 187	+ 4 281	122,6
poultry	60 800	64 600	69 500	75 500	83 000	92 000	+ 31 200	151,3
Livestock production (thousand tons)								
Meat (live weight)	1 981	2 060	2 150	2 260	2 375	2 500	+ 519	126,2
Milk	8 823	9 478	10 242	11 075	11 957	13 000	+ 4 177	147,3
Eggs, million pieces	3 500	6 200	6 900	7 700	8 600	9 600	+ 4 100	274,3
Fish	60	75	90	110	130	150	+ 90	250,0
Honey	9,3	11,0	13,0	15,5	19,0	23,0	+ 13,7	247,3

⁵ Author's own elaboration

⁶ Author's own elaboration

In addition, the reclamation and improvement of irrigated lands constitutes a key factor in agricultural development. Approximately 50% of the existing irrigated arable land in Uzbekistan is saline to some degree. In recent years, large-scale state programs have been implemented to improve the reclamation of irrigated lands. In this context, new crop irrigation technologies have been tested in some regions of Uzbekistan, and their use is being proposed. According to the “State Program of the Republic of Uzbekistan for Improving the Reclamation of Irrigated Lands and the Rational Use of Water Resources 2021-2024,” the implementation of modern innovative irrigation methods is planned for a total area of 104,600 hectares in 2021-2024. According to the data of the Ministry of Agriculture and Water Resources of the Republic of Uzbekistan, in 2021-2024, a total of 47,356.0 hectares of cultivated land were irrigated using drip irrigation technologies, 19,214.0 hectares were irrigated by laying polyethylene film on the parcels, and 18,418.0 hectares were irrigated with portable flexible pipes.

The construction of new processing plants equipped with the most modern high-tech equipment for the production of semi-finished and finished food and packaging products based on deep processing of agricultural products, as well as the implementation of investment projects for the reconstruction and modernization of existing ones, are considered promising development areas for Uzbekistan.

In accordance with the decision No. PQ 2505 dated March 5, 2021, “On measures to further develop the raw material base of fruits, vegetables, meat and dairy products, deepen their processing and increase the production and export of food products in 2021-2024” in Uzbekistan, it is planned to implement a total of 180 investment projects with a total value of 595,886.3 thousand US dollars for the establishment of new enterprises for the deep processing of agricultural products and the restructuring and modernization of existing ones (Table 4).

Table 4. Costs of Investment Projects for the Establishment of New Enterprises, Reconstruction and Modernization of Existing Enterprises for Deep Processing of Agricultural Products in 2021-2024⁷

Names of initiators and designers	Total cost of projects	Funding sources included:		
		Equity Resources	Bank Loans	Foreign Investment and Loans
Total (180 Projects)	595 886,3	242 916,7	189 461,6	163 508,0
Contents				
New Construction (141 Projects)	463 267,3	169 714,7	144 324,6	149 228,0
Restructuring and modernization (39 projects)	132 619,0	73 202,0	45 137,0	14 280,0

In accordance with the said decision, 138 new enterprises with a capacity of 99 thousand 100 tons were put into operation in the field of fruit and vegetable processing between 2021 and 2024, 46 new enterprises with a capacity of 16 thousand 500 tons in the field of meat processing, 79 new enterprises with a capacity of 34 thousand 850 tons in the field of milk processing, and 153 new enterprises with a capacity of 26 thousand 840 tons in the field of other food processing. As a result of the implementation of systematic measures for the in-depth processing of agricultural products, in 2021, compared to 2018, it is planned to achieve a 79.4% increase in the volume of canned fruit and vegetables, 80.5% in fruit juices, 73.1% in dried fruits, 59.5% in meat and meat products, 68.8% in sausage products, 56.6% in milk and dairy products, 51.4% in butter, 59.9% in confectionery products, 57.2% in vegetable oil, 24.0% in sugar, 2.5% in cheese, 2.4% in canned meat, 3.4% in fish products, and 2.8-fold increase in frozen fish.

CONCLUSIONS AND SUGGESTIONS

With the implementation of the above measures, significant developments are expected in the agricultural sector. In this context, it is crucial for smallholder farms and livestock-based businesses, currently in the form of individual subsidiaries, to establish new production methods, such as associations, unions, or cooperatives, to establish a mechanism for the organized production of agricultural products and the implementation of innovations in agricultural enterprises.

However, the current production structure is based on low-yield livestock farming and manual labor using outdated equipment. Therefore, to further develop livestock farming and fully meet the Uzbek people's need for livestock products, it is necessary to develop methods to encourage dehkan (personal assistant) farms. As is

⁷ Source: Compiled based on data from Uzbekozirgovkatholding PE

well known, the most important input in the livestock sector is feed. Feed production constitutes one of the main problems faced by dehqan (personal assistant) farms today. To increase the number of animals on dehqan (personal assistant) farms, it is crucial to allocate sufficient arable land and pastures to them and provide them with opportunities to purchase various feeds (kunjara, shulkha, bran, etc.) to increase their productivity. In this context, dehqan (private subsidiary) farms should be given the opportunity to purchase feed for their livestock directly from feed producers, rather than through intermediaries (farms, agricultural enterprises, or other state-owned enterprises). This will align the prices of livestock products, including meat and meat products, milk, and dairy products, in the markets with the capabilities of consumers. In addition, it is extremely important to establish enterprises for the processing of wool, which is considered the most valuable product in animal husbandry.

List of used literature:

1. O'zbekiston Respublikasi Prezidentining 2017-yil 9-oktabrdagi "Fermer, dehqon xo'jaliklari va tomorqa yer egalarning huquqlari va qonuniy manfaatlarini himoya qilish, qishloq xo'jaligi ekin maydonlaridan samarali foydalanish tizimini tubdan takomillashtirish chora-tadbirlari to'g'risida"gi PF-5199-son Farmoni. <https://lex.uz/docs/-3371644>
2. O'zbekiston Respublikasi Prezidentining 2019-yil 23-oktyabrdagi "O'zbekiston Respublikasi qishloq xo'jaligini rivojlantirishning 2020 — 2030-yillarga mo'ljallangan strategiyasini tasdiqlash to'g'risida"gi PF-5853-son Farmoni. <https://lex.uz/docs/-4567334>
3. O'zbekiston Respublikasi Prezidentining 06.07.2022 yildagi "2022 — 2026-yillarda O'zbekiston Respublikasining innovatsion rivojlanish strategiyasini tasdiqlash to'g'risida"gi PF-165-son Farmoni. <https://lex.uz/docs/-6102462>
4. O'zbekiston Milliy ensiklopediyasi. 4-con. 179-bet.
5. А.Дыжова "Основы управления интеллектуальной собственностью". Могилев- 2017.-117с.
6. В.И.Комилjonov "Innovatsiyaviy menjment uslublarini takomillashtirish" O'quv qo'llanma. 2017 y.
7. Санто Б. Инновация как средство экономического развития: Пер. с венг./ Общ. ред. и вступ .ст. Б.В.Сазонова. – М.: Прогресс, 2021. – 296 с.
8. Абдуллаев Р.В., Хасанджанов К.А. Инновационное обновление экономики – основа её модернизации и конкурентоспособности // Иқтисодийни модернизациялаш стратегияси: муаммолар ва инновацион ривожланишга ўтиш йўллари. Республика илмий-амалий анжумани маъруза тезислари тўплами. Тошкент, 2021. –Б. 24.
9. 12.Стратегия социально-экономического развития агропромышленного комплекса Российской Федерации на период до 2020г. (научные основы). Российская академия сельскохозяйственных наук. М., 2020. URL: <http://www.vniiesh.ru>
10. У.М.Умурзоқов, А.Ж.Тoшboев, "Fermer xo'jaliklari iqtisodiyoti". Т.: Toshkent. 2019 yil.
11. Ушачев И. "Научное обеспечение государственных программ развития сельского хозяйства России". – М.: 2022. – 9 с.
12. Chariev K.A. "Xorijiy davlatlar qishloq xo'jaligida innovatsion faoliyatni rag'batlantirish mexanizmlari va ulardan foydalanishga doir uslubiy tavsiyalar" UzBIITI Toshkent-2021 y — 34 b.

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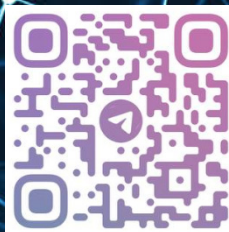
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